

# CITIES AND SOCIAL EQUITY

Inequality, territory and urban form

Detailed Report



URBAN AGE SOUTH AMERICA  
SÃO PAULO  
RIO DE JANEIRO  
BUENOS AIRES  
BOGOTÁ  
LIMA





# CITIES AND SOCIAL EQUITY

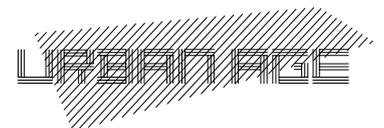
## Detailed Report

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Urban Age is a worldwide investigation  
into the future of cities.

Organised by the Cities Programme at the  
London School of Economics and Political  
Science and the Alfred Herrhausen Society,  
the International Forum of Deutsche Bank.

left

A diverse mix of Paulistanos crowd  
the bustling commercial area  
surrounding 25 de Março Avenue.  
Among the nearly 19 million  
residents in the Metropolitan Region  
are the largest Lebanese population  
outside of Lebanon, the biggest  
Japanese community outside of  
Japan, and the third largest Italian  
city outside of Italy after Buenos  
Aires and New York City.

*Tuca Vieira*

cover

Morumbi and Paraisópolis in São  
Paulo create extreme proximity  
between rich and poor.

*Nelson Kon*



THE LONDON SCHOOL  
OF ECONOMICS AND  
POLITICAL SCIENCE ■

**Alfred Herrhausen Society**  
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The summary report and a complete listing of data sources is available at [www.urban-age.net](http://www.urban-age.net).

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ALYS  
AYNRA  
KOX

# 1 INTRODUCTION

left

In Rocinha, the largest favela in Brazil located on the hillside of Rio de Janeiro, there is an active tradition of providing for one's own urbanity according to informal and organic interventions.

*Dante Busquets*

## 1.1 SÃO PAULO, SOUTH AMERICA AND THE URBAN AGE

São Paulo, South America's pre-eminent metropolis, is a city of the 20<sup>th</sup> Century. 100 years ago, its population was less than 300,000; today the municipality has a population of 10 million, with 18 million living in the wider São Paulo Metropolitan Area. São Paulo is a true global city, with a diverse population, a thriving commercial centre and a cultural vitality encompassing music, film, architecture and visual arts.

The Urban Age is an international programme of research projects and conferences investigating the future of cities. The programme, a joint initiative of the London School of Economics and Political Science, and Deutsche Bank's Alfred Herrhausen Society, takes an explicitly interdisciplinary approach to consider the future of cities, and aims to develop and foster dialogue between academics, politicians, policy makers and those responsible for managing and shaping our cities from day to day.

Beginning in New York in 2005, and travelling to Shanghai, London, Johannesburg, Mexico City, Berlin and Mumbai, the Urban Age has explored – through international and interdisciplinary conferences, through data analysis and through interviews with leading urban experts and city managers – some of the world's most important, diverse and dynamic cities.

In 2008, the Urban Age focused on South America and on assessing the impact of inequality in an urban context. To stimulate debate among politicians and academics, the Urban Age research team undertook comparative research, data collection in five cities – São Paulo, Rio de Janeiro, Bogotá, Buenos Aires and Lima – but focused most closely on São Paulo, where the research projects that make up this report were commissioned, and where their findings were discussed at the Urban Age South America conference in São Paulo in December 2008.

## 1.2 SOUTH AMERICA AND INEQUALITY

Like other South American cities, São Paulo is a city of stark contrasts, a city where cultural vitality and economic growth sit alongside intense poverty and high crime rates. It is a city where the image of helicopters hovering over favelas has become an internationally familiar – even clichéd – signifier of polarisation. São Paulo may exhibit inequality on a greater scale than other South American cities, but the problems can be seen throughout the continent. Economic growth has enhanced living standards across the continent; Brazil, Argentina, Peru and Colombia are now all in the top 50 per cent of countries, according to the Human Development Index,<sup>1</sup> and Brazil is now grouped with Russia, India and China (the “BRIC” economies) as a rising economic powerhouse.

But the fruits of economic growth have not been equally distributed, and Latin America and the Caribbean also exhibit some of the highest levels of inequality in the world: the top five per cent of the region's population receives 25 per cent of national income, as opposed to South East Asia, where they receive 16 per cent and developed countries where they receive 13 per cent.<sup>2</sup>

The ‘Gini co-efficient’, which measures the extent of inequality in wealth distribution, puts Brazil, Argentina, Peru and Colombia in the 20 per cent most unequal societies.<sup>3</sup> Cities are dynamic environments, and such places are likely to exhibit inequality, especially as their economies develop and attract migrants from rural areas. But not all developing countries or developing world cities exhibit the acute levels of inequality that many South American cities and states do: among other Urban Age cities, only Johannesburg exhibits higher levels of inequality.

Such pervasive inequality can have malign impacts, especially when it is concentrated spatially – when a city is divided between the fortified gated developments and the heavily-patrolled shopping malls enjoyed by the rich, and the sprawling informal settlements, lacking even basic infrastructure, occupied by the poor. The UN's Habitat Programme, in a 2008/09 report on the world's cities,<sup>4</sup> sets out the scale and potential impacts of this polarisation: inequality can promote social unrest (thereby diverting funds from social programmes to security services), as well as undermining civil society and damaging economic prosperity by reducing incentives for participation in the formal economy.

1 Data downloaded from <http://hdr.undp.org/en/mediacentre/news/title,15493,en.html>

2 *State of the World's Cities 2008/2009 – Harmonious Cities*, United Nations Human Settlements Programme 2008

3 Data downloaded from <http://hdrstats.undp.org/indicators/147.html>

4 *State of the World's Cities 2008/2009 – Harmonious Cities*, United Nations Human Settlements Programme 2008

### 1.3 SÃO PAULO: SOUTH AMERICAN METROPOLIS

São Paulo was established in the 16<sup>th</sup> Century as a Jesuit mission, and its first period of intense growth was as a coffee exporter, in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. This vital role as a trading city, occupying space alongside two major rivers, between fertile agricultural land and Santos, South America's largest port, also attracted the first waves of immigrants, laying the foundations for the diversity that would soon become one of São Paulo's defining features.

São Paulo's second surge of growth came with industrialisation, and became most intense between 1950 and 1980, when the city's GDP increased tenfold and its population quintupled. During the financial crises of the 1980s and 1990s, continuing population growth led to a 20 per cent fall in GDP per head, and to dramatic rises in unemployment (which has begun to fall again since 2000).<sup>5</sup> At the same time, São Paulo's economy has begun to de-industrialise, and to shift its balance to the services sector. Today, the city is responsible for around 20 per cent of Brazil's GDP.

São Paulo's economic geography has changed too. The city's central business district has gradually moved to the south west over the past century, from the old central district around Praça da Sé, to Avenida Paulista and the Jardim Paulista district, to the new high-value business and residential developments alongside the River Pinheiros. This has left the central district relatively depopulated, especially in the evenings, with the attendant problems faced by 'hollowing

out' cities across the world – relatively high levels of crime and self-reinforcing fear of crime.

As the centre has shifted, informal favelas have grown up, both in pockets of occupied land near the city centre (like Paraisópolis, which is located alongside Morumbi, one of São Paulo's wealthiest neighbourhoods), and around the periphery of São Paulo, where they also exist alongside huge social housing projects like Cidade Tiradentes. In many cases, these peripheral favelas are in environmentally sensitive locations (e.g., on the banks of the southern reservoirs that are crucial to São Paulo's water supply), thereby creating enforcement dilemmas for politicians and policy makers.

These extremes are not, of course, the whole story, but São Paulo does in places exhibit intense polarisation between informal settlements and single-tenure social housing developments on the one hand, and pockets of wealth – gated, fortified and patrolled – on the other. Given the scale of the city – São Paulo Metropolitan Area extends over nearly 8,000 square kilometres – and the traffic congestion that clogs the city's streets and makes daily journeys from the outskirts to the centre lengthy if not impossible, these different São Paulos can seem very remote from each other.

In recent years, many of São Paulo's problems have been laid bare through the Cidade Limpia ("clean city") policy, which mandated removal of the visual pollution of billboards and neon signs from the city's buildings. But, as Mayor Gilberto Kassab explained at the Urban Age South America conference, the programme has also strengthened civic pride: "citizens have discovered their own city. They have recovered their self esteem and the fact that they are proud living here."

<sup>5</sup> *The stop of the city that could not stop*, Andre Urani presentation to Urban Age Workshop, April 2008

below

As in many other world cities, in São Paulo one will find modern buildings, services and goods, high-tech commercial and entertainment centres, and modern hospitals and health services.

Tuca Vieira



### Understanding urban inequality – the research projects

Poverty and inequality are persistent problems for South America, but civic leaders in South America are also at the forefront of seeking solutions. In doing so, many draw a distinction between conditions of material inequality, that is to say inequality of income and private wealth, and social inequality, which lies in unequal access to the rights, opportunities and benefits that can be realised from civic life and public amenities – from public transport, health and education to public space for recreation.

While most modern politicians reject the extensive redistribution of wealth that would be needed to address material inequality over short timescales (which would in any case be reserved to national governments), civic leaders can and are taking the opportunity to redress social inequality by providing the social infrastructure that previous regimes had neglected.

In a modern city like São Paulo, inequality has an impact on every aspect of urban life. Spatial polarisation means that different sections of society have dramatically different experiences of the city. Crime is concentrated in poorer districts, new developments promote isolation rather than integration, and poor transport links re-enforce isolation from economic, cultural and social opportunities that city life can afford.

To understand the patterns of inequality in São Paulo and other South American cities, to analyse its impacts on different groups and spheres of urban life, and to consider how public policy instruments could make a difference, Urban Age initiated the five research projects presented in this report. Three of these projects were commissioned to São Paulo-based research teams. Two one-week seminars, one in São Paulo in April 2008 and one in London in August 2008 facilitated the development of all research strands and ensured collaboration across the all subjects.

Chapter 2, *Cities Compared*, draws together the research undertaken by the Urban Age research team in the five South American cities, and presents comparisons with other Urban Age cities in Asia, Africa, Europe and North America where appropriate. The cities were assessed in terms of their administrative geography, their population density contours and urban form, their transport systems and movement patterns, and their workforce and economy.

Chapter 3, *Inequality, Territory and Urban Form*, provides an overview of the different aspects and ways of interpreting inequality, then presents a ground-breaking spatial analysis of patterns of inequality within the five South American cities. The Urban Age research team used educational attainment data collected by census tract as a proxy for socio-economic status. Mapping these data on GIS systems, the team undertook a series of analyses looking at key indices including dissimilarity, diversity, isolation and exposure. This was followed by a closer investigation at the neighbourhood scale, assessing the relationship between patterns of exclusion and building typologies of cities.

Chapter 4, *Urban Age City Survey*, is based on 1,000 face-to-face interviews undertaken by Ipsos MORI for the São Paulo metropolitan region in June 2008. The survey addressed residents' views on the best and worst things about living in São Paulo, satisfaction with public services and infrastructure, views on civic government, experience of and responses to violence, experience of transport and views on transport policy. These views were compared both with the views of experts and opinion-formers interviewed by the Urban Age team, and with the findings of a similar survey undertaken annually in London.

The survey found significant similarities in views on the attractions of living in a world city: the range of shops and job opportunities were cited as the cities' most attractive features on both sides of the Atlantic. But there were differences too: for Paulistanos, health services and transport services are major concerns, while Londoners focus on traffic and the cost of living. In both cities, crime is a major issue, with similar proportions of the population expressing concern, despite a considerable difference in crime levels – for example, the homicide rate in London is less than one-tenth that in São Paulo.

São Paulo's expert opinion agreed that crime was an important issue, but, for most experts, crime was overshadowed as a challenge by transport and housing, with planning and downtown revitalisation also featuring as significant concerns. This perhaps reflects the extent to which traffic congestion has grown worse in recent years, thereby rising up the policy agenda (while crime rates have fallen).

Despite high levels of fear of crime in London, interviewees' actual experience is very different in São Paulo: more than 50 per cent of respondents

in São Paulo had direct (personal or family) experience of robbery and 47 per cent knew someone who had been murdered.

Despite the spatial concentration of crime within favelas, fear of crime was more closely related to education level, gender and personal experience than it was to residence (and therefore to actual risk). Most Paulistanos argued that a more visible police presence on the streets and tougher penalties for young offenders would be most effective in tackling crime, though many also argued that relatively low cost interventions like improved street lighting would also help.

More than 80 per cent of those polled in São Paulo said that they would buy a car if they could afford one, and use it for daily journeys, though residents also identified expansion of rail and bus networks as more important policies than more road building, and 80 per cent also said that they would change their mind and use public transport if provision improved. There was limited support for measures such as congestion charging, though support rose when the potential positive impacts of such schemes were outlined and more generally, 72 per cent agreed with policies aiming to reduce car use and increase the share of public transport, walking and cycling.

Chapter 5, *Safe Spaces, Safe City: Modes of Living in São Paulo*, looks in more detail at the spatial articulation of crime and personal safety in São Paulo, at the relationship between crime and social segregation, and at the different ways in which 'safe spaces' are created in different neighbourhoods.

The São Paulo-based research team, led by Paula Miraglia and Eduardo Marques and comprising researchers from the United Nations' Latin American Institute for the Prevention of Crime and the São Paulo's Centre for Metropolitan Studies, undertook a comparative study of crime rates in five different neighbourhoods in São Paulo, ranging from the prosperous Jardim Paulista to Jardim Ângela, once notorious as the homicide capital of the world.

All these areas had seen a dramatic fall in homicide rates since 2000, variously attributed to improvements in policing, reduced availability of firearms, the work of non-governmental organisations and churches, and the resolution of territorial disputes between rival gangs. The team then selected two of the neighbourhoods for in-depth study: centrally-located Jardim Paulista and Cidade Tiradentes (a social housing complex

30 kilometres east of the city centre). Through interviews with local residents and observation of how local people used public space, the team identified the different strategies underpinning improvements in public safety, and their implications for creating a safe city as well as safe spaces.

The research team found that Jardim Paulista had sought to reduce crime through defensive design and social interventions that intensified its homogeneity. Measures included widening pavements and re-phasing traffic lights to reduce through traffic and create a better pedestrian environment, building up defences around buildings, and removing from its streets those beggars and street vendors seen by local residents as threats to peace and safety. In an allegory used by a local residents association, neighbourhoods like Jardim Paulista could protect their residents by creating "true islands of peacefulness within an inflamed territory".

Cidade Tiradentes, on the other hand, had become more heterogeneous. The cessation of gang hostilities had been accompanied by a gradual transformation of the district from a mono-cultural social housing project lacking even basic shops, to a more mixed neighbourhood, with improved shopping and transport links, and the patterns of sociability and connection that make more cohesive and secure conditions. The presence of shops and services, improved street lighting and more active streets have made for safer places. In the words of one resident, "criminals don't like movement".

While the tactics of physical and social exclusion of 'undesirables' from rich neighbourhoods creates localised 'safe places', Paula Miraglia and Eduardo Marques argue that such interventions are short-sighted, and do nothing to improve the overall security of the city. Indeed, when matched with heavy-handed policing, they can boost the sense of alienation and exclusion that can provide fertile ground for breeding criminal behaviour: "either the entire city is safe, or no one is."

Chapter 6, *Mobility, Integration and Accessibility*, reports on a research project led by Ciro Biderman, Professor at the Centre for the Study of Policy and Economics of the Public Sector at Fundação Getúlio Vargas. Reviewing the São Paulo Integrated Urban Transport Plan (PITU 2025) against the backdrop of the systemic problems in São Paulo's transport provision, the



team make their own proposals, based on a more fundamental reconsideration of whose interests transport policy is designed to serve, and illustrate these through a case study based on re-defining the urban function of the Elevado Costa e Silva, a 3.4km-long elevated express way in the centre of São Paulo.

The team observed that, while car-based commuting had grown in São Paulo, it remained lower than in London and Berlin; the time was right to create a viable and extensive alternative to continuing car growth. Fiscal and physical constraints meant that this should be based on a bus rapid transit (BRT) system rather than metro rail.

The team's plan would increase the total length of bus corridors, commuter rail and metro rail by three times, to create a network longer than New York's, at 1,100 km, and one that would complete critical orbital routes around the city, thereby enabling more diverse travel patterns. This would be achieved at a per kilometre cost one-tenth that of subways.

The team estimate that their proposals would reduce cars' share of passenger kilometres from 36 per cent in 2025 (the 'do nothing' scenario), to 24 per cent (or as low as 16 per cent if accompanied by congestion charging). Buses' share would

rise from 32 to 35 or 43 per cent under the same scenarios.

But the advantages of BRT over metro systems are not just about cost. Professor Biderman argues that BRT systems have a more profound impact on travel patterns, by taking away road space that was seen as the entitlement of private car users. Given the higher incidence of private car use among richer people and reliance on buses by poor people, this re-allocation would promote social justice and equity (especially when combined with the wider reach of the BRT-based system).

To illustrate the social changes that could be achieved by rethinking the priority accorded to different road users, the team undertook an in-depth case study on the Minhocão (or 'Elevado Costa e Silva' to use its proper name), a 3.4km-long elevated express way in the centre of São Paulo. Reconfiguring the Minhocão, so that only buses, pedestrians and cyclists could use the privileged space along the expressway, with bus stops integrated with metro stations, could offer a way to create a better and more mixed urban environment in the local areas, if balanced with creative and consistent use of planning tools (to avoid wholesale displacement of poorer residents).

above

A view of São Paulo before the Cidade Limpa (Clean City) project took its course. The success of the project is evidence that even small interventions can have strong impact on Paulistanos and their view of their city.

Tuca Vieira



Chapter 7, *Steering Regeneration in Cities*, researched by Nadia Somekh and Carlos Leite from the Mackenzie Presbyterian University, reviews the processes and practices used to regenerate urban areas in São Paulo and other developing world cities, the ideology that underpins them and the way in which they could be reconfigured to deliver benefits to a wider population and to promote social justice. Focusing in on a nine square kilometre area of the regeneration axis known as ‘Diagonal Sul’, the core team also worked with private sector partners to develop a new model for inclusive urban regeneration within São Paulo. The Chapter also includes an annex reviewing the evolution of public-private regeneration partnerships in the UK.

In São Paulo, the team argues that, as in other developing cities, the challenge of attracting and channelling investment is exacerbated by the widespread availability of sites (including more profitable ‘greenfield sites’), and by patterns of displacement and gentrification that undermine any social benefits that such projects might realise. Competition for investment from greenfield sites means that the incentives or tax breaks that have to be offered to bring investment to a deteriorating inner city area have to be increased,

thereby increasing the cost to the public purse overall.

São Paulo had, the team argue, “failed to deliver an effective and democratic urban vision”. Piecemeal interventions risked displacing and eroding existing social and urban fabric, rather than realising social benefits. Brazilian cities need “a more subtle and sophisticated approach, based on a collective effort and broad participation, which aims to promote local development and social inclusion”.

This new approach would be based on a clear metropolitan plan, underpinned by extensive community and municipal participation, and public-private partnership. New delivery and funding mechanisms should include new local regeneration agencies, which could act as ‘honest brokers’, independent of either the public administration or private interests, promoting dialogue between these partners and civil society, and focused on securing project funding and delivering results. The strategic masterplan prepared for Diagonal Sul shows how these principles can be applied in practice.

Chapter 8 identifies some of the implications of the Urban Age South America research programme and conference for policy and practice across the world.



## 2 CITIES COMPARED

below

Beyond the city centre, the panoramic view from the Christ the Redeemer Statue takes in Sugarloaf Mountain, the beaches of Copacabana and Ipanema, as well as several of the city's favelas.

*Dante Busquets*

**CHAPTER 2 – CITIES COMPARED**  
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## 2.1 URBAN SOUTH AMERICA

During the second half of the 20<sup>th</sup> Century, the combined population of the five Urban Age South American cities more than quadrupled, as their economies industrialised. Economic crises stalled economic growth in the 1980s, but migration continued, leading to high levels of unemployment and growing inequality. In the 1990s, as the policies of economic and political liberalisation were introduced to remedy structural flaws in many South American economies, the seeds of economic recovery were sown, but levels of inequality continued to rise.

This pace of growth, combined with political and financial instability, has created dynamic but sprawling cities, with low levels of spatial planning and public investment, and extensive informal settlements in peripheral locations. Poor public transport accessibility has reinforced the isolation of many of these informal settlements, institutionalising patterns of inequality into cities' urban fabric.

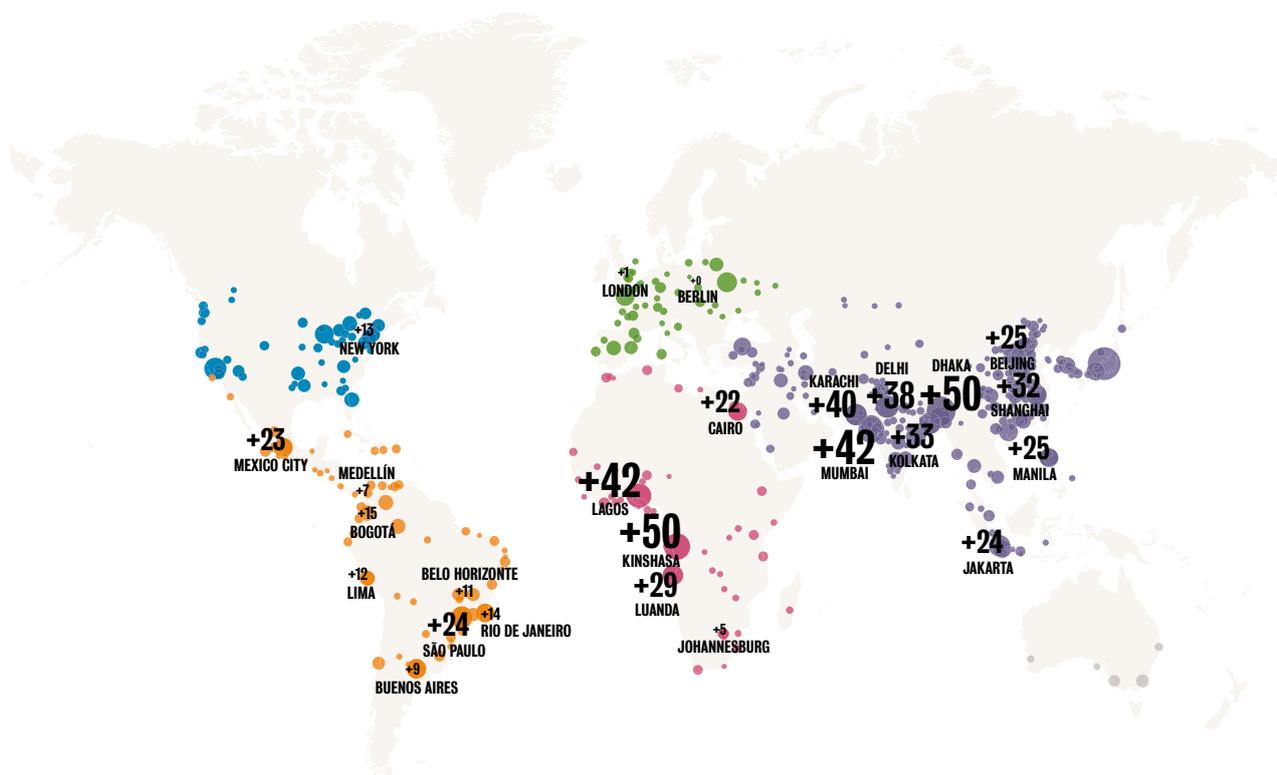
In responding to the problems posed by this legacy, however, a new generation of South American civic leaders have been at the forefront of urban innovation in recent years, creating new approaches to meeting the challenges of urban growth in times of fiscal constraint and starting from a baseline of limited scope for state intervention.

In their approach to transport investment, for example, cities like Curitiba in Brazil and Bogotá in Colombia have eschewed the expensive and technologically complex option of seeking to 'retrofit' developed cities with underground railways, and have instead created a hybrid mode of bus-based rapid transit systems, which run on segregated roadways, thereby offering speed and ease-of-use similar to metro systems at a fraction of the cost.

below

This world map shows the population growth per hour projected through 2015 in some of the fastest growing cities with more than one million people.

Source: *Urban Age*



## 2.2 SOUTH AMERICAN CITIES COMPARED

Every hour, the five Urban Age South America cities grow by a total of around 74 people. This rate is slower than it was before 1980 in South America, and is slower than that experienced today in some Asian and African megacities – Mumbai alone adds 42 people per hour – but it is nonetheless significant in a continent that already has the highest levels of urbanisation in the world.

### 2.2.1 Urban footprint and administrative geography

Across the world, accelerating urbanisation has opened up a gap between administrative geography and the functional extent of cities, between municipal boundaries and the places where citizens actually live and work. In the case of Shanghai, the urban boundary includes extensive areas of agricultural land, but more commonly the problem is one of urbanised areas falling within different administrations. In extreme cases, like Buenos Aires, less than 25 per cent of the population of the conurbation is actually under the administration of the municipal government.

This mismatch can have practical and political consequences. In Bogotá, for example, the city's boundaries are seen as undermining social cohesion and the city's tax base, as richer people migrate to suburbs within different municipalities, attracted by lower tax rates and – in some cases – more permissive planning regulations. Urban growth can also lead to under-representation of cities and their interests at the level of national governments: São Paulo accounts for 20 per cent of Brazil's population, but only 13.5 per cent of National Assembly and four per cent of Senate seats.

As Eduardo Rojas, Principal Urban Development Specialist at the Inter-American Bank told the conference, the gulf between administrative and functional geography can undermine the relationship between citizens and the state: “cities ... right now have functionally fragmented metropolitan structures and lack a lot of the institutional arrangements needed to co-ordinate action.”

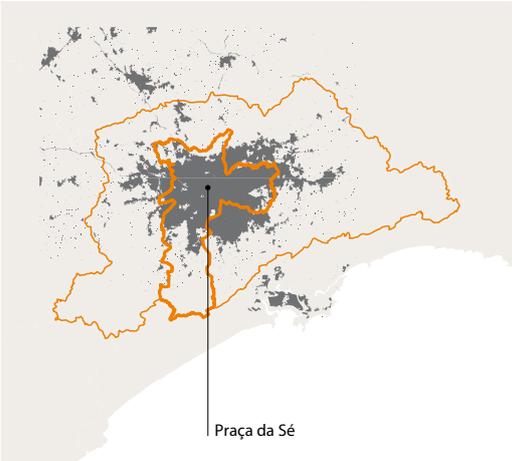
		Area (km <sup>2</sup> )	Population (2005)	Administrative units
<b>São Paulo</b>	city	1,525	10,886,518	31 subprefeituras
	metro	7,944	19,226,426	39 prefeituras
<b>Rio de Janeiro</b>	city	1,261	6,093,472	18 subprefeituras
	metro	5,724	11,563,302	20 prefeituras
<b>Buenos Aires</b>	city	203	3,018,102	15 comunas
	metro	3,839	12,198,207	24 partidos
<b>Bogotá</b>	city	1,775	6,840,116	20 localidades
	metro	3,732	8,074,212	18 municipios
<b>Lima</b>	city	2,665	6,924,547	43 distritos
	metro	2,794	7,765,115	49 distritos

Administrative geography  
Source: Urban Age research

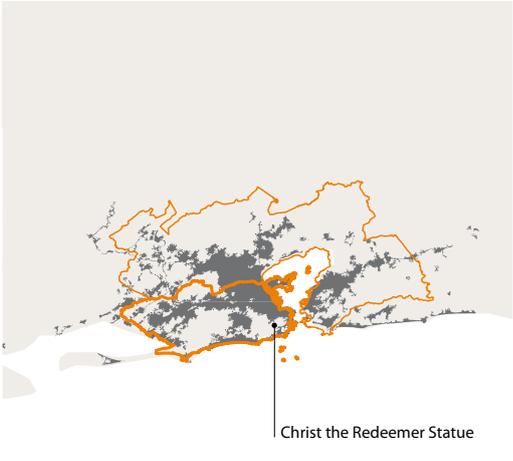
Urban footprint

- Built-up area
- Metropolitan region
- Administrative city

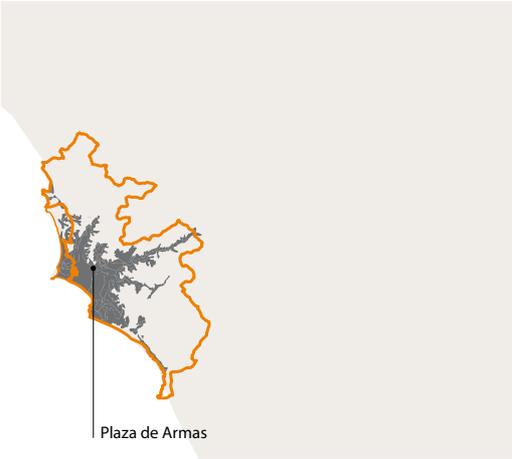
Source: Urban Age research



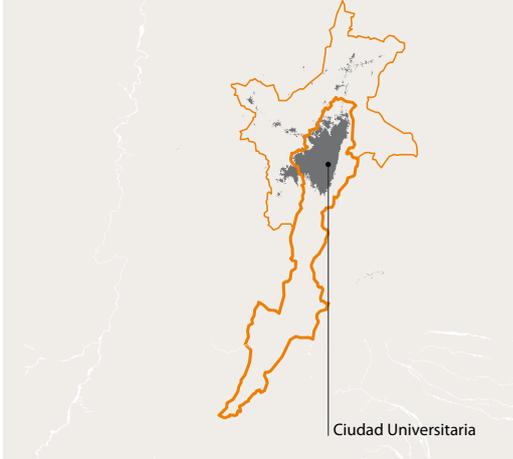
SÃO PAULO



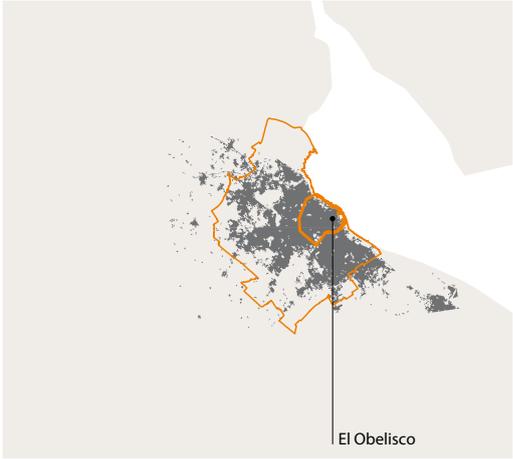
RIO DE JANEIRO



BUENOS AIRES



BOGOTÁ



LIMA

### 2.2.2 Density and urban form

Despite their rapid growth, many of the Urban Age South America cities nonetheless retain their characteristic urban character, the street patterns and replicating clock formations that form the DNA of urban expansion seen within these ‘figure ground’ diagrams. Bogotá, Lima and Buenos Aires have more European block-type layouts, with clearly defined streets, while São Paulo’s prosperous Jardim Paulista district is characterised by relatively isolated high-rise blocks, set apart from the urban grid, and Rio de Janeiro by a mix of irregularly-shaped apartment blocks and favelas on higher ground behind Copacabana Beach.

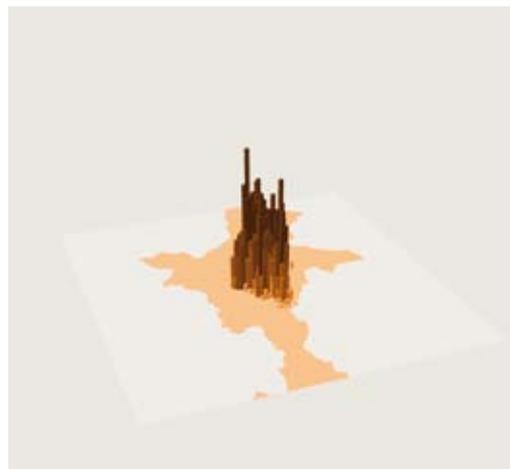
Among other Urban Age cities a similar diversity can be observed, from the New York City’s and Berlin’s highly regular block

formations, to the more open-textured patterns of Johannesburg and Shanghai, the grand 18th Century streets of London, and the highly compacted layouts of Mumbai.

The urban densities found within the South American cities are much higher than many European cities, but lower than Mumbai or Shanghai. Measuring the densities of the central areas of each city, Bogotá has the highest density (reflecting its constraint by farmland on one side and mountains on the other), with Buenos Aires and Lima following behind, with relatively intensely populated centres, and São Paulo and Rio de Janeiro behind them. São Paulo in particular has relatively consistent density spread over a wide area, reflecting the prevalence of high-rise apartment blocks over a large area of the city.

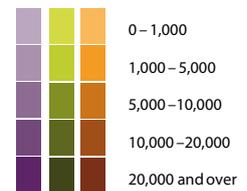


**SÃO PAULO** PEAK 29,380 pp/km<sup>2</sup>



**BOGOTÁ** PEAK 59,870 pp/km<sup>2</sup>

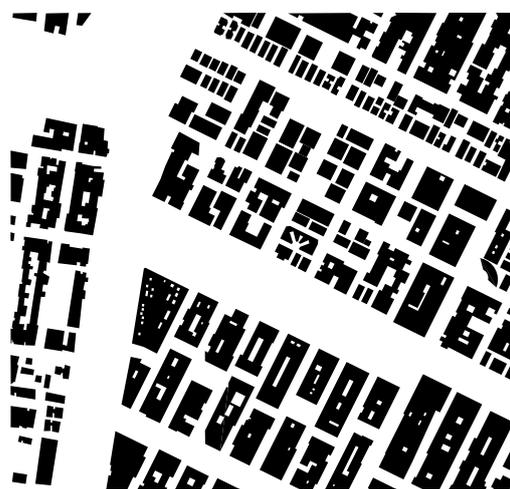
Population Density [pers./km<sup>2</sup>]  
100 by 100 km



Source: Urban Age research



**SÃO PAULO** JARDINS



**BOGOTÁ** PARQUE DE VIRREY

Morphology

Each square represents one km<sup>2</sup> in one neighbourhood of each city. left: São Paulo, Jardins; right: Bogotá, Parque de Virrey

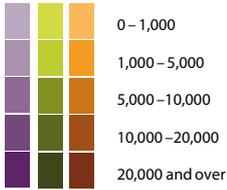
Source: Urban Age research

Average densities of city and region [pers./km<sup>2</sup>]

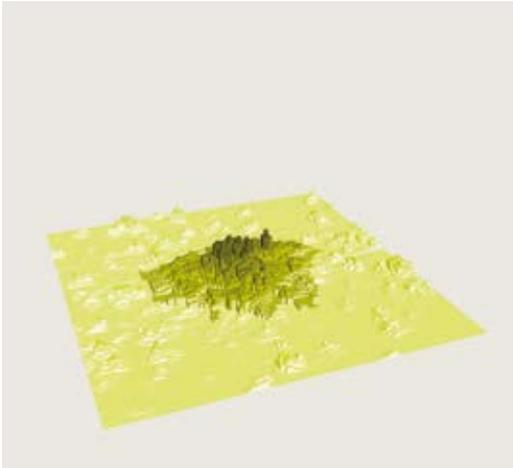
Source: Urban Age research

	metropolitan region	administrative city	central area (within 10km of centre point)	peak
<b>São Paulo</b>	2,420	7,139	10,299	29,380
<b>Rio de Janeiro</b>	2,020	4,832	8,682	29,450
<b>Buenos Aires</b>	3,177	14,867	12,682	49,340
<b>Bogotá</b>	2,164	3,854	21,808	59,870
<b>Lima</b>	2,779	2,598	12,620	31,342

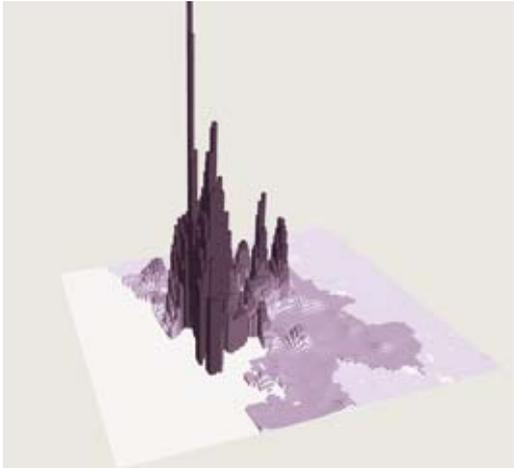
Population Density [pers./km<sup>2</sup>]  
100 by 100 km



Source: Urban Age research



LONDON PEAK 17,200 pp/km<sup>2</sup>



MUMBAI PEAK 101,066 pp/km<sup>2</sup>

**Morphology**

Each square represents one km<sup>2</sup> in one neighbourhood of each city. left: London, Notting Hill; right: Mumbai, Buleshwar Market

Source: Urban Age research



LONDON NOTTING HILL



MUMBAI BULESHWAR MARKET



### 2.2.3 Transport and mobility

The ways in which people travel in cities reflect economic circumstances, as well as individual choices based on the availability of different alternatives and cities' spatial configuration. Therefore walking is widespread in Mumbai and Rio de Janeiro where many homes and workplaces are near each other, but is also commonplace in Johannesburg, where alternatives are limited for many citizens. Climate and topography can influence choices too: cycling is far less popular in cities like Mumbai and Rio de Janeiro than it is in more temperate Berlin, New York and Shanghai.

The Urban Age South America cities have shown rapid growth in car ownership in recent years, with São Paulo adding nearly one million cars to its streets in the last five years. With the exception of Buenos Aires, the South American cities have far less developed rail systems than many of the other Urban Age cities. Bus use is therefore the dominant mode of public transport: São Paulo and Rio de Janeiro both have around 30 per cent bus use, with similar levels of walking, while Lima, following its extreme experiment in deregulation, is dominated by minibus transport.

above

More than 50 per cent of the inhabitants of Bogotá were born somewhere else, attracted in part by the city's international acclaim owing to a city-wide renaissance over the last decade. The TransMilenio bus system above has become the most prominent symbol of the city's innovative capacity.

Giovanna Silva

	public transport	walking and cycling	private car	car ownership
<b>São Paulo</b>	36.9%	32.9%	30.2%	351
<b>Rio de Janeiro</b>	36.6%	37%	14.9%	256
<b>Buenos Aires</b>	43%	12.9%	36%	429
<b>Bogotá</b>	57.2%	17.3%	14.7%	73
<b>Lima</b>	51.5%	25.4%	11.2%	92

Transport Modal Split

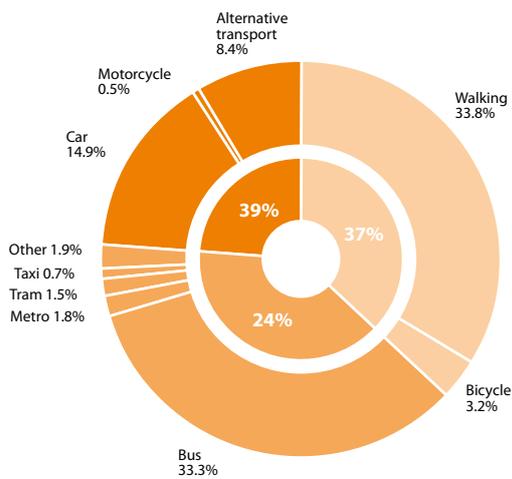
Source: Urban Age research



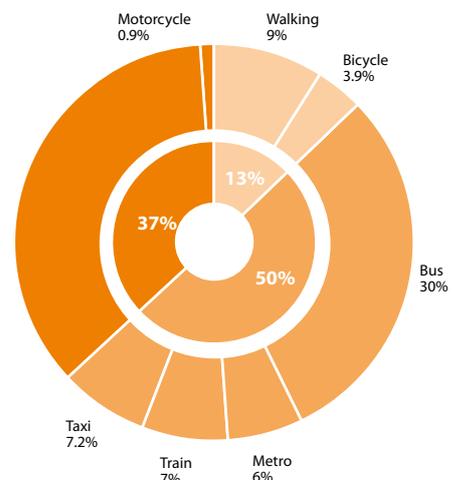
Transport Modal Split

- non-motorised transport
- public transport
- private motorised transport

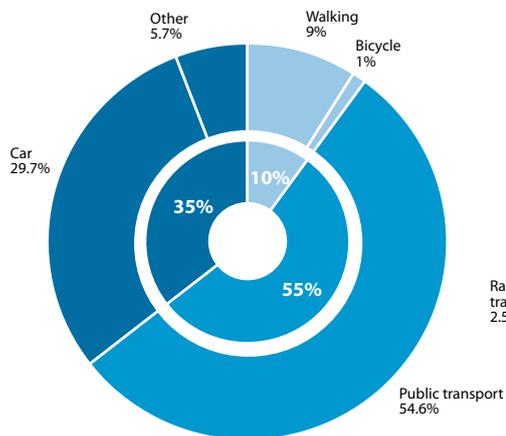
Source: Urban Age research



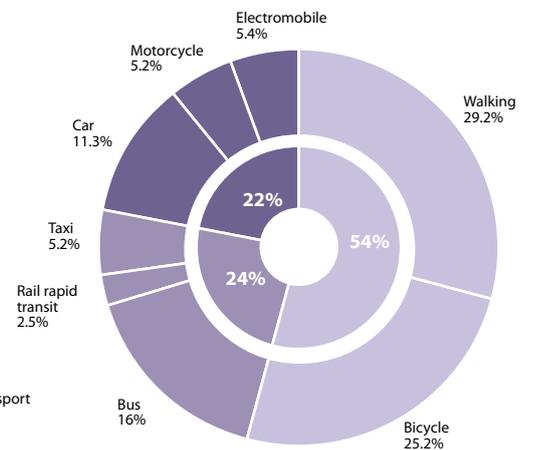
**RIO DE JANEIRO**



**BUENOS AIRES**



**NEW YORK CITY**



**SHANGHAI**



## 2.2.4 Working in the city

The Urban Age South American cities industrialised rapidly in the mid-20<sup>th</sup> Century, and their economies are now entering a new phase of economic change, as knowledge-based service functions grow alongside primary and secondary production. Lima and Bogotá remain relatively industrialised, though less so than Shanghai, while the sectoral profiles of São Paulo, Buenos Aires and Rio de Janeiro are more similar to London's or Berlin's, with commerce and service sectors dominant.

The shift towards new types of economic production has remodelled the economic geography of cities, creating new business districts – like Puerto Madero in Buenos Aires – to attract financial and business service investors. Economic change also has huge implications for public services within cities, placing a premium on education and potentially marginalising from the city's economy those with lower skill levels – often those new arrivals who had migrated to the city during the earlier phase of industrialisation. In São Paulo, for example, the Urban Age Ipsos MORI survey indicated that only 13 per cent of the population have attended university.

above  
Villa San Salvador in Lima.  
Philipp Rode

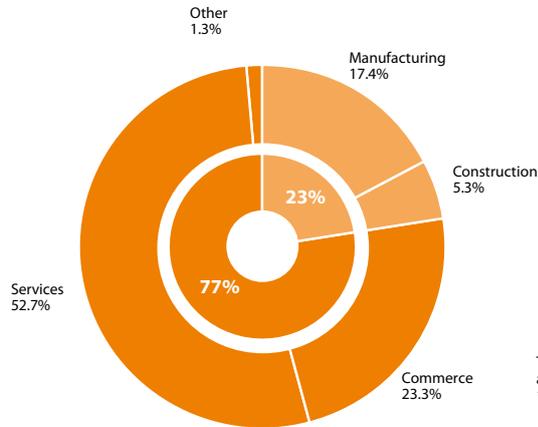
	GDP (BN US\$ current)	GDP as % of national	GDP/capita (US\$ current)	HDI
<b>São Paulo</b>	108	12%	9,927	817
<b>Rio de Janeiro</b>	49	6%	8,018	807
<b>Buenos Aires</b>	43	24%	14,231	879
<b>Bogotá</b>	36	25%	5,296	756
<b>Lima</b>	37	47%	4,829	792

### Employment

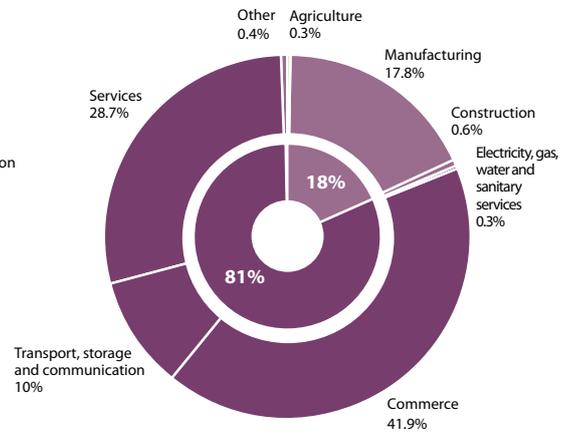
\*As there are no figures for the municipality for Lima, the figures provided for Lima are that of the metropolitan region. Since the difference in territory between Lima municipality and the metropolitan region is negligible, the use of Lima's metropolitan figures alongside the municipal figures for the other four South American cities is still valid for comparative purposes.

Source: Urban Age research

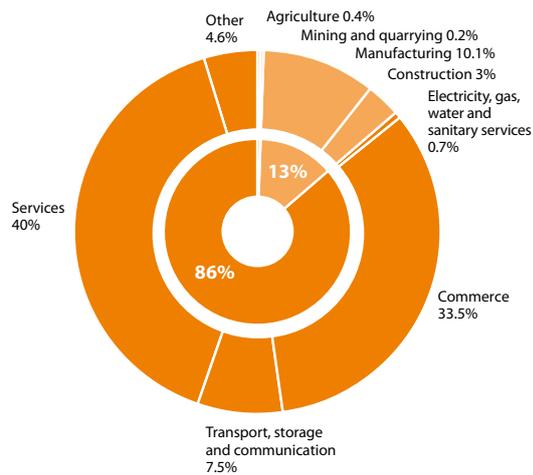
**Employment by sector**  
 primary sector  
 secondary sector  
 tertiary sector  
 Source: Urban Age research



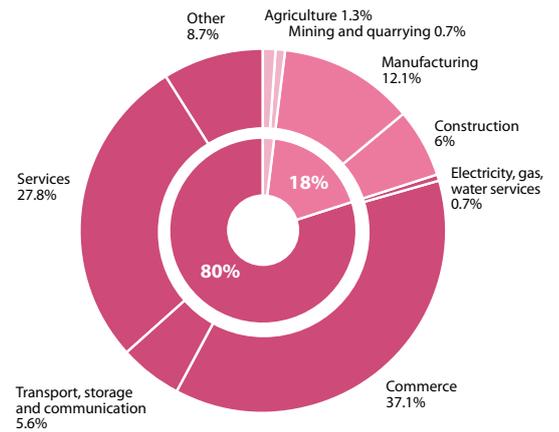
LIMA



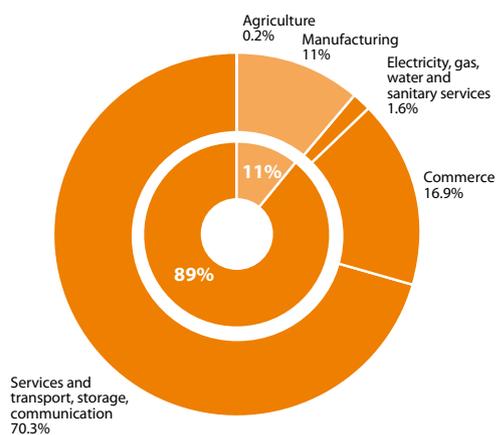
MUMBAI



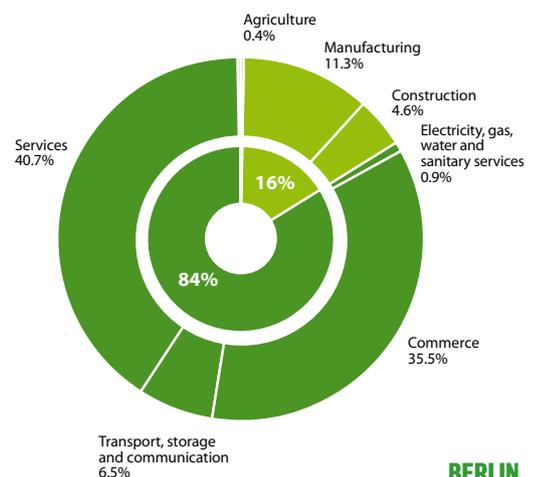
BUENOS AIRES



JOHANNESBURG



RIO DE JANEIRO



BERLIN



# 3 INEQUALITY, TERRITORY & URBAN FORM

left

The favela Paraisópolis, which sits cheek-by-jowl to a gated complex of Morumbi, shows the extremes of wealth and deprivation in São Paulo.

*Armin Linke*

**CHAPTER 3 – INEQUALITY, TERRITORY & URBAN FORM  
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### 3.1 INTRODUCTION

An imbalance between rich and poor is the oldest and most fatal ailment of all republics.

Plutarch

Any city however small, is divided at least into two, one the city of the poor, the other of the rich; these are hostile to each other.

Plato

By looking into one of the most unequal regions of the world, the Urban Age research focus on South American cities aimed to bring new evidence to the debate on inequality and its relation with cities at the beginning of 21<sup>st</sup> century. With more than 50% of the world's population now living in cities, the rapid urbanisation process is reshaping humanity's territorial configuration through the creation of mega-agglomerations. Most of these are in developing countries, characterised in many cases by high levels of inequality. The consequences that high levels of inequality can have in these densely populated places are far from being fully understood and must be studied in greater depth. Crudely, spatial proximity highlights extreme differences in living conditions and creates particular dynamics that do not exist at the global or at national scales.

Over the past decades, the notion of inequality itself has again become a central reference in policy making and research and it is now deemed as important as the notions of economic growth and poverty. It is a very broad term that describes the differences that exist between individuals, groups and nations in terms of income, wealth,

and access to public and social services. First theorised by Kuznets in 1955 as an inevitable and short lived consequence of industrialisation and urbanisation,<sup>1</sup> it is now acknowledged as crucial in its own right in determining the economic and social success of a given political unit, be it a city, a nation or the world itself. This stems from the ease with which inequality can weave itself into every aspect of society and corrupt the political, legal, social and economic systems if allowed to go beyond certain levels. In particular, the dramatic consequences of high levels of inequality in some parts of the global South have raised international awareness and has led to new approaches in public policy as well as a vast increase in academic literature.

Building on this academic discourse, this chapter will first aim to present the general debates that surround the issue of inequality by focusing on the different ways in which it is captured and the different scales at which it is studied. In the following section, the particular role of cities with respect to inequality will be highlighted by looking at non-quantifiable ways in which it can affect urban life. In a second part, the individual trajectories of five South American cities (São Paulo, Rio de Janeiro, Buenos Aires, Bogotá and Lima) will be presented. A series of indices will be used to superimpose their socio-economic situation on their urban fabric in order to uncover the mechanisms through which architectural typologies can reflect and possibly influence inequality. The implications for future research and policy making that follow from these three chapters will be summarised in the final section.

<sup>1</sup> Kuznets (1955)

below

Located on a steep hillside overlooking the city and beach, Rocinha in Rio de Janeiro is the largest favela in Brazil.

Dante Busquets



### 3.2 INEQUALITY IN A GLOBAL CONTEXT

#### 3.2.1 Impacts of inequality

High levels of inequality have vast negative economic, social and political consequences and can potentially destabilise societies through the creation of social and political fractures. This is especially true if high inequality coexists with endemic poverty. Indeed, it has been documented that high levels of inequality make poverty reduction much more difficult in developing countries. Ravallion (2005) focuses on the ways in which inequality can offset the potential poverty alleviation gains from growth, such as in the case of Brazil in the 1980s – the country saw sustained growth without any reduction in the proportion of its population living with less than a dollar a day.<sup>2</sup> In more general terms, he highlights that “amongst growing economies, the median rate of decline in the ‘\$1/day’ headcount index is 10% per year amongst countries that combined growth with falling inequality, while it is only one per cent per year for those countries for which growth came with rising inequality”.<sup>3</sup> Similarly, Birdsall (1996) correlates Latin America’s slower growth relative to East Asia’s since the 1960’s to the historically higher income inequality that exists in the former.<sup>4</sup> While her explanation focuses on different saving behaviours among the poor in both regions that are triggered by the level of inequality, other authors have focused

on the effects inequality can have on the political system. Alesina and Rodrik (1994), for example, argue that calls for redistribution that emerge in countries with high inequality will lead to political conflict which is likely to result in instability and reduced growth. At a societal level then, high levels of inequality can lead to an increase in the level of political tensions and social divisions that can threaten national security and economic development.<sup>5</sup> A final way in which inequality is related to poverty is through the issue of corruption. You and Khagram (2004) show that corruption and inequality are intrinsically linked: “income inequality is likely to be a significant and no less important determinant of corruption than economic development” and “corruption is also likely to reproduce and accentuate existing inequalities”.<sup>6</sup> They highlight that high levels of inequality and corruption lead to lower levels of investment, lower growth and lower support for redistributive policies – all of which contribute to perpetuating poverty. The same effects on poverty of inequality and corruption are brought to light by Gupta (1998) through their undermining of the “progressivity of the tax system, the level of effectiveness of social spending and the formation of human capital”,<sup>7</sup> while Begovic (2006) focuses on the pernicious effects of inequality on the judicial system and how it affects the litigation success rate of the poor.<sup>8</sup>

High levels of inequality can also take a psychological toll and seriously affect quality

- 2 Ravallion (2005)
- 3 Ibid.
- 4 Birdsall (1996), p.2
- 5 You and Khagram, p.30
- 6 Ibid, p.31
- 7 Gupta (1998), p.29
- 8 Begovic (2006)

below  
 São Paulo is among the most unequal mega cities worldwide.  
 Tuca Vieira



of life. Luttmer (2004) shows that “individuals’ self-reported happiness is negatively affected by the earnings of others in their area,”<sup>9</sup> highlighting the fact that people care not only about their absolute income levels but also about their relative position in the income distribution. Wilkinson warns us that material life conditions can have a deep psychological impact because they are “a source of stress, whether in the form of unhappiness, depression, insecurity, anger, or anxiety.”<sup>10</sup> For him, there are three major psycho-social risk factors that depend on material conditions and that can have drastic consequences on an individual’s quality of life as well as on the general well-being of a society. These are: “the effects of high or low social status, being more socially isolated rather than embedded in strong friendship networks, and the influence of early emotional and social development.”<sup>11</sup> He asserts that inequality is very strongly linked to these psycho-social risks, a fact which he believes explains why societies with higher inequality rates have higher homicide rates and lower life expectancies. Thus, he tells us that inequality should not be seen as solely affecting an individual’s material living conditions; the adverse psychological consequences of daily life with feelings of inferiority, exclusion and anxiety about the future must also be factored into any detailed inquiry which investigates the impacts of high levels of inequality.

Finally, the extreme inequalities in the distribution of income and wealth at the global and national level explain the immense lengths to which people are willing to go, through legal or illegal migration, to ameliorate their living conditions. Indeed, as Milanovic (2000) reminds us, “an American having the average income of the bottom US decile is better-off than 2/3 of world population.”<sup>12</sup> The explanatory power of inequality with respect to migration was first studied by Borjas (1987), whose model showed that if earnings in the sending and receiving countries were positively correlated, the socio-economic profile of emigrants could be predicted by the relative levels of inequality in both countries: if the receiving country is more unequal than the sending country, migrants are more likely to be from within the upper tail of the sending country’s income distribution, while migrants are more likely to be from the lower tail of the sending country’s income distribution if the sending country is more unequal than the receiving country.<sup>13</sup> Stark (2005) makes the even stronger argument that it is the inequality level in the country of origin and the severity of the feeling of relative deprivation, per se, that explains the migration of members of the lower tail of the income distribution to another country.<sup>14</sup> This conclusion supports the assertion by Liebig and Sousa-Poza (2004) that, *ceteris paribus*, a higher level of inequality in the origin country will tend to foster emigration.<sup>15</sup>

9 Luttmer (2004), p. 29

10 Wilkinson (2005), p. 62

11 Ibid, p.63

12 Milanovic, B. (2000), p.50

13 Borjas (1987), p.4

14 Stark (2005), p.4

15 Liebig and Sousa-Poza (2004), p.16



### 3.2.2 Dimensions of inequality

Three main perspectives are adopted when trying to understand patterns of inequality in the world. The most widely studied aspect of inequality is the difference that exist in terms of the income individuals or households receive. This information is largely based on population and household censuses which ask people about their monthly incomes and allows for intra- and inter-country comparisons. To facilitate such comparisons, the income distribution of a given geographical unit is expressed by a single indicator, the Gini index, which measures the extent by which a given income distribution departs from perfect equality. Varying from 0 (every individual receives an equal share of the total income) to a 100 (one individual receives all of the income), United Nations-HABITAT has established an international threshold indicating that a Gini higher than 40 can have drastic social, economic and political consequences (for more details see table on this page).

While income only indicates the monthly stream of money a household receives to meet the demands of everyday life, looking at personal wealth, i.e. the assets possessed by a household, allows for insight into the capacity that a household has in addressing exceptional circumstances, be it a natural disaster, a family tragedy or an important investment decision. This issue is most crucial in the world's poorest countries that lack social security systems and at the same time are subject to economic and political uncertainty. In most cases, they do not have facilities in place to allow poor people to borrow or insure on reasonable terms. An understanding of the evolution and distribution of

wealth holdings around the world thus allows for a more accurate picture of the extent and depth of life chance inequalities.

The last form of inequality to be reviewed here is that of social inequality, which focuses on the ability of households to access public and social services, such as potable water, adequate housing, public transport and good quality education. Social inequality is directly linked to the existence and accessibility of these services and depends on the willingness and capacity of the public sector to make them available. Inequality in the access to public services is a problem most prominent in countries of the global South, where informal settlements proliferate with limited to non-existing public infrastructure. It is obvious that income inequality is exacerbated in such environments where the poor do not have access to proper waste disposal solutions or reliable electricity among other public goods and suffer the consequences of poor health. On the other hand, social services, such as unemployment benefits, family subsidies, free childcare, etc. can play a very important role in complementing income and in helping to level the playing field. Indeed, even if income inequality is very high, the social system can guarantee that all citizens, whatever their income, may benefit from the same level and quality of public services. This is further strongly linked to the notion of social mobility: where access to good quality childcare and public education is available to all and the advantages deriving from higher income and wealth on life chances are diminished.

<sup>16</sup> Davies (2008), Milanovic (2005) and Butler (2007)

<sup>17</sup> Gini coefficient definition: *0.6 or above*: Extremely high levels of inequality, not only among individuals, but also among social groups (known as "horizontal inequality"). Wealth concentrated among certain groups at the exclusion of the majority. High risk of social unrest or civil conflict. *0.5 to 0.59*: Relatively high levels of inequality, reflecting institutional and structural failures in income distribution. *0.4 to 0.49*: Inequality approaching dangerously high levels. If no remedial actions are taken, could discourage investment and lead to sporadic protests and riots. Often denotes weak functioning of labour markets or inadequate investment in public services and lack of pro-poor social programmes. *0.40*: International alert line Inequality threshold. *0.3 to 0.39*: Moderate levels of inequality. Healthy economic expansion accompanied by political stability and civil society participation. However, could also mean that society is relatively homogenous – that all groups are generally rich or poor – and, therefore, disparities are not reflected in income or consumption levels. *0.25 to 0.29*: Low levels of inequality. Egalitarian society often characterised by universal access to public goods and services, alongside political stability and social cohesion.

#### Interpreting the Gini coefficient<sup>17</sup>

Source: UN-HABITAT Monitoring and Research Division, 2008.

#### Gini coefficient

<b>0.6 or above</b>	Extremely high levels of inequality, not only among individuals, but also among social groups (known as "horizontal inequality"). Wealth concentrated among certain groups at the exclusion of the majority. High risk of social unrest or civil conflict.
<b>0.5 to 0.59</b>	Relatively high levels of inequality, reflecting institutional and structural failures in income distribution.
<b>0.4 to 0.49</b>	Inequality approaching dangerously high levels. If no remedial actions are taken, could discourage investment and lead to sporadic protests and riots. Often denotes weak functioning of labour markets or inadequate investment in public services and lack of pro-poor social programmes.
<b>0.40 International alert line</b>	Inequality threshold.
<b>0.3 to 0.39</b>	Moderate levels of inequality. Healthy economic expansion accompanied by political stability and civil society participation. However, could also mean that society is relatively homogenous – that all groups are generally rich or poor – and, therefore, disparities are not reflected in income or consumption levels.
<b>0.25 to 0.29</b>	Low levels of inequality. Egalitarian society often characterised by universal access to public goods and services, alongside political stability and social cohesion.

Income Inequality	Wealth Inequality	Social Inequality
<ul style="list-style-type: none"> <li>Differences in the incomes of individuals or households</li> <li>Measurement: monthly income</li> </ul>	<ul style="list-style-type: none"> <li>Differences in personal assets and wealth of individuals or households</li> <li>Measurement: total value of assets</li> </ul>	<ul style="list-style-type: none"> <li>Differences in access to public and social services</li> <li>Measurements: qualitative</li> </ul>

### 3.2.3 Global distribution of income and wealth

Research on the global distribution of income has emerged in conjunction with studying the effects of globalisation and became possible only following the growing availability of household surveys, wealth and estate tax records and investment income data for a significant proportion of nations.

With respect to income inequality, Milanovic (2005) analyses household survey data from 91 countries for 1988, 1993 and 1998 to calculate the world Gini index by purchasing power parity (PPP). He concludes that the world income distribution became less equal over that decade, with the world Gini increasing from 62 in 1988 to 65 in 1993 and then back to 64 in 1998.<sup>18</sup> Throughout, levels have been far above UN-Habitat's threshold, indicating a highly problematic world income distribution (at least when applying the same standards for national levels to the global level). In 1998, the world income Gini index in current dollars reached almost 80.<sup>19</sup> Milanovic (2000) shockingly illustrates the 1993 level of inequality: "the richest one percent of people in the world receive as

much as the bottom 57 percent, or in other words, less than 50 million richest people receive as much as 2.7 billion poor".<sup>20</sup>

With regards to wealth inequality, Davies et al. (2008) have been able to demonstrate that the world distribution of wealth is much more concentrated than the world distribution of income, with the share of the richest 10% of the world's population at 85% of the total wealth for the year 2000, and a Gini index at current prices that reaches the extreme level of 89.2.<sup>21</sup> This concentration has a very strong regional basis: for the same year, "about 34 per cent of the world's wealth was held in the USA and Canada (...), 30 per cent in Europe, and 24 per cent in the rich Asia-Pacific group of countries. Africa, Central and South America, China, India, and other Asia-Pacific countries shared the remaining 12 per cent".<sup>22</sup> In population terms then, 24% of the world population held 88% of the total wealth in the year 2000.

18 Milanovic, B. (2005), p.108

19 ibid.

20 Milanovic, B. (2000), p.50

21 Davies (2008), p. 417

22 Ibid.

#### Box 3.1

### INEQUALITY BETWEEN AND WITHIN COUNTRIES

A 2001 World Bank study by Milanovic and Yitzhaki investigated the Gini Index at global and continental level for the year 1993. It decomposed the index into two components: inequality between and within countries. From a global perspective, income is distributed more unequally across the world's population than in the most unequal countries. Looking at continents, Asia and Latin America together with Africa emerge as the most unequal regions of the globe. Nevertheless, there is a significant difference between these regions: in Asia, inequality is due to the differences between countries while in Latin America, more than 90% of the continental Gini coefficient is related to the grotesque levels of inequality observed within its countries.

Continent	Gini coefficient	Between countries	Within countries
<b>Africa</b>	53.1	20.3	32.8
<b>Asia</b>	61.5	44.5	17
<b>Eastern Europe/ Former Soviet Union</b>	46.5	18	28.5
<b>Latin America and Caribbean</b>	55.5	4.1	51.4
<b>Western Europe, North America and Oceania</b>	32.5	6.9	25.6
<b>WORLD</b>	65.9	49.8	16.1

#### Decomposing world income distribution

Source: Milanovic, B; Yitzhaki, S. World Bank, 2001.

### 3.2.4 National distribution of income and wealth

Moving on to national levels of inequality, certain parts of the world exhibit much higher levels of income inequality than others. In particular, countries in Sub-Saharan Africa and Central and South America share the highest levels of inequality while those in Europe, South Asia and Japan are much less unequal. The range of inequality experiences is staggering: UNDP data for 2005 shows that the country with the lowest Gini index was Denmark with 24.7 whilst the one with the highest was Namibia, with 74.3.<sup>23</sup> Such differences in distribution of income warrant further investigation, particularly in terms of the share of total income held by the poorest and richest quintiles in each country. In Namibia, the 20% poorest receive little more than one percent of total national income while the richest 20% get close to 80% of it.<sup>24</sup> For Denmark, on the other hand, these percentages are 8.3 % and 35.8% respectively.<sup>25</sup> While the lowest inequality is found in the Scandinavian countries and the Latin American region boasts the highest consistent inequality, there is no direct relationship between a country's wealth and its Gini index: Botswana is ten times richer in GDP PPP per capita terms than Haiti, but both countries have equivalent Gini indices and the US and Norway have the same GDP PPP per capita but Norway's Gini index is 15 points lower.

This general pattern is presented in the world map of income inequality below and in graph 3.1 on the opposite page which illustrates the relationship between income inequality (measured by Gini index) and GDP by purchasing

power parity (PPP) per capita (in international dollars) at the national level for all countries worldwide. With a few exceptions such as the US, Singapore and Hong Kong, countries with a Gini Index of above the UN alert level of 40 are middle to low income countries with a GDP per capita of below 10,000 US\$. Within the middle-income range, these are predominantly Latin American countries with extremes such as Brazil, Colombia and Bolivia, while the lower income countries with high inequality are almost exclusively African, most prominently Sierra Leone, the Central African Republic and Lesotho.

Acceptable Gini levels, i.e. under the UN threshold, can be found in countries of all income ranges and across all global regions though more pronounced low inequality is featured mainly within European and OECD countries. Denmark, Japan and Sweden are among the least unequal countries with a Gini below 25. Asian and Middle-Eastern countries combine middle income levels with relatively low inequality mostly below the UN alert line.

A look at individual countries and the spread of income quintiles further illustrates the obvious. The more unequal the country as a whole, the wider the spread of the average income for each quintile. Colombia, South Africa, Brazil, Peru and Argentina are among those countries where the highest quintile reaches the average GDP of OECD Countries while the lowest quintile often remains within levels of countries in Sub-Saharan Africa. The lowest quintile in Colombia equals that of Madagascar. The poorest 20% in Colombia, Brazil and Peru are even poorer than the poorest 20% in India. Within their regional context, the UK, the US and Turkey display great

23 - UNDP Human Development Report 2007/2008, <http://hdr.undp.org/en/statistics/data/>

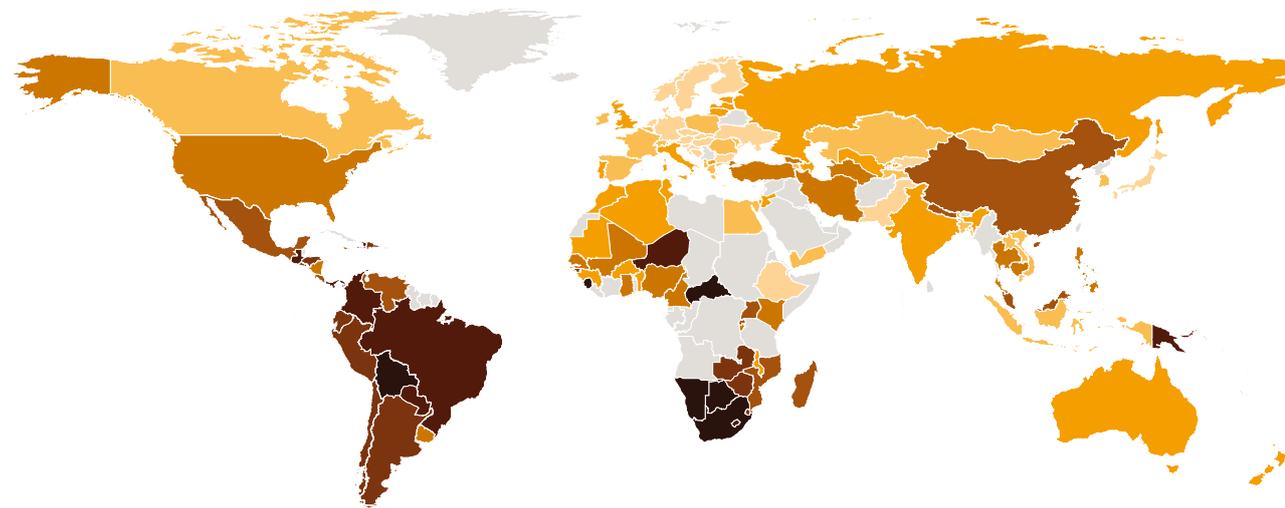
24 - World Bank, Development Indicators 2007, [http://siteresources.worldbank.org/DATASTATISTICS/Resources/table2\\_7.pdf](http://siteresources.worldbank.org/DATASTATISTICS/Resources/table2_7.pdf)

25 - Ibid.

below  
World map of inequality

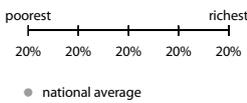
■	n/a
■	24.7 - 30.9
■	30.9 - 35
■	35 - 40
■	40 - 45
■	45 - 50
■	50 - 55
■	55 - 60
■	60 - 74

Source: UNDP HDR 2007/2008

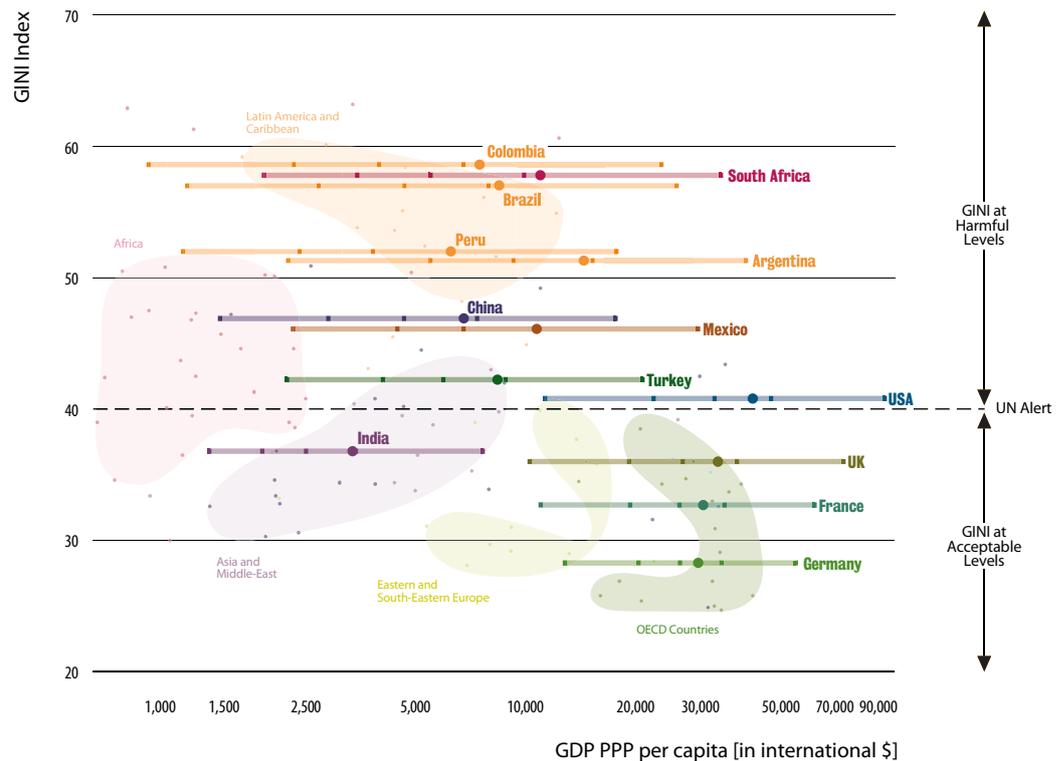


Graph 3.1

Gini index, GDP PPP per capita and income distribution by quintiles for a selection of countries



Source: Urban Age research based on UNDP HDR 2007/2008 and World Bank datasets



discrepancies between quintiles. The lowest quintile in the UK comes close to the average GDP of Mexico.

Within countries, wealth is also much more unequally distributed than income. Among the countries for which data is available, Davies reports that the least unequal are Japan (54.7) and China (55) while the most unequal are Switzerland (80.3), the USA (80.1) and Brazil (78.4).<sup>26</sup> The distribution of wealth thus adds another level of complexity to the issue of inequality and highlights how the situation of poor countries with a very unequal income distribution can be worsened when the poorest segment of the population does not possess assets that would allow for a certain degree of self-insurance. Consequently, the lack of formal land titles, restricted access to borrowing and financial instruments and the lack of social safety nets can exacerbate income inequalities by not allowing the poor to ameliorate their economic conditions.

### 3.2.5 The role of cities

So far, patterns of inequality were discussed at the global and national level. However, a better understanding of inequality as experienced by individuals on a daily basis requires analysis on a smaller geographical level. Cities are particularly important to allow for a better understanding of the local dynamics at play. This is due to the unique features of cities as densely populated territories with a diversity of

functions and because most city authorities deal with the regulation of their territory through the management of housing programs, infrastructure and public and social services. The decision to put infrastructure or services in a particular area of the city has a significant impact on the living conditions of a certain group of people. While one might propose that under certain conditions urban territory, city form and infrastructure can act as 'equalisers', all too often the exact opposite occurs and the built environment of cities can reinforce income inequality.

Compared to global and national levels, regional and local level data on inequality is difficult to obtain for both, income inequality<sup>27</sup> and for wealth.<sup>28</sup> This absence of data comes at a time when the issue of urban inequalities is becoming particularly important due to the key role of cities as part of the global economy. Indeed, cities concentrate huge amounts of wealth, in a way completely disproportionate to their population. In 2005, the 30 most economically powerful cities in the world produced the same GDP PPP as four times the African continent or two times the South American continent. In quantitative terms, this means that 261 million people, or 4.3% of the world population concentrated 15% of the world GDP PPP. As such, the inequality present inside cities must be understood alongside the tremendous wealth that these places produce. The wealth is concentrated in a small number of places

<sup>26</sup> World Bank, Development Indicators 2007, [http://siteresources.worldbank.org/DATASTATISTICS/Resources/table2\\_7.pdf](http://siteresources.worldbank.org/DATASTATISTICS/Resources/table2_7.pdf)

<sup>27</sup> There is a notable absence of Gini indices for cities in the developed world.

<sup>28</sup> There is no study of personal wealth inequalities within cities.

and within them, in a small number of hands.

The available data for income inequality is shown in the world map on the opposite page. In addition, graph 3.2 plots cities according to the relationship between their Gini index and GDP PPP per capita and the income quintiles for their respective countries. Graph 3.2 shows us that all Urban Age cities except for Berlin display a higher GDP per capita compared to their national context. However, only some cities like Mumbai, Lima and London combine higher affluence with lower inequality while others including New York, Mexico City and Johannesburg produce even greater income inequality than their national contexts. The strongest 'equalisation' by any of the charted cities compared to the national average is displayed by Lima with a Gini of 40 compared to Peru's 52 (a reference to the strong urban-rural divide of Peru) while New York represents a strong jump in inequality from the US average of 41 to 47.5.

In any case, we see that cities cannot be divorced from the local, national and regional contexts in which they exist and as such exhibit roughly similar Gini indices as the countries in which they are located. There is thus no relationship between 'urbanity' and income inequality: cities are not consistently more or less unequal than nations. This fact is compounded by the lack of any relationship between a country's level of urbanisation and its Gini index revealed by the scatter plot on the opposite page.

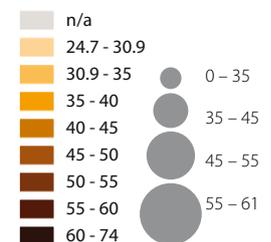
What we do seem to find is that, *ceteris paribus*, a certain level of inequality tends to have more drastic consequences the smaller the geographical area in which it is found. Indeed, while a nation's

Gini index can be determined by regional or rural-urban income differences, a city's Gini index is necessarily determined by income discrepancies that exist within its boundaries.

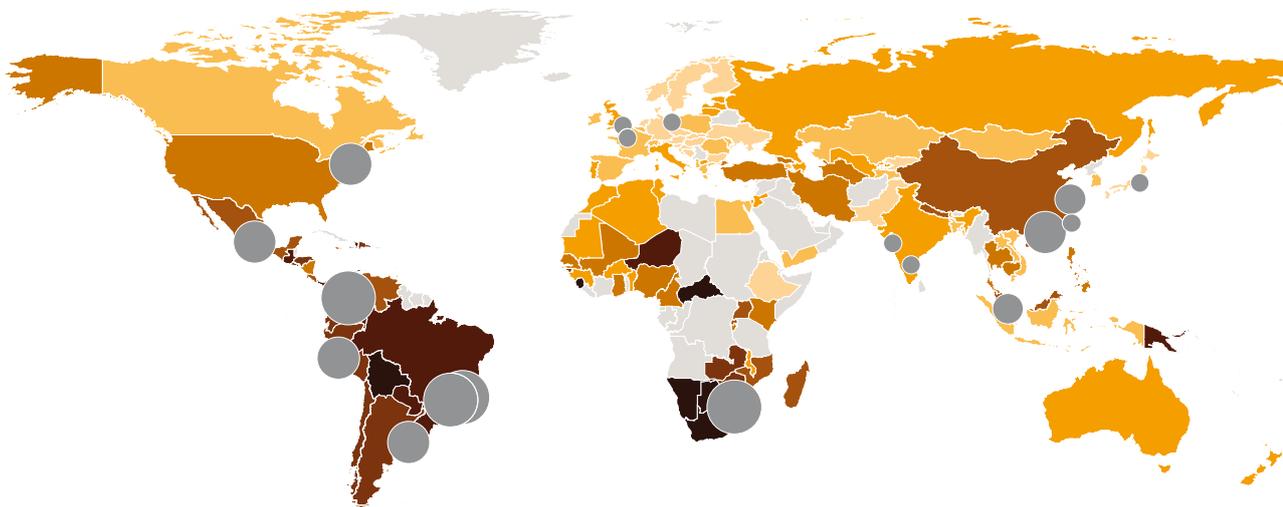
We can find support for the assertion that inequalities have a bigger impact in cities in the work of Graham and Felton (2006) who find that income inequalities have a large negative impact on individual happiness in Latin America. This is due to the translation of income differentials into relative differences in "perceived status and opportunities to well being".<sup>29</sup> The most interesting aspect of their findings for the purposes of this section is the fact that concerns for status and relative differences were higher in big cities than in any other spatial territory of their analysis. For them, this is linked to big cities' higher average wealth and the greater variance in wealth levels they exhibit. The spatial proximity of rich and poor thus intensifies the feelings of relative deprivation and injustice felt by the poor in their everyday lives. A look at the cities of the global south shows us that this could well be the case in the majority of them, where incredible income disparities can coexist within a single urban system, sometimes in very close proximity. In many of these cities, rich, well-serviced neighbourhoods and gated residential communities are often located near dense inner-city or peripheral-urban slum communities that lack even the most basic services. The social tensions that can emerge out of the feelings of injustice and exclusion experienced by the poorest segments of the population can lead to a vicious circle in which the rich start to retreat from the rest of the city and fortify against the poor who

29 Graham and Felton (2006), p.120

World map of inequality with the Gini indices of selected cities

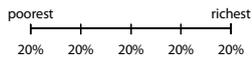


Source: UNDP HDR 2007/2008, Government of Gauteng Province 2004, Harvard Diversity Data 2007, Chen, X. (2007), Portes, A. (2005), Dickey, H. (2007), Dhongde, S. (2004), INSEE 2004, OECD Territorial Review Istanbul 2008.



Graph 3.2

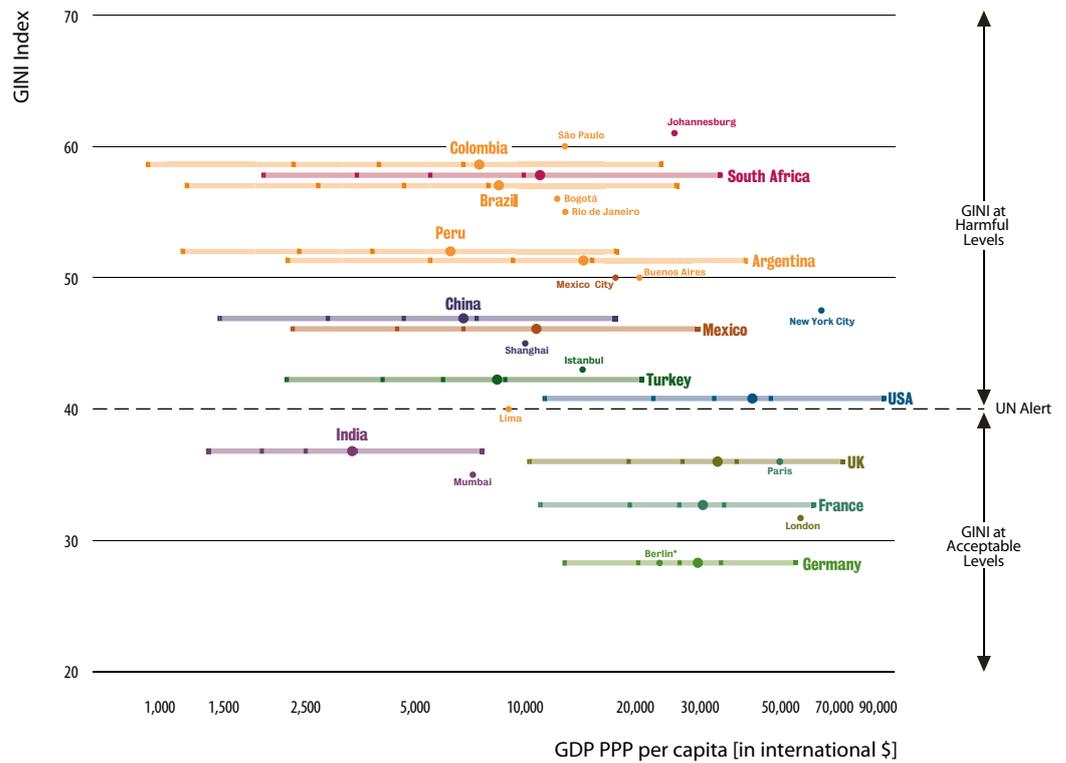
Gini index and GDP PPP per capita for a selection of countries and their major cities and income distribution by quintiles for the selected countries



● national average  
● cities

Source for the countries: Urban Age research based on UNDP HDR 2007/2008 and World Bank datasets; for the cities: PwC 2007, UN WUP 2007, Government of Gauteng Province 2004, Harvard Diversity Data 2007, Chen, X. (2007), Portes, A. (2005), Dickey, H. (2007), Dhongde, S. (2004), INSEE 2004, OECD Territorial Review Istanbul 2008.

\*No Gini Index available for Berlin.



are increasingly represented as criminals.<sup>30</sup> These spatial consequences of income inequalities can in the end cause a city to fracture into irreconcilable poor and rich enclaves, with dire consequences for its quality of life and character.

A critical aspect of urban inequality is related to social inequality, i.e. the inequality in the distribution of public and social services. At least in theory, cities are well positioned to deliver more equitable access to such services given the greater proximity of rich and poor. With respect to public services, such as water, electricity and waste disposal infrastructure and service provision, it seems as though their distribution follows that of income in a given city. While there are clear and documented benefits that the provision of public goods may have on income inequality,<sup>31</sup> there has been less work done on

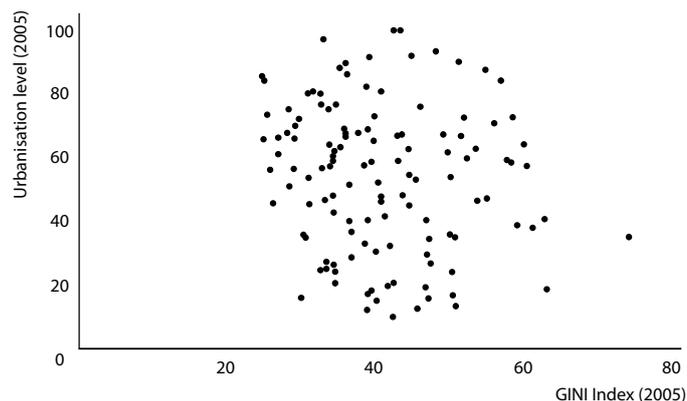
the ways in which unequal distribution of public services can compound the effects of income inequality. As social services are concerned, the effect that they will have in terms of improving or exacerbating existing material inequalities will depend on the level of social expenditure at the local level, regional and national levels. Indeed, effective social policies can improve economic opportunities through education, safety nets that diminish the potential of poverty traps and thus liberate funds for productive investment, and childcare opportunities to allow women to enter labour market, etc. On the other hand, their absence means that a household has to rely on itself and its social capital to get through hard times. The spatial concentration of rich and poor in cities means that one's social capital is very likely to be limited to households of

<sup>30</sup> Caldeira (2000)

<sup>31</sup> Alberto (2001), p.16

Scatterplot of national urbanisation levels (% of the population that is urban) and national Gini indices for 2005.

Source: UNDP HDR 2007/2008,



similar income and wealth levels. The ability of a household going through hard times financially to find help will thus be highly unequal and dependent on their social class.

A discussion of social inequality cannot eschew the fact that connection to a public service or proximity to a social service may not always mean full access and use. There are many ways in which households can face invisible barriers to services they are connected or in very close proximity to. In terms of public services, these could be an irregular reception and service delivery, sub-standard quality or regressive use-charges,<sup>32</sup> while in terms of social services the issues that may arise are the lack of trained staff or adequate locales, economic or cultural disincentives for use or a general lack of local government funds. Another issue that must be taken into account is the effect that an existing level of inequality may have on the future attempts to provide services. Indeed, Ajwad and Wodon (2008) have shown that “the poor, and especially the very poor, appear to benefit from an increase in access to public services only once the non-poor are already well served”.<sup>33</sup> In their case studies of Bolivia and Paraguay, they find that “In primary education, for example, the poor benefit more than the non-poor from gains in access, because coverage is already high. In basic infrastructure services, however, the nonpoor continue to reap a large part of the gains in access”.<sup>34</sup> When a skewed distribution of income exists, it is easier for elites to capture the bulk of infrastructure and social benefits that accrues to a given area.

### 3.2.6 Summary

The interactions of different types of inequalities and the many levels at which they appear need to be understood for any more comprehensive analysis of this critical social condition. As shown above, high levels of inequality can impact on many different aspects of human society, such as poverty reduction, psychological well-being and international migration. The three dimensions of inequality and the particular perspectives they offer on the issue were presented and discussed with reference to numerical data wherever available. The global distribution of income and wealth was shown to be extremely skewed with most of the income and wealth held by a very small proportion of the world’s population. National income and wealth inequality levels were shown to be generally lower than global inequality levels but the huge variations that exist between national inequality levels were also highlighted, with particular attention given to South and Central America’s position as the most unequal continent in the world. The final section focused on the particular position of cities with respect to inequality: there is no direct relationship between ‘urbanity’ and inequality but a certain level of inequality will always affect the populations of big cities in a much deeper way. This is due to the spatial proximity between the richest and poorest in cities, and the feelings of relative deprivation this entails, and compounded by the ways in which infrastructure and social and public services are unevenly distributed and made partially available across urban landscapes. What these issues highlight with respect to the city level is that an understanding of the spatial distribution of inequality at the city level is crucial to any analysis of the notion of inequality per se. Indeed, knowing a country’s Gini index will not tell us that much about the ways in which people in its major cities are affected by inequality in their everyday lives. The next section of this chapter will thus focus exclusively on the spatial distribution of inequality in five South American cities in an attempt to uncover additional insights into the effects of inequality on cities. More particularly, the focus will be on looking at the relationship between the architectural typologies that exist in a given city and its spatial distribution of inequality.

<sup>32</sup> Briceno-Garmendia (2004), p.27

<sup>33</sup> Ajwad and Wodon (2008), p.171

<sup>34</sup> Ibid.

### 3.3 SOUTH AMERICAN CITY COMPARISON

#### 3.3.1 Introduction

As highlighted in the preceding section, South America stands out as one of the most unequal regions in the world. At the same time, it is among the most urbanised regions worldwide. Due to this particular conjuncture, cities in South America can be expected to present very marked territorial expressions of inequality. The analysis of the intra-urban spatial distributions of social classes in these cities is thus an interesting lens through which to explore the effects of inequality on urban territory and urban form.

Cities with high levels of social inequality are expected to present strong spatial divisions that follow its distribution of social groups. Patterns of segregation have a very significant impact on quality of life and are a crucial component, urban policy needs to address. In general, South American cities exhibit great

variations between different parts of the city and are generally characterised by a very strong centre-periphery split – central areas with good urban infrastructure and access to services and peripheral areas with limited provisions of basic services and infrastructure. However, this is counteracted by the fact that certain segments of the wealthiest urban population are moving out from the centre and into gated enclaves and by the fact that very poor neighbourhoods exist within the urban cores. In any case, all of these act to reinforce social segregation by creating pockets of wealth or poverty, rather than creating a more balanced distribution of social groups within the cities.

In order to analyse how these deep patterns of segregation characterise the urban fabric of South American cities, this section will compare and contrast the socio-spatial configurations of the five largest cities in the region, namely, São Paulo, Rio de Janeiro, Buenos Aires, Bogotá and Lima.

below

The informal settlement of Paraisópolis in São Paulo uniquely borders with one of the richest parts of the city, creating a boundary of intense social division.

*Dante Busquets*



### 3.3.2 Measuring social segregation

In order to offer a comparative perspective on the socio-spatial trajectories of the five cities under consideration, a set of tools were used to calculate specific segregation indices and to assign values for each of them to the neighbourhoods or blocks of each city. For these calculations, census data on educational attainment levels was used instead of income levels to represent segregation because it was the only indicator available for all five cities. The use of educational levels as a proxy for social stratification is possible as they strongly correlate with income and occupation levels. However, the comparative use of the data obtained from the censuses for the five cities is subject to certain limitations that originate from different data collection methods, as shown in the table on page 3-17. More particularly, the data obtained for Lima is not fully comparable with that obtained for the other cities due to the much earlier date at which it was collected and its use of a slightly different educational classification. Using the census information, the population of each city was then divided into four groups. These educational attainment groups were then used to calculate the following three indices.<sup>35</sup>

#### Dissimilarity index

This index is calculated for each neighbourhood or city block by comparing how close the educational attainment distribution in that particular place matches that of the city as a whole. The value of the index for a particular

neighbourhood or city block will thus be higher the more dissimilar that area is in terms of educational attainment to the average of the city, and lower the more similar it is to the city average. The value of this index will therefore strongly depend on the overall distribution of educational attainment in the city – in a city where most people have had access to higher education, a neighbourhood where no one has access will be highly dissimilar and a neighbourhood where most people have had access will be similar. This index will allow to single out those areas that are significantly different from the rest of the city in terms of their social composition and those whose social composition mirrors that of the city as a whole.

#### Diversity index

The diversity index classifies the areas of the city according to the level of diversity (the likelihood that two randomly selected residents are from different education level groups). To do this it focuses on a particular neighbourhood or city block and looks at the distribution of educational attainment levels within it. Where all four groups are represented in a roughly equal proportion, the area will have a high value for the diversity index. However, an area will score very low on the diversity index if it is predominantly home to only one of these groups. This index is useful in identifying areas which are more prone to housing a diversity of social groups than others while also showing us which areas are the least diverse in a particular city.

<sup>35</sup> A formal description of the method used to calculate these indices can be found at the end of this document.



### Isolation index

The isolation index focuses on one of the four social groups and identifies neighbourhoods and city blocks in which this social group is particularly isolated from other social groups. The value of this index for a given area and social group will thus be higher the more the area is surrounded by areas where that same social group is dominant. This analysis will focus on the isolation of the most and least educated segments of a city's population. The aim is to identify those pockets in the city in which either the least or the most educated are living with limited contact to other groups, areas that will be of great interest in understanding the general socio-spatial segregation pattern for each city.

### Exposure index

The final index that will be used to look at segregation patterns is the exposure index. Selecting two population groups, the exposure index calculates, for each part of the city, the level of exposure of one group to the other. The value for this index will thus depend on the spatial proximity of these two groups. The two groups selected here are the least (people without a primary education) and most educated (people with a university degree). The exposure index allows us to identify the areas in a city where two groups with diametrically opposed social conditions are very exposed to one another.

In order to relate the information offered by the indices to the urban form of a city and to be

able to study the inscription of inequality in the built environment, areas with extreme values for selected indices in each city were superimposed onto aerial photographs. Based on a classification of the main architectural typologies common to the five cities, the number of areas characterised by each typology were counted for those cases that scored the highest and the lowest on each of the indices. This allowed us to identify which architectural typologies appeared most prominently when looking at the most dissimilar and similar areas, the most and least diverse areas as well as those areas where the most and least educated were most isolated.

The following four sections will focus on the four indices following an overview on the absolute pattern of education levels across each city. Each of these sections will feature the following:

- a general description of the patterns that each index exhibits in the five cities, juxtaposed to the maps of the five cities for that given index
- a more detailed look at each of the five cities which will feature aerial photographs of areas with the most representative architectural typology for the extreme cases of each indicator as well as the results obtained for the typology count.



### 3.3.3 Education Levels

Looking at the educational attainment groups of the five cities under investigation used to calculate the indices in a comparative perspective, three major caveats must be kept in mind. First, the data refers to the metropolitan regions for all cities except Bogotá. This explains why its educational attainment distribution seems much better than those of the other cities. Second, it must be kept in mind that the data for São Paulo and Rio de Janeiro refers to the educational attainment level of the heads of households, rather than that of the whole population as it is the case for the other three cities. Third, the fact that the Lima data uses a different educational attainment classification explains why it performs better than Buenos Aires in this respect while having a much lower national literacy rate.

The first table below summarises the overall breakdown of statistical units that were used in each city, highlighting the main difference between census tracts level data (used for São Paulo, Rio de Janeiro and Buenos Aires) and block level data (used for Bogotá and Lima), the latter being at a far greater geographical resolution.

The second table provides an overview on the breakdown of the four educational attainment groups in the five cities. Based on the official statistics of each city, São Paulo and Rio de Janeiro have the highest percentages of poorly educated with 53% and 49% respectively, compared to 31% in Buenos Aires, 25% in Bogotá and 6% in Lima.<sup>36</sup>

The maps on the right show the distribution of the least educated group in the five cities. For a better representation of the intra-urban patterns in each city, these maps as well as all following ones of chapter 3 have adjusted scales, i.e. they are not displayed at scale.

The darkest shade of brown indicates where the percentage of people with below primary school educational is highest. Following the overall higher number of poorly educated in São Paulo and Rio de Janeiro, both cities display a far greater dominance of the latter group throughout the urban territory (expressed by the greater presence of darker shades).

All cities display a clear centre-periphery divide in terms of educational attainment with peripheries generally suffering from higher levels of poorly-educated groups. However, this pattern is less pronounced in Bogotá and Lima with an overall more even distribution. Most parts of Buenos Aires are further characterised by low levels of poorly-educated. This results in a strong concentration of these groups at the very fringes most remote to the urban core.

	population (2005)	number of units	unit type	census year	data refers to...
<b>São Paulo Metropolitan Region</b>	19,226,426	21,744	census tract	2000	head of household
<b>Rio de Janeiro Metropolitan Region</b>	11,563,302	14,633	census tract	2000	head of household
<b>Greater Buenos Aires</b>	12,198,207	11,036	census tract	2001	whole population
<b>City of Bogotá</b>	6,840,116	42,435	city block	2005	whole population
<b>Metropolitan Region of Lima and Callao</b>	7,765,115	52,081	city block	1993	whole population

	below primary (%)	primary education (%)	secondary education (%)	higher education (%)	national literacy rate (2006)
<b>São Paulo Metropolitan Region</b>	53	17	19	11	89.6
<b>Rio de Janeiro Metropolitan Region</b>	49	18	21	12	89.6
<b>Greater Buenos Aires</b>	31	40	22	8	97.6
<b>City of Bogotá</b>	25	27	27	21	92.3
<b>Metropolitan Region of Lima and Callao</b>	6	29	51	14	88.7

<sup>36</sup> Lima 6%: the surprisingly low level of poorly educated in Lima as suggested by official data seems unlikely to match the reality. The authors can only suggest that lacking information on the informal sector not captured by the official census is a possible explanation.

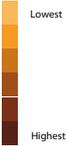
#### Census information

Source: IBGE, *Contagem da População 2007*; INDEC, *serie análisis demográfico 34, 2008*; DANE, *Censo 2005*; INEI *Censo 2005*; *Censo Demográfico IBGE, 2000*; *Gobierno de la Ciudad de Buenos Aires / Censo Población INDEC, 2001*; *Catastro Bogotá / Censo General, DANE, 2005*; INEI, *Estadística de Centros Poblados, 1993*

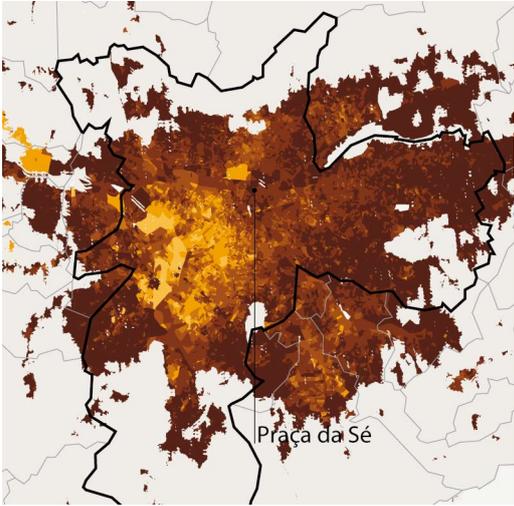
#### Educational information

Source: *Censo Demográfico IBGE, 2000*; *Gobierno de la Ciudad de Buenos Aires / Censo Población INDEC, 2001*; *Catastro Bogotá / Censo General, DANE, 2005*; INEI, *Estadística de Centros Poblados, 1993*; *UNDP HDR 2007/2008*.

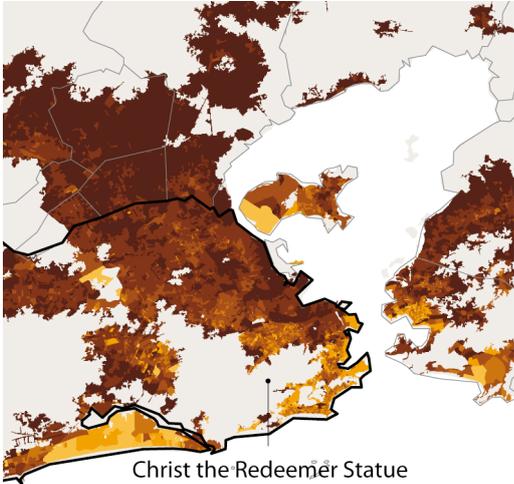
Distribution of the least educated  
(% without a primary education)  
\*Limited comparability with the  
other four cities due to a discrepancy  
in census years and a difference in  
data collection methodology.



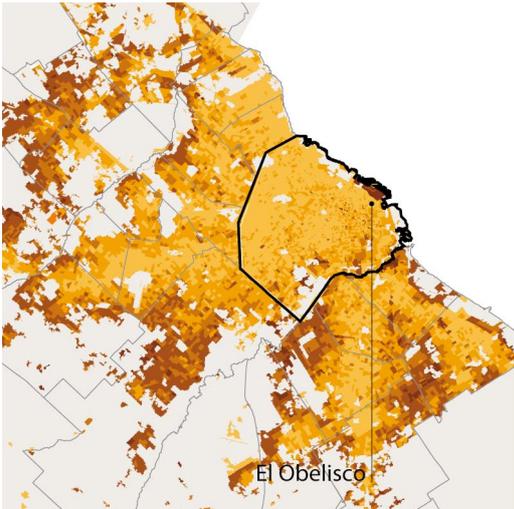
Source: Urban Age research



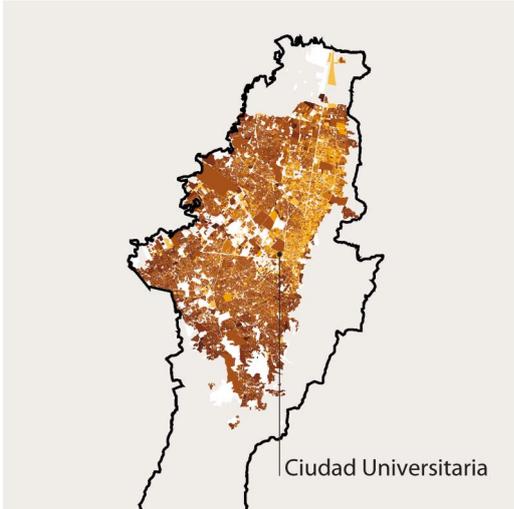
SÃO PAULO



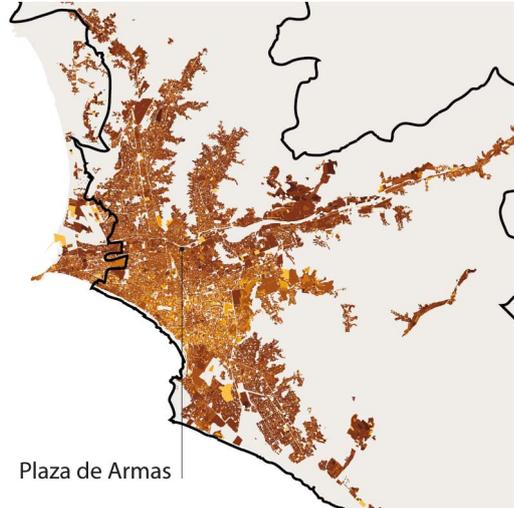
RIO DE JANEIRO



BUENOS AIRES



BOGOTÁ



LIMA\*

### 3.3.4 Dissimilarity

The five maps on the opposite page show the results of the dissimilarity index for each of the cities. Neighbourhoods or city blocks are coloured according to the dissimilarity that was calculated for each case. The most dissimilar areas are in the darkest shade of brown, while the areas most representative of the city's overall educational attainment distribution pattern are in the lighter shades.

Analysing the maps, it is possible to recognise the predominance of a centre-periphery segregation pattern for São Paulo, Rio de Janeiro, Buenos Aires and Lima in which a highly dissimilar centre is surrounded by peripheral zone characterised by low levels of dissimilarity. Bogotá, on the other hand has a different pattern – the northern corridor of the city concentrates the most dissimilar areas. This pattern is the result of a conjunction of factors mainly related to either a concentration of highly educated or poorly educated population groups. These in turn reflect traditionally more affluent areas, the unequal distribution of investment in public infrastructure and the rapid growth of the cities through the expansion of informal settlements. The spatial stratification revealed by the dissimilarity index shows that in Latin American cities, segregation according to social class is one of the main determinants of the urban structure. The resulting unbalanced spatial distribution exacerbates the territorial dynamics of social exclusion/inclusion, thereby generating poles of exclusivity and high quality of life as well as creating stigmatised areas where social exclusion is worsened by local deficit in services, accessibility and opportunities.

Buenos Aires uniquely displays a low level of dissimilarity throughout its urban core, indicating a degree of social inclusion within the centre. A further observation concerns a phenomenon that is most pronounced in Rio de Janeiro and Buenos Aires with peripheral areas highly dissimilar to the rest of the city. This is mostly the result of a concentration of poorly-educated groups and to a lesser extent rich gated suburban communities.

Topography is another factor to be considered. In cities with dominating seafronts such Rio de Janeiro, Buenos Aires and Lima, the areas along the coast line are for the most part very dissimilar to the average social composition of the cities in which they appear, hinting at the fact that these areas have been appropriated by the wealthiest sections of the city's population. In Lima which is caught between the sea and mountains, the most dissimilar areas are clustered in the centre of the city while the most similar areas are those that border the mountains and fill the valleys.

On the other hand, the sections of the city least dissimilar to the overall average are typically areas in between the centre and the extreme periphery – a transition zone that covers most of the actual surface of the metropolitan region. To conclude, this overview highlights a pattern where the most untypical concentrations a city's population are concentrated in the centre, along corridors or are pushed to the extreme boundaries of the metropolitan region.

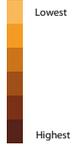
Following from this comparative overview at the metropolitan scale, the next pages present a more detailed city-by-city analysis highlighting some key findings with regards to the relationship between dissimilarity and urban form.

below  
Informal settlements in São Paulo  
Marcos Rosa



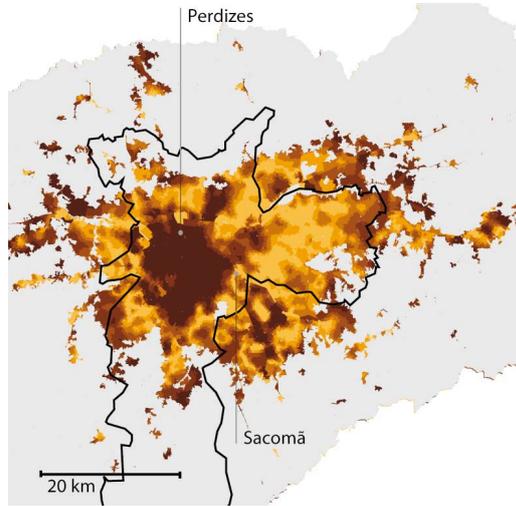
**Dissimilarity**

The highlighted neighbourhoods in each city are extreme cases that are explored on the following pages.

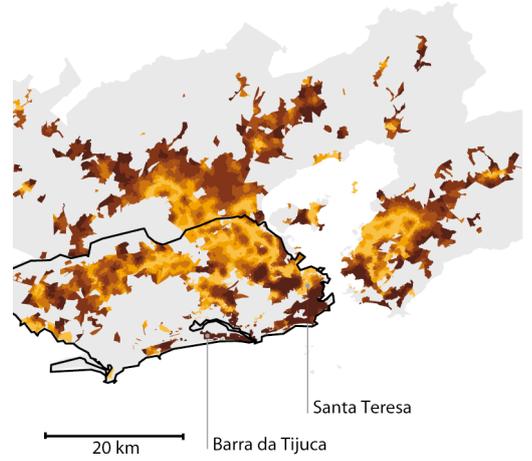


Source: *Urban Age* research

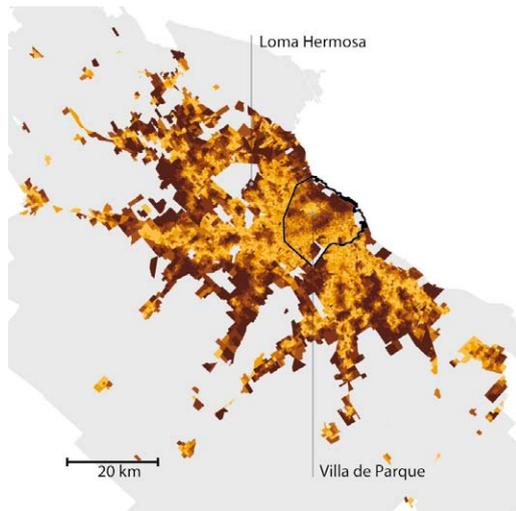
\* Limited comparability with the other four cities due to a discrepancy in census years and a difference in data collection methodology.



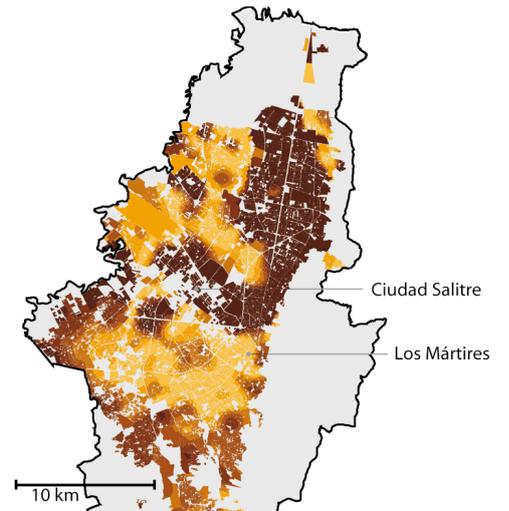
**SÃO PAULO**



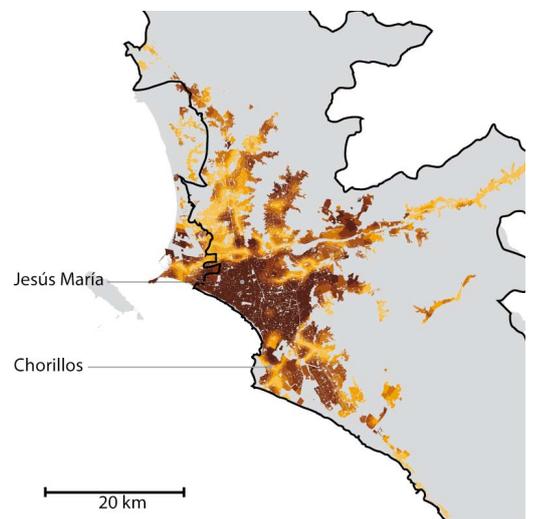
**RIO DE JANEIRO**



**BUENOS AIRES**



**BOGOTÁ**



**LIMA\***

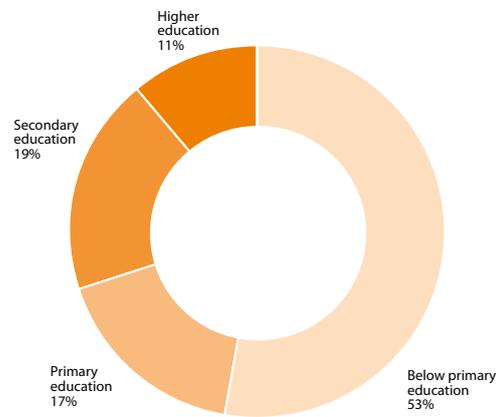
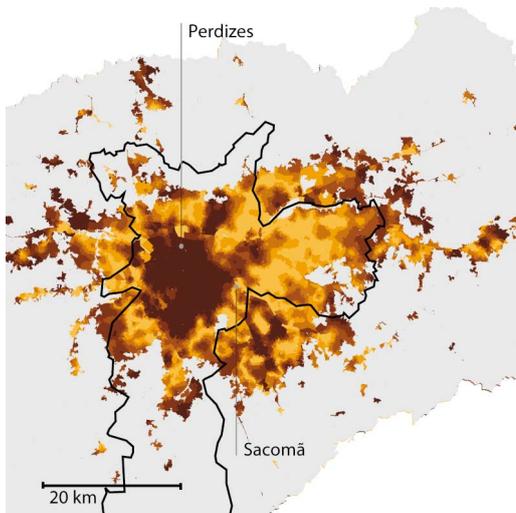
São Paulo

As previously highlighted, São Paulo presents a very marked centre periphery division. The pie chart below is presented in order to show the basis on which the dissimilarity index was calculated. The so called “southwest quadrant”<sup>37</sup> concentrates the highest levels of dissimilarity as a result of an unusually high percentage of residents with secondary or higher education. These privileged areas stretch from the central neighbourhoods of Higienópolis, passes the Paulista Avenue and Jardins, to the Pinheiros river and Morumbi, areas that also concentrate the infrastructure and services in the city. Out of the twenty most dissimilar areas, a vast majority are composed of apartment towers (50%). Apartment blocks, concentrated quality housing and medium rise slab housing complete the typology picture for high dissimilarity with each 15% of the most

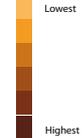
dissimilar areas that were identified as part of this study. The building typology of extreme social dissimilarity in São Paulo are mainly higher density, affluent housing.

In contrast to this, the least dissimilar and therefore most representative areas of the city in terms of educational attainment distribution are areas further away from the city centre, most of them in the East of the metropolitan region. In terms of typologies, concentrated low-quality (47%) and good-quality housing (26%) as well as medium rise slab (16%) are the most dominant among the twenty least dissimilar areas. They seem to facilitate the housing of the most representative groups of São Paulo.

37 Espaço Intra-urbano no Brasil. Villaça, F. São Paulo, Studio Nobel. 1998



left  
São Paulo Dissimilarity



Source: Urban Age research

right  
Education attainment for the São Paulo metropolitan region

Source: Censo Demográfico IBGE, 2000



left  
High dissimilarity: Perdizes

Within the urban core of the municipality of São Paulo, the affluent area of Perdizes is typical for high dissimilarity in the city. Tower apartments are the dominant typology in this area.

Source: Google Earth

right  
Low dissimilarity: Sacomã

In the South East of the municipality of São Paulo, Sacomã has traditionally been a working class neighbourhood, housing Spanish and Italian immigrants in the early 20th century and more recently workers from former industrial sites within the state of São Paulo. It is characterised by low quality concentrated housing.

Source: Google Earth

Rio de Janeiro

Like São Paulo, Rio de Janeiro is a strongly segregated city, with the most dissimilar areas located along the coastline but also in the extreme peripheries of the metropolitan region.<sup>38</sup>

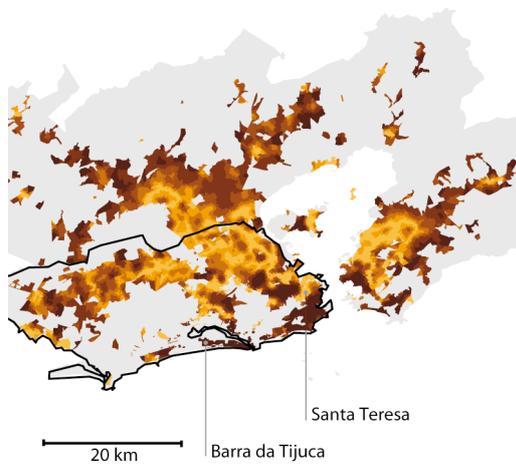
The relationship between dissimilarity and building typologies is more complicated than for the case of São Paulo. In terms of high dissimilarity, among the twenty most extreme cases, concentrated high-end detached housing (40%) is most common. As in the case of Barra da Tijuca, these exist mostly along the coastline and are usually intermixed with apartment towers (30%) and individual high-end detached housing (10%). The 20 remaining per cent are dissimilar due to high levels of poorly-educated and can be found in the periphery. These areas take the form of dispersed low quality housing, mostly found in the hilly terrain in the northern extremity of the city. In these places, one can assume that more

than half of the population does not have primary education.

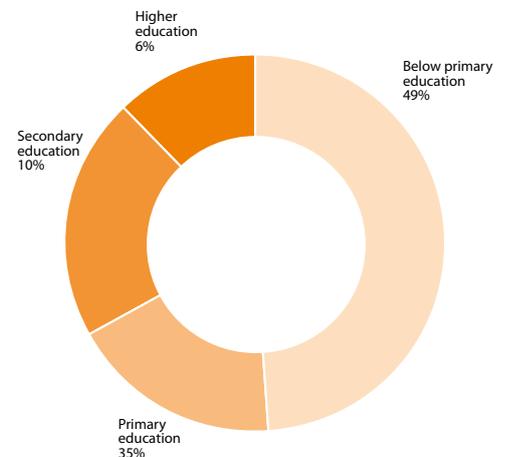
Areas with low levels of dissimilarity are transitional zones between the very wealthy and very poor areas and are characterised by a mix of typologies, as in the case of Santa Teresa. Concentrated good quality (32%) and low quality (21%) housing and hillside slums (26%) are typologies that are most found in these areas.

38 Chapter 12: Convertibility, Crisis, and Challenges for the Future: 1991-2006. Cohen, M. in *Buenos Aires 1536-2006: Historia urbana del Area Metropolitana*. Gutman, M. and J. E. Hardoy. Buenos Aires: Ediciones Infinito, 2007

left  
**Rio de Janeiro Dissimilarity**  
Lowest  
Highest  
Source: *Urban Age research*



right  
**Education attainment for the Rio de Janeiro metropolitan region**  
Source: *Censo Demográfico IBGE, 2000*



left  
**High Dissimilarity: Barra da Tijuca**  
Established in the 1980's on a sandbank part of the western side of the city's coastline, the area is now one of the city's main upper-class real estate attractions, with a lifestyle inspired by North American suburbia – as exemplified by its standardised concentrated luxury detached housing.  
Source: *Google Earth*



right  
**Low dissimilarity: Santa Teresa**  
Santa Teresa is located on top of the Santa Teresa hill in the centre of Rio and is famous for its winding, narrow streets. Once an upper class residential area, it has recently been revived as a hotspot for artists. Both good quality concentrated housing and hillside slums can be found here.  
Source: *Google Earth*



Buenos Aires

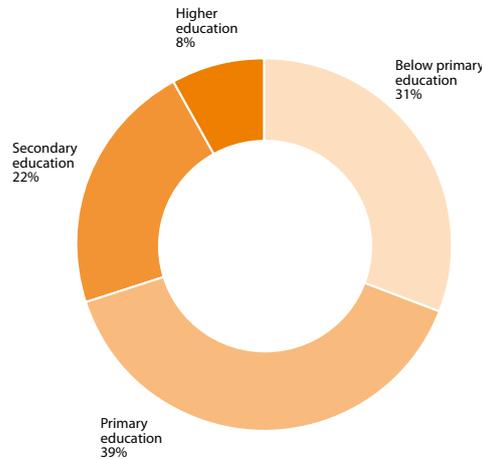
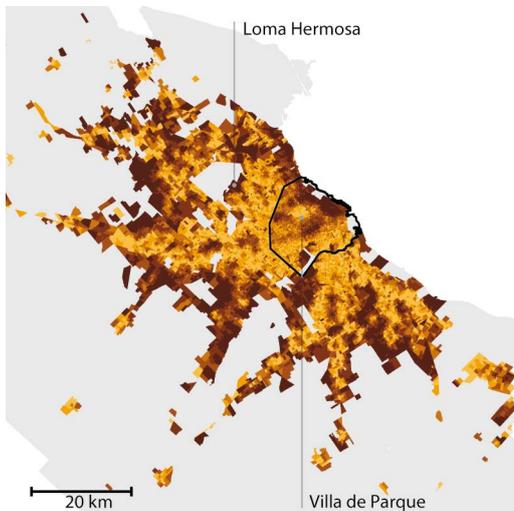
Buenos Aires presents the same general dissimilarity pattern as Rio de Janeiro. However, the urban core is less dissimilar and the threefold distinction between centre, transition zone and extreme periphery is more strongly marked.

This is reflected in the way architectural typologies relate to social distribution. Indeed, the typologies that are most present in the twenty most dissimilar areas are formalised slums (28%) on the one hand and concentrated high-end detached housing (22%) on the other. Another idiosyncratic feature of Greater Buenos Aires is the presence of country clubs with high-end individual detached housing in its fringes. This type of development counts for 17% of the most highly dissimilar areas. The remaining 30% is divided between low quality housing and slums.

As concerns low dissimilarity, a variety of typologies is represented. Concentrated good

quality housing (40%), mostly in the central city, such as the case of Villa del Parque, makes up the biggest portion. Other typologies include concentrated high-end detached housing (20%) in the suburbs, inner city apartment blocs (15%) and low quality concentrated housing (15%).<sup>39</sup> These typologies can all accommodate populations with an educational distribution similar to that of the metropolitan region as a whole.

<sup>39</sup> *Informal Neighbourhoods in Buenos Aires Metropolitan Region: Understanding the effects of land regulation on the welfare of the poor.* Goytia, C and Lanfranchi, G. Preliminary Version. Buenos Aires, Graduate School of Urban Economics Torcuato Di Tella University, 2007



left  
**Buenos Aires Dissimilarity**  
Lowest  
Highest  
Source: Urban Age research

right  
**Educational attainment for Greater Buenos Aires**  
Source: Gobierno de la Ciudad de Buenos Aires / Censo Población INDEC, 2001



left  
**High dissimilarity: Loma Hermosa**  
Located to the North West of the city of Buenos Aires, Loma Hermosa was born in the latter half of the 20th century out of mostly rural land. While it is adequately serviced in terms of transport, the main typology in the area is formalised slums.  
Source: Google Earth

right  
**Low dissimilarity: Villa del Parque**  
In the western portion of the city of Buenos Aires, Villa del Parque is a dense neighbourhood with a century long history. It is characterised by concentrated good quality housing.  
Source: Google Earth

Bogotá

Bogotá's dissimilarity pattern is unique by comparison to the other four cities. High dissimilarity is concentrated in the northern corridor, and especially in the wealthy areas of Usaquén and Chapineiro,<sup>40</sup> while the South and the East present very low levels of dissimilarity. The difference to other cities is partially due to the relatively even split of educational attainment groups in Bogotá – here, dissimilar areas are already those areas where one group includes more than half of the population in any given area.

Among the twenty most dissimilar areas, the following typologies dominante: medium-rise slab (50%), low-rise slab (30%) and inner city apartment blocks (20%). The fact that the slab typology makes up a vast majority of these areas indicates that they fulfill certain functions that only particular social group are looking for or

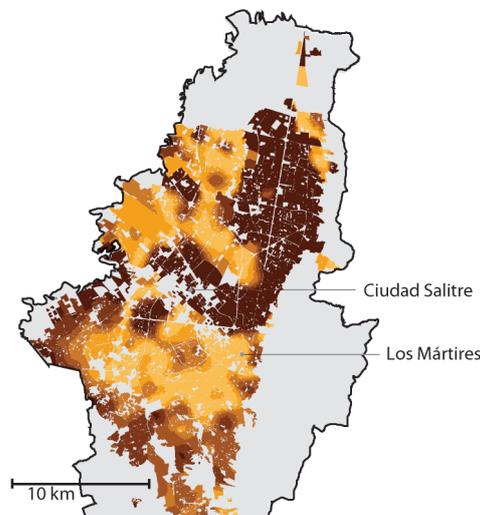
can afford in their residential spaces. The fact that slabs offer more security than individual houses may be one of these.

As far as areas with low dissimilarity are concerned, the types of typologies are more varied, ranging from concentrated low quality housing (33%), to inner city apartment blocks (33%). In between, one finds medium-rise slab (17%) and concentrated good quality housing. It seems that all these typologies are able to house the typical breakdown of Bogotá's balanced educational distribution.

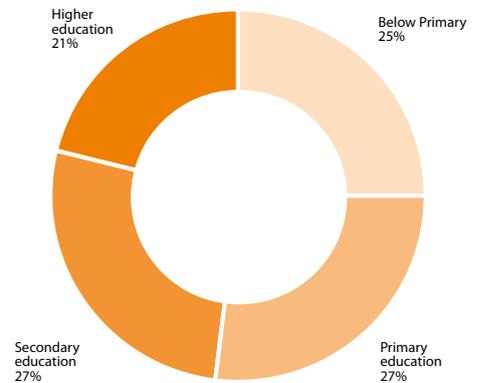
40 Segregación Socioeconómica en el Espacio Urbano de Bogotá, D.C. Secretaria Distrital de Planeación, Alcaldía Mayor de Bogotá D.C., 2007

left  
**Bogotá Dissimilarity**  
Lowest  
Highest

Source: Urban Age research



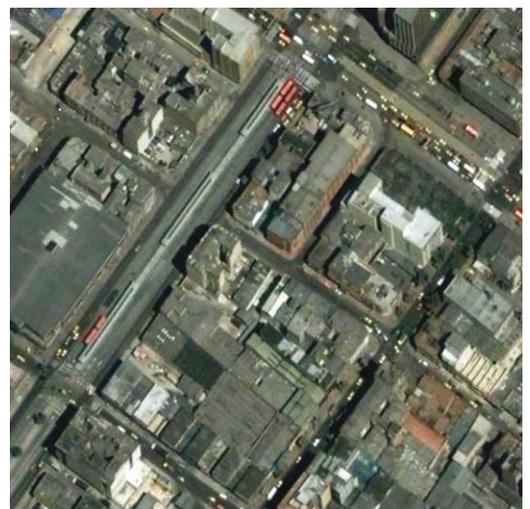
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**Educational attainment for the city of Bogotá**  
Source: Catastro Bogotá / Censo General, DANE, 2005



left  
**High dissimilarity: Ciudad Salitre**  
An empty area in 1996, Ciudad Salitre has since then become one of the most famous neighbourhoods in Bogotá, boasting two major shopping malls, many residential complexes and buildings from major national institutions. Medium-rise slabs are the dominant typology.  
Source: Google Earth



right  
**Low dissimilarity: Los Mártires**  
Located in the southern portion of the central city, Los Mártires presents a very varied built environment. Juxtaposed are buildings from the early days of the republic and more recent ones, decrepit central city houses and middle class apartment blocks.  
Source: Google Earth

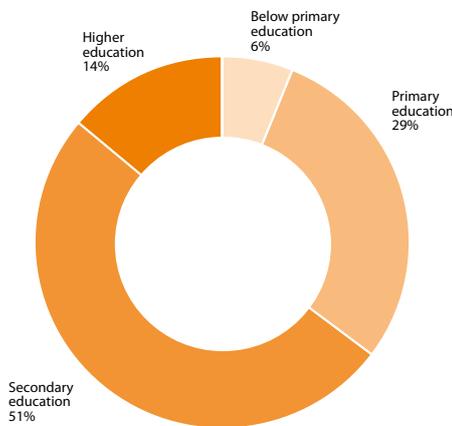
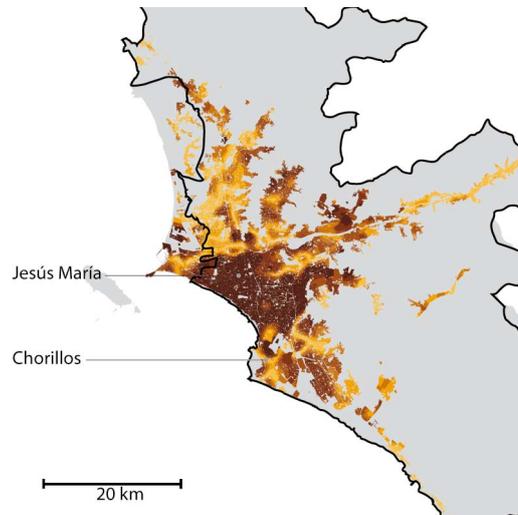


Lima

As mentioned in the overview on the educational profiles of the five cities, the data for Lima is less comparable with the other cities. The overall spatial pattern that one can glean from the dissimilarity values is determined by the city's topography. The most dissimilar areas are included within a semi-circle centred around the coastline and includes the wealthiest areas of the central city such as Miraflores and San Isidro. Areas of high dissimilarity further border to the mountains and fill the valleys in the East and North.

In terms of typologies, out of the twenty most dissimilar areas, 44% are composed of concentrated good quality housing, 33% of apartment blocks and 22% of medium-rise slabs. They are all located in the central city and are interspersed with a large number of neighbourhood parks.

Areas of low dissimilarity are characterised by two different groups of typologies. The majority are either concentrated low quality housing (33%) or formalised slums (22%). The second group is composed of higher housing standard typologies, such as concentrated good quality housing (22%) and apartment blocks (22%). This indicates that a variety of architectural typologies can accommodate the city's average educational distribution.



left  
**Lima Dissimilarity**  
Lowest  
Highest  
Source: Urban Age research

right  
**Educational attainment for the metropolitan region of Lima and Callao**  
Source: INEI, Estadística de Centros Poblados, 1993



left  
**High dissimilarity: Jesús María**  
Jesús María is one of the more centrally located districts of Lima. A more affluent and high density residential neighbourhood, it usually ranks in the top four districts with the best quality of life in Lima. Close to 45% of its population had a university degree in 1993.  
Source: Google Earth

right  
**Low dissimilarity: Chorrillos**  
The Chorrillos district is very heterogeneous, with middle class housing alongside poorer areas. The one selected here is from the Western part of the district, bordering Armatambo hills and features mostly concentrated low-rise housing.  
Source: Google Earth

### Summary

If any general observation can be made on the relationship between dissimilarity based on educational attainment and the typological characteristics of a particular parts of the city, it is that while the overall metropolitan patterns of dissimilarity are relatively similar (a marked centre – intermediate areas – periphery divide), the typological representation of that pattern at a local scale in each city seems quite different.

With the notable exception of Buenos Aires, areas of high dissimilarity tend to be wealthy more centrally located areas and the areas located along the city fringe. At the same time, building typologies that dominate among the most extreme cases differ widely. A very marked presence of high-rise buildings in São Paulo, many instances of concentrated luxury detached housing in Rio de Janeiro, medium-rise slab in Bogotá and concentrated good quality housing in Lima are representative for high degrees of dissimilarity as a consequence of a far above average education level. On the other hand, high dissimilarity as a consequence of unusually high levels of poorly-educated residents is linked to the presence of dispersed low-quality or slum housing. The reasons of these differences in the typologies dominated by either the most or least educated is self-evident.

Of greater interest and with less predictable results are typologies related to extremely low levels of dissimilarity mostly found in the intermediate areas of all cities. Most of these areas tend to be characterised by more heterogeneous typologies as compared to the high dissimilarity areas. These areas reflect the city's average educational attainment distribution – a result that is either achieved either by a typology that is flexible enough to accommodate different social categories – such as the concentrated good quality housing featured in Buenos Aires or the lower quality housing of São Paulo and Lima – or by a mix of typologies as in the case of the areas selected for Rio de Janeiro and Bogotá. Moreover, it is interesting to observe that these areas share common characteristics such as historical density and the presence of a diversity in uses including small industries, traditional commerce and institutional services.

#### Percentage of building typologies featuring in areas of extremely high or extremely low dissimilarity

This table presents the results of the building typology count for the dissimilarity index. The percentages were calculated by overlaying the twenty most and twenty least dissimilar census tracts or city blocks on aerial photographs and by then counting the occurrences of particular typologies. The ten general typologies, presented here in order of increasing affluence, were designed to encompass the great variety of building types in the five cities under investigation.

Source: *Urban Age research*

	São Paulo dissimilarity		Rio de Janeiro dissimilarity		Buenos Aires dissimilarity		Bogotá dissimilarity		Lima dissimilarity	
	highest	lowest	highest	lowest	highest	lowest	highest	lowest	highest	lowest
<b>Dispersed low-quality (%)</b>			20.0		11.1					
<b>Hillside slum (%)</b>			26.3							
<b>Slum (%)</b>					11.1	10.0				
<b>Formalised slum (%)</b>		10.5	5.3	27.8						22.2
<b>Concentrated low-quality (%)</b>		47.4	21.1	11.1	15.0		33.3			33.3
<b>Low-rise slab (%)</b>							30.0	5.6		
<b>Medium-rise slab (%)</b>	15.0	15.8		10.5			50.0	16.7	22.2	
<b>Concentrated good-quality (%)</b>	15.0	26.3		31.6		40.0		11.1	44.4	22.2
<b>Apartment blocks (%)</b>	15.0					15.0	20.0	33.3	33.3	22.2
<b>Apartment towers (%)</b>			50.0	30.0	5.3					
<b>Concentrated detached high-end (%)</b>		5.0		40.0		22.2	20.0			
<b>Individual detached high-end (%)</b>				10.0		16.7				
<b>Number of analysed cases</b>	20	19	20	19	18	20	20	18	18	9

### 3.3.5 Diversity

The five maps on the opposite page show the different levels of diversity based on educational attainment groups in the five cities. As previously mentioned, this index focuses on the educational distribution present within each census area or city block, rather than on the relationship between a certain block and the city-wide average as in the case of dissimilarity. Each neighbourhood or city block was coloured according to the levels of diversity that was calculated. The most diverse areas are in the darkest shade of brown, while the least diverse are in the lightest shade.

Analysing the maps, an immediate observation is that diversity levels particularly in São Paulo, Rio de Janeiro and Bogotá tend to be mirror images of their respective dissimilarity maps. Areas bordering to the city centre with low levels of dissimilarity and thus the most representative of the city average, appear to be the most diverse areas in the city – a reflection of an overall high level of diversity at metropolitan scale. This is most evident for Bogotá and it can easily be explained by the city's educational distribution. Indeed, we have seen that the four educational

categories have almost equal size (around a quarter of the population) in that city. The least dissimilar areas are then those who come closest to this – it thus logical that they are also the most diverse.

A closer look further reveals that the least diverse areas in São Paulo, Rio de Janeiro and Buenos Aires are the extreme fringes of the city. This confirms that social homogenisation usually increases with horizontal growth at the city fringe. In Bogotá, the least diverse areas are the wealthiest areas of the northern corridor, a fact which highlights the concentration of the most educated segment of the population. In Lima, once again the importance of topography is evident with the least diverse areas concentrated in the northern section, where mountain ridges divide the city and in the southern section, where the flat terrain has allowed a recent, and often precarious expansion of the city.

Moving on from the comparative overview of wider metropolitan patterns to a more detailed look at the five cities as for the previous chapter, the focus will be on presenting the research on the relationship between diversity and urban form and transport infrastructure.

below

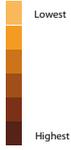
Central São Paulo still displays high levels of diversity regardless of the fact that it is dominated by informal activities of poorer sections of society

Philipp Rode



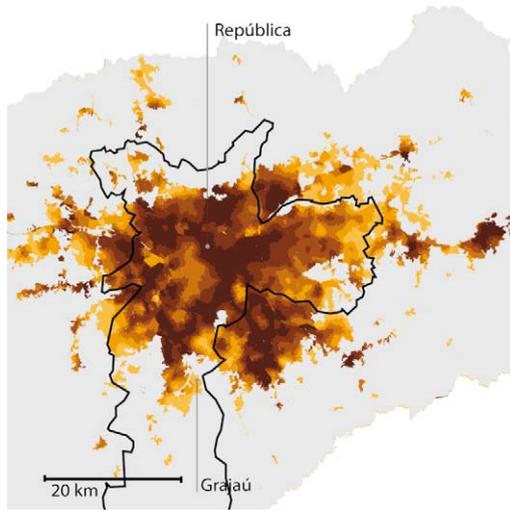
**Diversity**

The highlighted neighbourhoods in each city are extreme cases that are explored on the following pages.

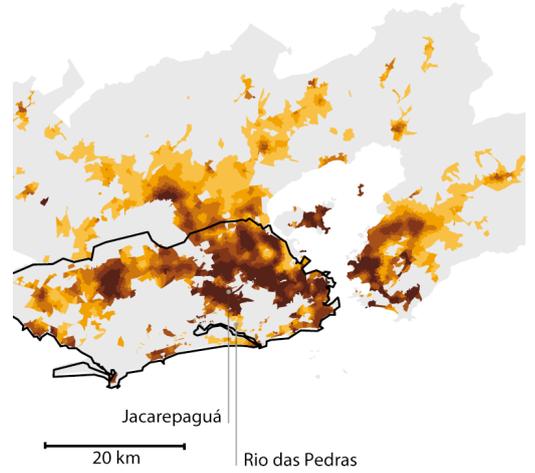


Source: *Urban Age research*

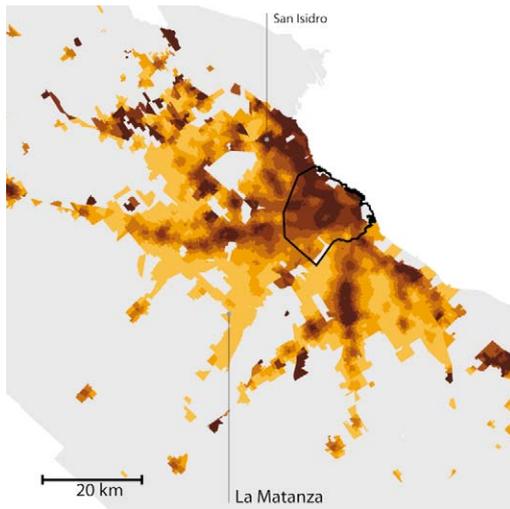
\* Limited comparability with the other four cities due to a discrepancy in census years and a difference in data collection methodology.



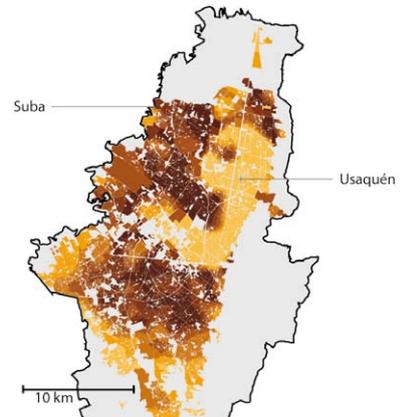
**SÃO PAULO**



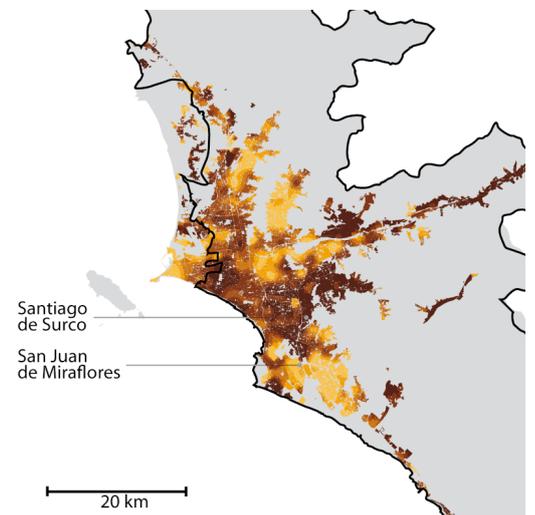
**RIO DE JANEIRO**



**BUENOS AIRES**



**BOGOTÁ**



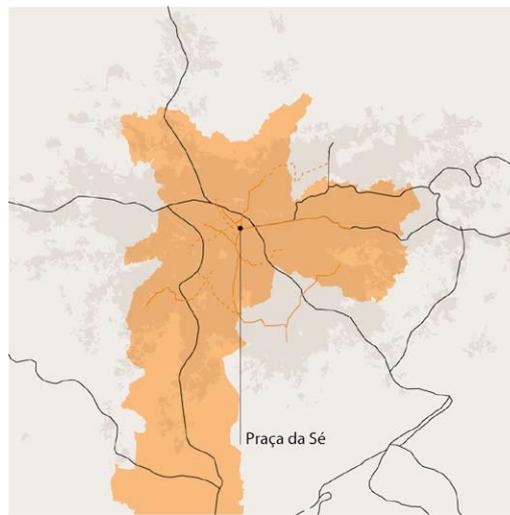
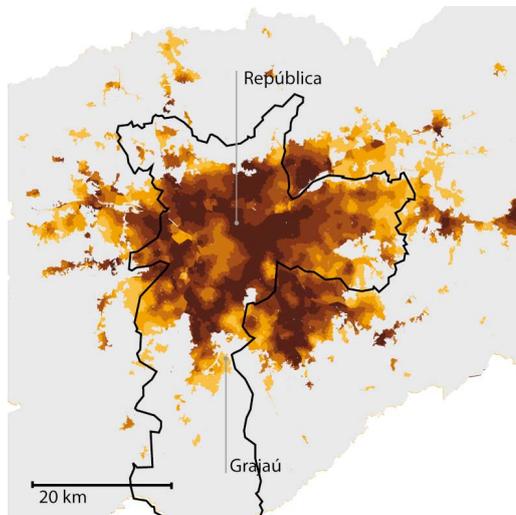
**LIMA\***

São Paulo

In São Paulo, high diversity dominates in the areas between the most central part and the extreme fringes of the metropolitan region. A strong link between diversity and the provision of public rail infrastructure is not evident. The highest diversity levels occurs in areas with building typologies dominated by medium to high standard, such as concentrated good quality homes (35%), medium-rise slab (25%), apartment blocs (15%) and apartment towers (15%). The reason why this may be the case follows from the São Paulo educational attainment distribution, in which 53% of the heads of households do not have a primary education. This means that there is a tendency that in order for an area to be diverse, better educated groups of the population need to have a greater share.

The lowest diversity levels are found at the fringes of the metropolitan region. The

predominant typology among the twenty least diverse areas are slums (70%), with more formalised slums (10%) and slums that cover hillsides (15%) painting a bleak picture of the fringes of the city.



left  
**São Paulo Diversity**  
Lowest  
Highest  
Source: Urban Age research

right  
**São Paulo transport infrastructure**  
Administrative city  
Intercity rail  
Regional rail  
Underground/Metro/TransMilenio  
Planned extensions  
Source: Urban Age research



left  
**High diversity: República**  
Located in the centre of the municipality of São Paulo, República is part of the historical centre of the city and houses some of its most famous landmarks, such as the Municipal Theater and the Praça da República. It is characterised by a variety of different building typologies and styles.  
Source: Google Earth

right  
**Low diversity: Grajaú**  
Overlooking the Billings reservoir, Grajaú is simultaneously one of the most populous and least well serviced districts of city. Quality of life is severely hampered by a lack of planning, infrastructure and services as well as the dominance of slums.  
Source: Google Earth

Rio de Janeiro

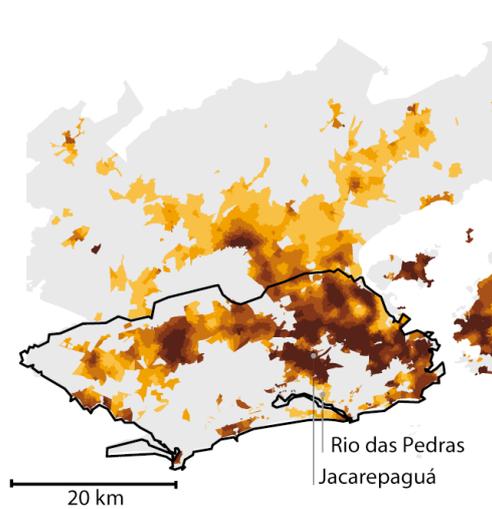
While the overall pattern in Rio de Janeiro exhibits diversity levels similar to those of São Paulo, the difference is in intensity. The number of areas suffering from low diversity is much greater in Rio de Janeiro. This may be due to topography: São Paulo is not constrained in its development by the sea and mountains, while Rio de Janeiro has had to extend in a finger-like pattern in order to accommodate its landscape. This has pushed those poorer groups of society unable to settle in hillside slums close to the centre further away from the urban and may have resulted in significantly larger areas of low diversity. At the same time, Rio de Janeiro's rail infrastructure has defined urban growth corridors that seem to display higher diversity levels.

The areas with the highest diversity in terms of educational attainment includes a variety of typologies, with concentrated low quality (37%)

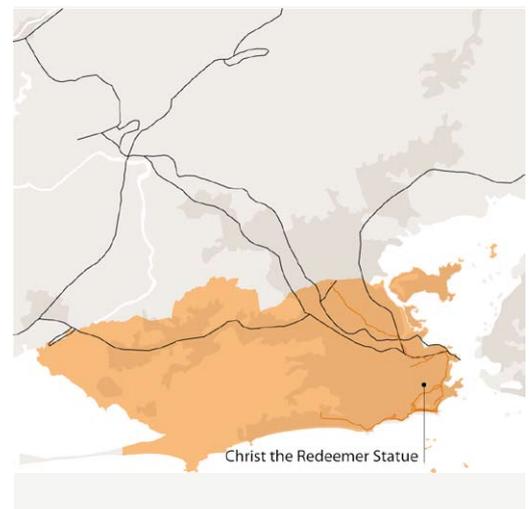
and good quality (21%) housing and medium-rise slab (21%) as the main elements. In many cases, diversity is achieved by the juxtaposition of higher and lower standard typologies. This can be seen below in the aerial photograph of Jacarepaguá, an area in which both good and low quality housing appear.

In terms of the areas with the lowest diversity, the fringes of the city are the most represented, with dispersed low quality housing making up 60% of the cases. Slums (25%) and formalised slums (15%) were found in the remaining cases.

left  
**Rio de Janeiro Diversity**  
Lowest  
Highest  
Source: Urban Age research



right  
**Rio de Janeiro Transport infrastructure**  
Administrative city  
Intercity rail  
Regional rail  
Underground/Metro/TransMilenio  
Planned extensions  
Source: Urban Age research



left  
**High diversity: Jacarepaguá**  
Located in the western zone of the municipality of Rio de Janeiro, Jacarepaguá is a lower middle-class neighbourhood. But it is also home to some of the city's largest slums, most notably Cidade de Deus.  
Source: Google Earth



right  
**Low diversity: Rio das Pedras**  
South of Jacarepaguá is Rio das Pedras, a neighborhood born as an illegal encroachment on the natural landscape. While it is still officially considered as a favela, infrastructure is being put in place progressively and commercial activity is growing.  
Source: Google Earth



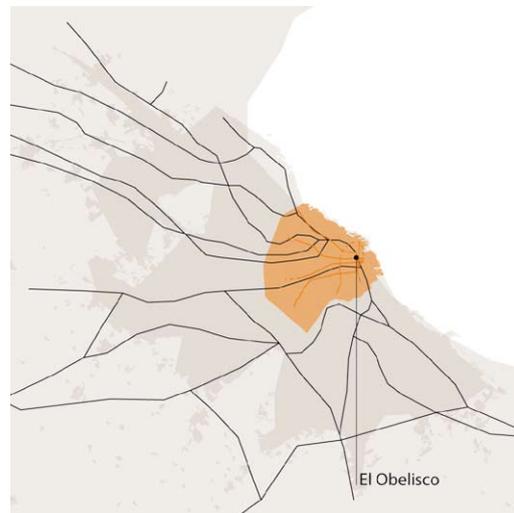
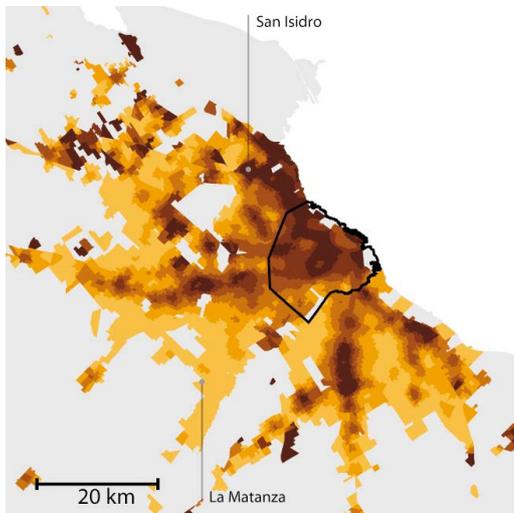
Buenos Aires

In Buenos Aires, areas with higher diversity levels tend to overlap with those neighbourhoods characterised by a higher share of affluent and better educated populations. As previously mentioned, the fact that only a small percentage of the population within the metropolitan region has a higher education degree means that high diversity will only be achieved in areas more affluent than the city average. A large portion of the City of Buenos Aires, the coastline areas to its north and the neighbourhoods along the main eastwards and southwards transport axes are thus the most diverse.

The areas with the highest degree of diversity with respect to the educational attainment of its population are characterised by high-end concentrated detached housing (45%) and concentrated good quality housing (40%).

The lowest diversity values are attained in

areas in the fringes of Greater Buenos Aires. The dominant architectural typologies are in these cases formalised slums (44%), dispersed low quality housing (28%) and concentrated low quality housing (22%).



left  
**Buenos Aires Diversity**  
Lowest  
Highest  
Source: Urban Age research

right  
**Buenos Aires Transport infrastructure**  
Administrative city  
Intercity rail  
Regional rail  
Underground/Metro/TransMilenio  
Planned extensions  
Source: Urban Age research



left  
**High diversity: San Isidro**  
In the northern part of Greater Buenos Aires, San Isidro is home to Buenos Aires' upper middle and upper classes. The area selected has one of the highest diversity values for Buenos Aires and is characterised by a mix of concentrated high-end and good quality housing.  
Source: Google Earth

right  
**Low diversity: La Matanza**  
Located in the south-west of Greater Buenos Aires, La Matanza is its most populous partidos, with more than 1.3 million people in 2008. Its landscape is composed mainly of low quality housing and formalised slums.  
Source: Google Earth

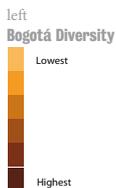
Bogotá

Bogotá's diversity levels present an entirely different pattern compared to that of Buenos Aires. Whereas in the former, the highest levels of diversity were achieved in more affluent areas of the city, the reverse is true in Bogotá. As previously mentioned, this is due to the city's educational attainment distribution, in which the four categories share a very similar percentage. Only areas which share this city average distribution will be diverse. Areas that are much richer or poorer than the average have the lowest diversity levels. To summarise, the most diverse areas in Bogotá are also the least dissimilar compare to the city average.

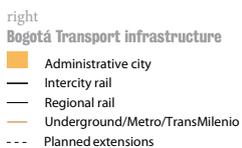
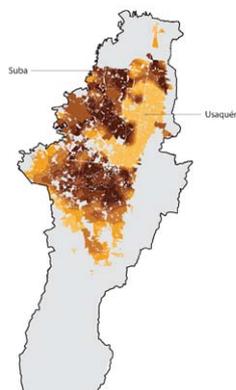
With regards to public transport infrastructure – which for the case of Bogotá looks at the city's bus rapid transit system – and the city's diversity pattern, it appears that the provision of public transport is higher in more diverse areas.

Among the areas with the highest diversity levels, concentrated low quality housing (53%) dominates as well as low- and medium-rise slab, each represented in 12% of the areas.

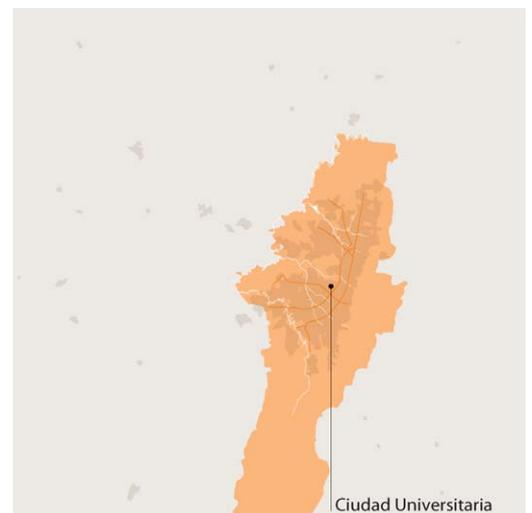
The lowest levels for the diversity are all found in more affluent sections of the city. The typologies in the least diverse areas are thus apartment blocks (58%), concentrated good quality housing (26%) and medium-rise slab (16%).



Source: Urban Age research



Source: Urban Age research



left  
High diversity: Suba

Located in the north-eastern extremity of the city of Bogotá, Suba is a predominantly residential area but also features large shopping malls and a flower cultivation industry. The area shown here is on the eastern side of the district and is mostly characterised by concentrated low quality housing and low-rise slab.

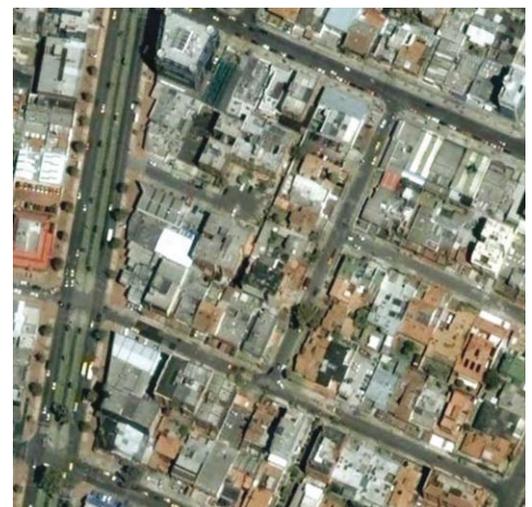
Source: Google Earth



right  
Low diversity: Usaquén

Opposite Suba, Usaquén is located in the north-western extremity of the city of Bogotá. It is a middle to upper class neighbourhood with a variety of housing styles and several shopping centres that borders the Cordillera Oriental mountain range. Apartment blocks and medium-rise are its dominant typologies.

Source: Google Earth



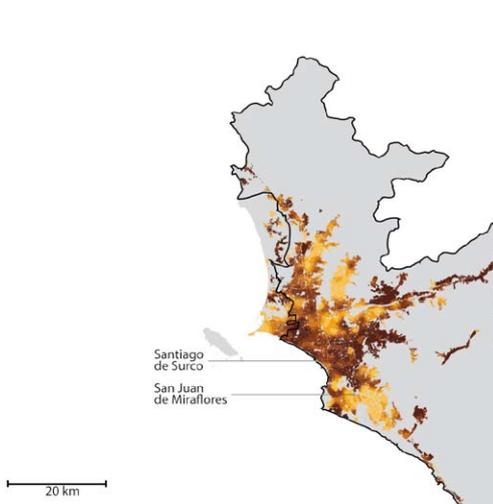
Lima

Lima's diversity pattern indicates that the most diverse areas are located to the east of the city centre in the heterogeneous districts such as Santiago de Surco, while the least diverse are to the north and south of the city centre, in the recent and precarious neighbourhoods such as San Juan de Miraflores. The wealthy city centre itself is characterised by middle-range diversity values. Looking at Lima's educational attainment distribution, one can see that areas that can be diverse should have a more balanced distribution, i.e., a higher proportion of people without primary education and of people with a higher education. This explains why middle class neighbourhoods are the most diverse and the poorest the least diverse.

In terms of typologies, of the most diverse areas 39% are concentrated good-quality housing, 31% are concentrated low-quality housing. Apartment

blocks and concentrated high-end housing are each present in 15% of the areas.

With the least diverse areas found in the recently settled areas in the periphery of the city, it is no surprise that the dominant typologies are slum settlements (57%) and concentrated low-quality housing (43%).



left  
**Lima Diversity**  
Lowest  
Highest  
Source: Urban Age research

right  
**Lima Transport infrastructure**  
Administrative city  
Intercity rail  
Regional rail  
Underground/Metro/TransMilenio  
Planned extensions  
Source: Urban Age research



left  
**High diversity: Santiago de Surco**  
To the south-east of central Lima, Santiago de Surco is a diverse district that houses some of the city's most prestigious universities and many of its largest shopping centres. The area selected here is part of its relatively more developed northern section. It is characterised by apartment blocks and good quality housing.  
Source: Google Earth

right  
**Low diversity: San Juan de Miraflores**  
In the southern extremity of the City of Lima, San Juan de Miraflores is one of the city's pueblos nuevos. A desrtic area before the 1980's, it was settled by migrants escaping terrorism in the less urbanised areas. Slums and low quality housing dominate the landscape.  
Source: Google Earth

### Summary

With regards to the relationship between diversity levels and building typologies found in the areas exhibiting extreme values, results depend strongly on the city's overall educational attainment distribution as well as on the typology most related to a particular socioeconomic class. This can be seen by contrasting the cases of São Paulo and Rio de Janeiro. While these two cities share roughly the same educational distribution and its consequences for diversity – the most diverse areas are most likely to be middle-class while the least diverse are overwhelmingly poor areas – the typologies present in the most and least diverse areas differ greatly.

With the exception of Bogotá, slums (formalised or unformalised) and dispersed low quality housing are the dominant typologies in the least diverse areas. Usually located in the fringes of their metropolitan regions, they are fairly recent additions to the city and thus lack, to varying degrees, the basic infrastructure and services needed to make them attractive to different social groups. Indeed, a general observation that can be gleaned from this diversity data is the poorly educated are more likely to live in higher end typologies than the well educated are to live in lower end typologies.

Excluding Bogotá once again, one can see that the range of typologies of the areas in which one finds the highest diversity is much greater than that of the areas in which diversity is the lowest. Higher diversity can thus be accommodated by a wide spectrum of typologies, from concentrated low-quality housing to concentrated high-end housing.

#### Percentage of building typologies featuring in areas of extremely high or extremely low diversity

This table presents the results of a building typology count for the diversity index. The percentages were calculated by overlaying the twenty most and twenty least diverse census tracts or city blocks on aerial photographs and by then counting the occurrences of particular typologies. The ten general typologies, presented here in order of increasing economic standing, were designed to encompass the great variety of building types in the five cities under investigation.

Source: *Urban Age research*

	São Paulo diversity		Rio de Janeiro diversity		Buenos Aires diversity		Bogotá diversity		Lima diversity	
	highest diversity	lowest diversity	highest diversity	lowest diversity	highest diversity	lowest diversity	highest diversity	lowest diversity	highest diversity	lowest diversity
<b>Dispersed low-quality (%)</b>		5.0	60.0		27.8					
<b>Hillside slum (%)</b>		15.0	5.3							
<b>Slum (%)</b>		70.0	25.0		5.6					57.1
<b>Formalised slum (%)</b>		10.0	15.0		44.4		11.8			
<b>Concentrated low-quality (%)</b>	10.0		36.8		5.0	22.2	52.9		30.8	42.8
<b>Low-rise slab (%)</b>			10.5				11.8			
<b>Medium-rise slab (%)</b>	25.0		21.1				11.8	15.8		
<b>Concentrated good-quality (%)</b>	35.0		21.1		40.0		5.9	26.3	38.5	
<b>Apartment blocks (%)</b>	15.0						5.9	57.9	15.4	
<b>Apartment towers (%)</b>	15.0		5.3							
<b>Concentrated detached (%)</b>					45.0				15.4	
<b>high-end (%)</b>										
<b>Individual detached high-end (%)</b>					10.0					
<b>Number of analysed cases</b>	20	20	19	20	20	18	17	19	13	7

### 3.3.6 Isolation

#### Isolation of the most educated

The five maps on the opposite page show the degree by which the most educated group of the population is isolated from all other groups. Isolation values are derived by looking at a particular city block or census tract and calculating the chance that its neighbouring cells contain a similarly high proportion of the highest educational attainment group. The darker the shade of brown, the higher the isolation of the most educated in that particular area.

A general observation that one can make is the great difference that exists in the metropolitan

patterns of isolation between São Paulo and Rio de Janeiro and the other three cities. In the two Brazilian cities, the highly educated seem to be isolated in a great number of areas – almost throughout the entire municipality – while the other three cities present more contained areas in which the rich are isolated. In Buenos Aires, Bogotá and Lima, the most educated are isolated in the wealthiest sections of the city, but nowhere is the concentration of isolated highly educated as strong as in the Brazilian cities.

A possible technical explanation of the particular pattern found in São Paulo and Rio de Janeiro may be linked to the larger size of census tracts used in these cities as compared to the city blocks used in Bogotá for example.

below

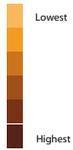
This affluent enclave of sprawling, suburban Bogotá is a typical example of an area with highly isolated rich populations.

*Giovanna Silva*

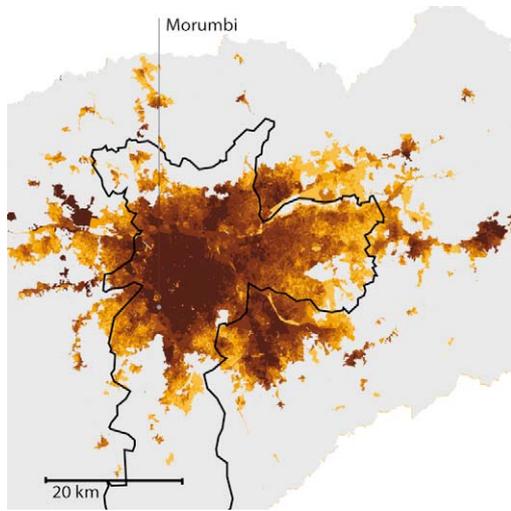


**Isolation of the most educated**

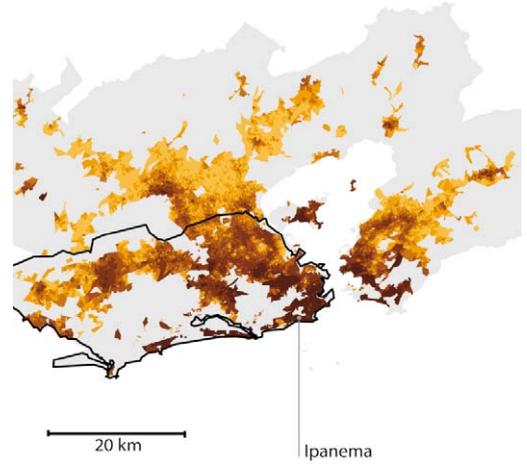
The highlighted neighbourhoods in each city are extreme cases that are explored on the following pages.



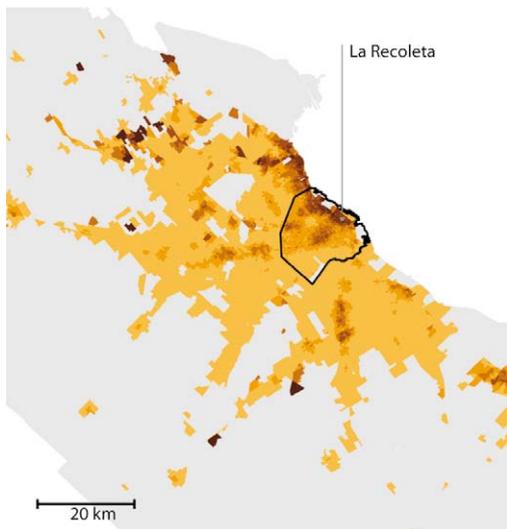
Source: *Urban Age research*  
 \* Limited comparability with the other four cities due to a discrepancy in census years and a difference in data collection methodology.



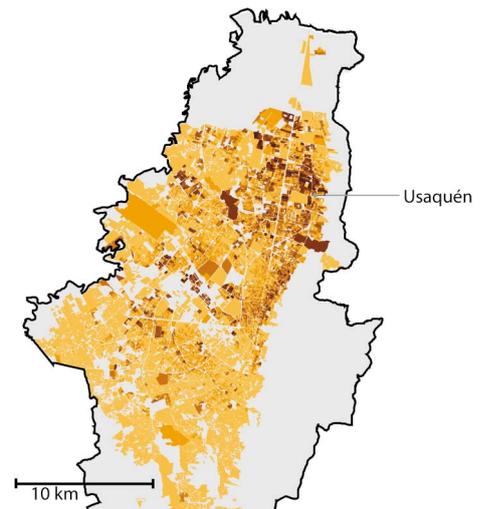
**SÃO PAULO**



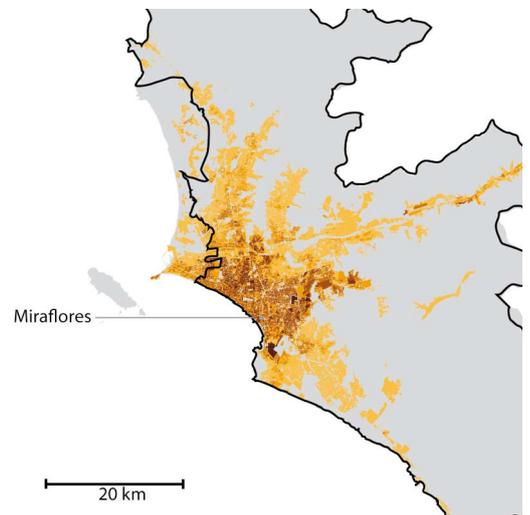
**RIO DE JANEIRO**



**BUENOS AIRES**



**BOGOTÁ**



**LIMA\***

### Isolation of the least educated

The five maps on the opposite page show the results of the isolation levels of the least educated segment of the population. These maps are based on the same calculation that was applied for establishing isolation levels of the most educated. The areas in the darkest shade are those where the least educated are most isolated from the other educational attainment groups.

Looking at the five maps, one can see a very marked centre periphery divide – the least educated are overwhelmingly isolated in the fringes of the metropolitan areas. The only exception is Lima, where no particular pattern appears.

Compared to the isolation pattern of the most educated, a surprising result is the difference exhibited by the Buenos Aires and Bogotá maps. While there was no significant concentration of the most educated segment of the population,

the situation in these cities is now very different. Buenos Aires shows a very high degree of isolation of the least educated in the areas in the western and southern quadrants that are removed from the main transport infrastructure corridors. In Bogotá, we see the reappearance of the pattern encountered for the dissimilarity and diversity indices, with the least educated concentrated in the West and South of the city.

The pattern in São Paulo and Rio de Janeiro is a mirror image of the one seen on the previous page: the least educated are overwhelmingly isolated in the fringes of their respective metropolitan regions.

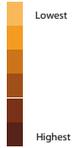
Moving on from the comparative overview of wider metropolitan patterns to a more detailed look at the five cities, the focus on the following pages will be on presenting the findings on the relationship between isolation and urban form.

below  
Development of new concrete and brick houses in Rocinha is largely driven by auto-construction. Even so, basic sanitation and infrastructure is better here than most favelas across the country due to systematic community intervention.  
*Dante Busquets*



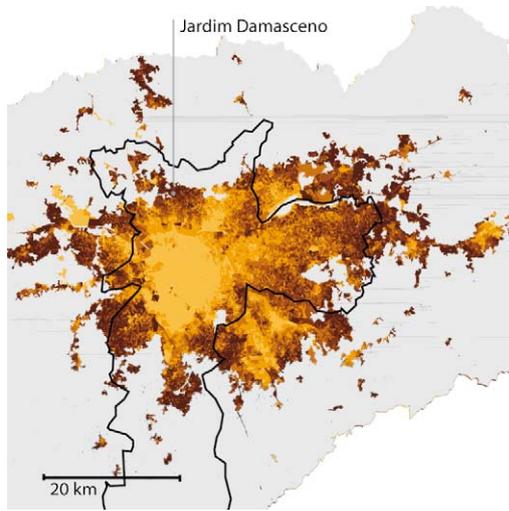
**Isolation of the least educated**

The highlighted neighbourhoods in each city are extreme cases that are explored on the following pages.

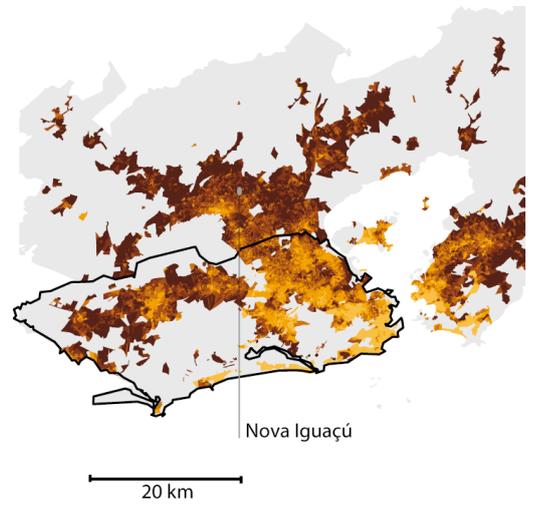


Source: *Urban Age research*

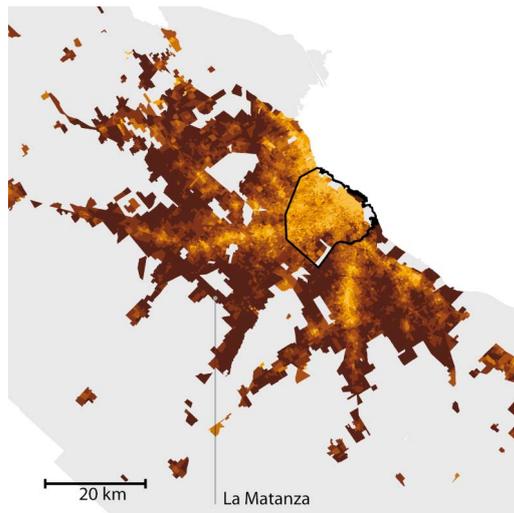
\* Limited comparability with the other four cities due to a discrepancy in census years and a difference in data collection methodology.



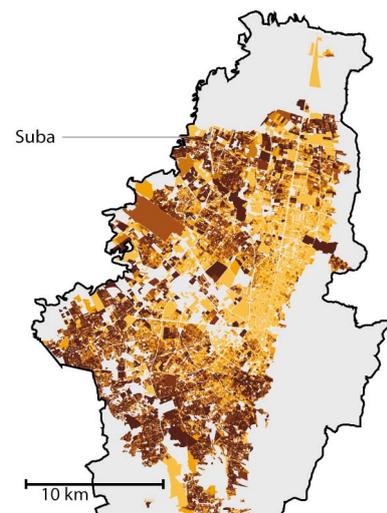
**SÃO PAULO**



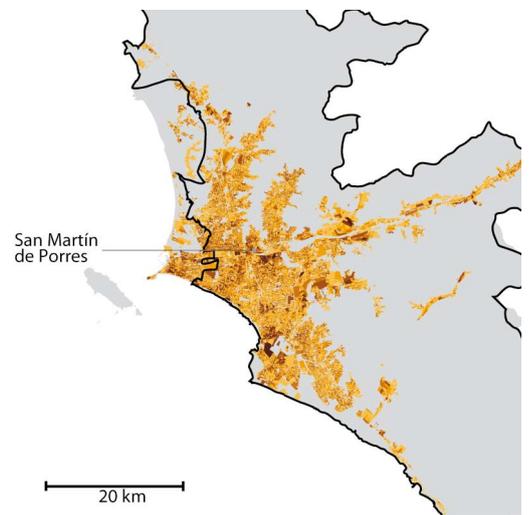
**RIO DE JANEIRO**



**BUENOS AIRES**



**BOGOTÁ**



**LIMA\***

São Paulo

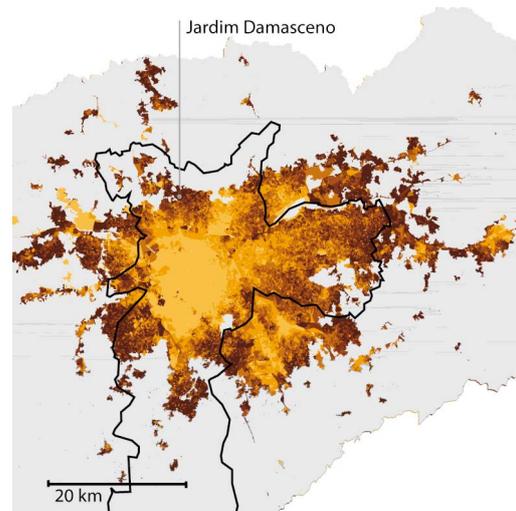
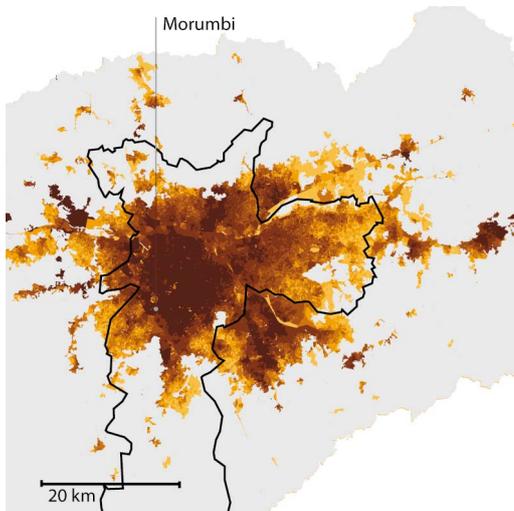
In São Paulo, the isolation index allows to highlight how divided the city is between areas where the highly educated are the most prominent social group and areas where the least educated form the majority of the population. This pattern is expressed strongly in the building typologies most present in the areas with the highest isolation values. Indeed, they show very clearly that some typologies are exclusively found in areas where a particular social group is isolated.

As concerns the isolation of the most educated, apartment towers are the most dominant typology (40%), followed by medium-rise slab (22%), concentrated good quality (17%) and high-end (13%) housing.

With respect to the areas in which we find the highest values for the isolation of the least educated, the typologies most represented are hillside slums (25%), slums (22%), concentrated

low-quality housing (22%) and formalised slums (16%).

The difference in terms of quality of life, as expressed by the type of built environment, that exist between the areas with a concentration of people having a university education and those where the majority do not have primary education is staggering – an illustration of what a Gini of 60 means for the city’s inhabitants.

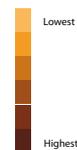


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São Paulo Isolation of the most educated

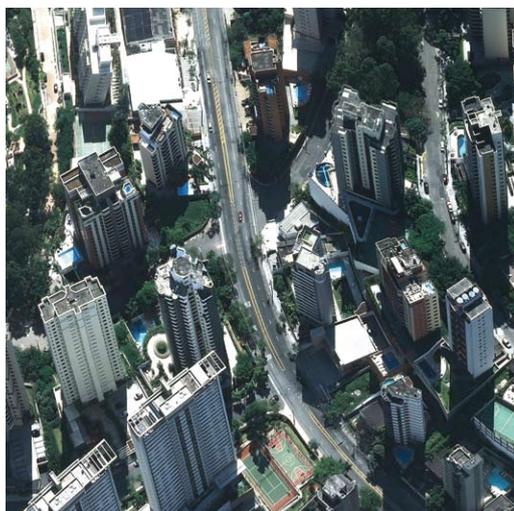


Source: Urban Age research

left  
São Paulo Isolation of the least educated



Source: Urban Age research



left  
Isolation of the most educated: Morumbi

In the southwestern part of the municipality, Morumbi is one of the wealthiest neighbourhoods of the city. It houses one of the most important private hospitals in the city and the Palácio dos Bandeirantes, seat of the São Paulo state government. Tower apartments are the dominant typology.  
Source: Google Earth

right  
Isolation of the least educated: Jardim Damasceno

Jardim Damasceno is a residential district of the northeastern extremity of the city. It borders the Serra da Cantareira mountain range, the largest native urban forest in the world. Its hilly terrain means that a significant portion of its population lives in precarious hillside slums.  
Source: Google Earth

Rio de Janeiro

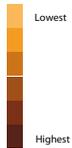
The two isolation maps of the most and least educated sections of Rio de Janeiro's population show that the division between rich and the poor is as marked as it is in São Paulo. The difference is topography, with the fringes of the metropolitan region occupying a much larger area in Rio de Janeiro due to the restrictions placed on the development of the city by the coast and the mountains. These fringe areas were the least diverse in the city and are also characterised by very high levels of the isolation of the least educated. As in São Paulo, the typologies most present in the areas showing higher isolation values for a particular social group will depend on that group's income level.

The most isolated highly educated areas are characterised by apartment (31%) and tower (29%) blocks and concentrated high-end housing (26%), while the greatest isolation of the least

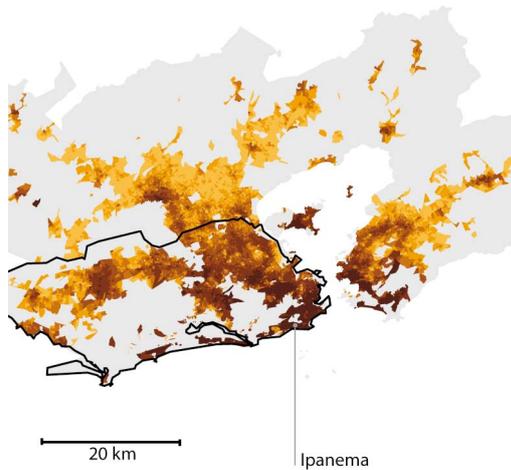
educated groups feature dispersed low-quality housing (35%), hillside slums (16%) and formalised slums (15%).

As in the case of São Paulo, these results show the extent by which the most and least educated live in two completely different kinds of cities, and indeed worlds.

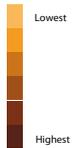
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Rio de Janeiro Isolation of the most educated



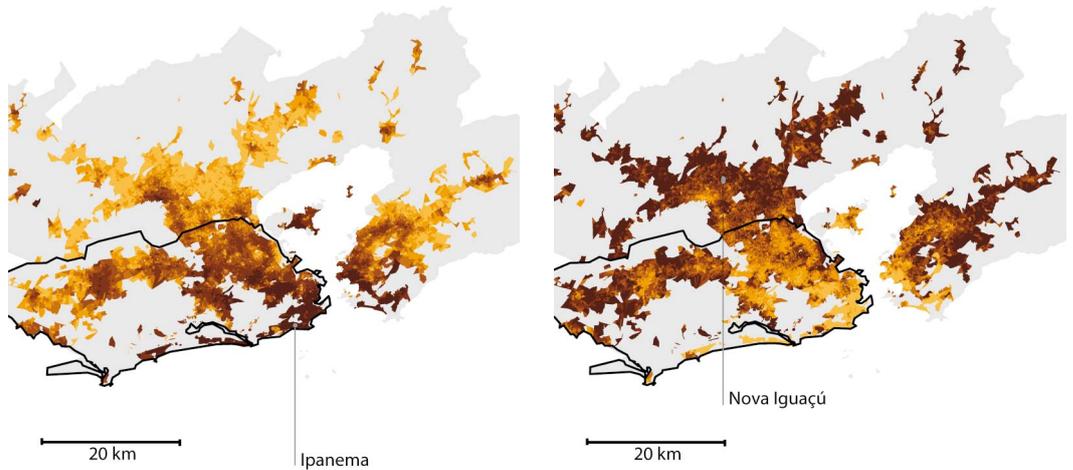
Source: Urban Age research



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Rio de Janeiro Isolation of the least educated



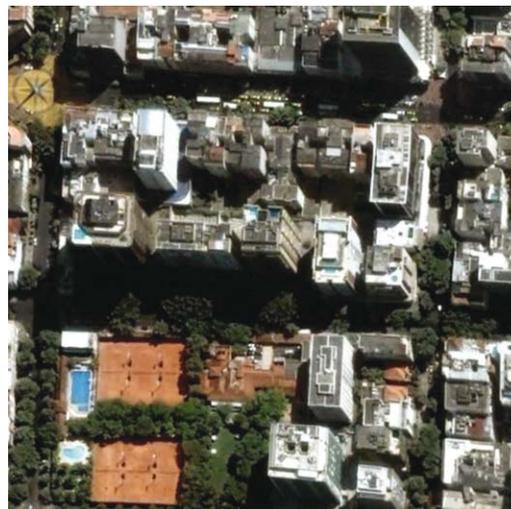
Source: Urban Age research



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Isolation of the most educated:  
Ipanema

The second most affluent neighbourhood in Rio de Janeiro, Ipanema is located on the coast to the South of the city. It is characterised by an orthogonal grid, with large tree-lined avenues encircling high-end apartment blocks and towers.

Source: Google Earth



right  
Isolation of the least educated:  
Nova Iguaçu

Nova Iguaçu is located to the north of the municipality of Rio de Janeiro, on the limits of the metropolitan area. The city hosts a significant number of low-income emigrants from Northeastern Brazil and is characterised by dispersed low-quality housing.

Source: Google Earth



Buenos Aires

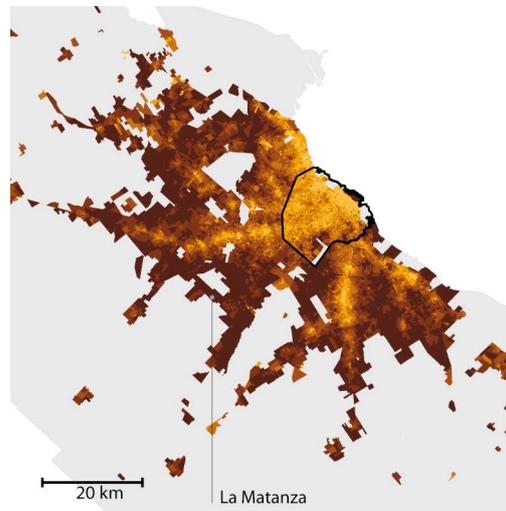
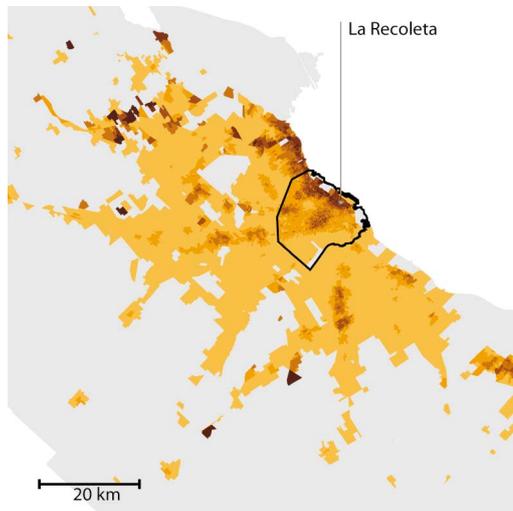
As previously highlighted, the pattern in Buenos Aires is quite particular. The most educated are isolated in a limited number of areas along the coastline as well as in pockets along the main development corridors surrounded by areas that show very high values for the isolation of the least educated. The least educated are isolated within most of the territory of Greater Buenos Aires, with the exception of the main transport infrastructure corridors.

Looking at typologies most present in the areas with high levels of isolation, the same split between high-end typologies and lower-end typologies that was apparent in the Brazilian cities becomes obvious.

The highly educated live either in apartment blocks (50%) that are located in the wealthiest areas of the central city or in individual (25.8%) and concentrated (18.2%) high-end housing.

These latter two typologies can be found grouped in gated country clubs, where luxury houses with swimming pools are built as part of golf courses.

The typologies in which the least educated live isolated are along the fringes of the city. Here, a mix of concentrated (32%) and dispersed (28%) low-quality housing and formalised slums (21%) dominates. The exact typology exhibited by a given area with a high value for isolation of the least educated seems to depend on the distance from the main transport infrastructure corridors (concentrated vs. dispersed) and the degree of consolidation of that particular neighbourhood (formalised slum vs. low quality housing).



left  
**Buenos Aires Isolation of the most educated**  
 Lowest  
 Highest  
 Source: Urban Age research

left  
**Buenos Aires Isolation of the least educated**  
 Lowest  
 Highest  
 Source: Urban Age research



left  
**Isolation of the most educated: La Recoleta**  
 In the northern part of the City of Buenos Aires, La Recoleta is one of the more affluent areas. This typical 'French architecture-style' district is known for its squares, parks, cafés, galleries and La Recoleta Cemetery. Apartment blocks dominate the landscape.  
 Source: Google Earth

right  
**Isolation of the least educated: La Matanza**  
 Already singled out as one of the least diverse areas in Greater Buenos Aires, La Matanza also exhibits high isolation values for the least educated. This aerial is of the Rafael Castillo district of the partido, in which concentrated low-quality housing is the norm.  
 Source: Google Earth

**Bogotá**

Similar to Buenos Aires, it seems there is a great difference in the way in which the most and least educated are isolated in Bogotá. While the most educated are isolated in the same northern corridor that was identified as the most dissimilar and the least diverse, there is not as much of a concentration of these areas than the one that were observed in the Brazilian cities. On the other hand, the isolation of the least educated dominates in the southern and western portions of the city.

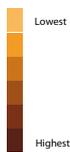
In terms of typologies, Bogotá displays a pattern that follows the logic identified above, with a very clear split between the typologies associated with the isolation of the most and least educated groups.

Medium-rise slabs are found in 40% of the city blocks where the most educated are the most isolated. Here, other typologies include

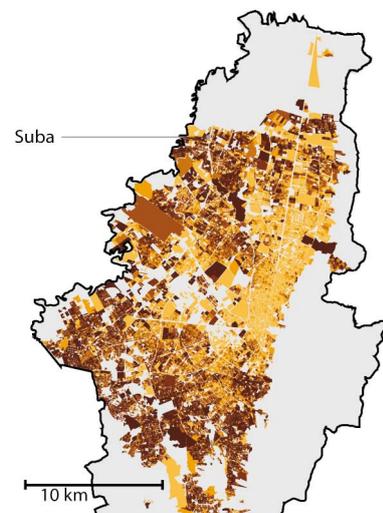
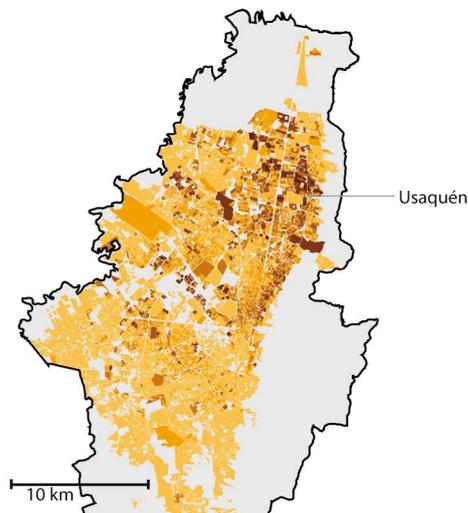
concentrated good quality homes with 24%, apartment blocks with 15% and apartment towers with 14%. It seems the most isolated well educated groups favour medium-rise slabs more in Bogotá than in any of the other cities under consideration.

Low-rise slabs appear in 34% of the areas where the least educated are the most isolated. The remaining areas are characterised by concentrated low-quality housing (22%), formalised slums (16%) and slums (10%). Another particularity of Bogotá is the degree by which the isolation of the least educated occurs in a building typology produced by formal planning.

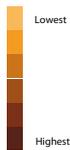
left  
**Bogotá Isolation of the most educated**



Source: Urban Age research



left  
**Bogotá Isolation of the least educated**



Source: Urban Age research

left  
**Isolation of the most educated: Usaquén**

Already described as one of the least diverse areas in Bogotá, we now see that this is because it is one of the areas with highest level of isolation of the most educated. Medium-rise slabs clearly dominate the landscape of the southeastern section of the district shown in the aerial.

Source: Google Earth



right  
**Isolation of the least educated: Suba**

While areas in the eastern zone of the Suba district were shown to be among the most diverse in the city, the aerial shown here is of its western portion. In this area, the least educated segment of the population isolated in grouped low-rise slab developments.

Source: Google Earth

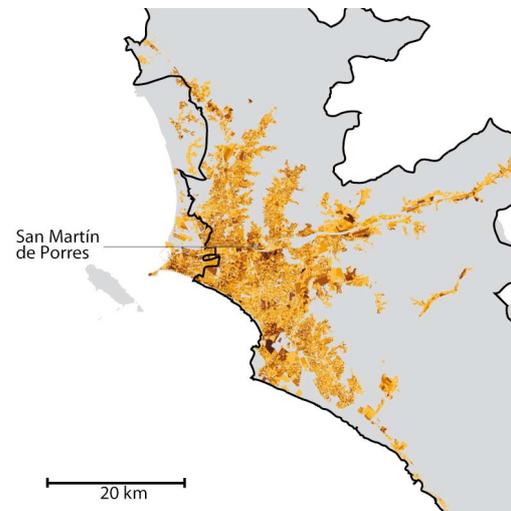
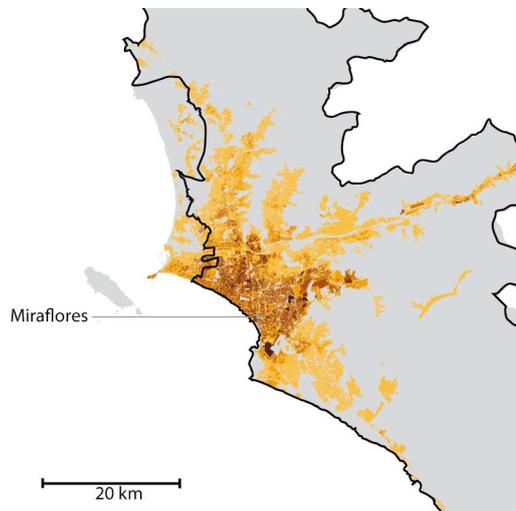


Lima

The results for Lima differ from those for the other four cities. It is the only city in which there is no area of the city in which there is a significant cluster of city blocks in which the least educated are most isolated. On the other hand, the pattern seen for the isolation of the most educated conforms much more closely to the one identified in the other cities – the majority of the city blocks where the isolation of the most educated is high is located in the wealthy central city.

In terms of the building typologies most present in highly isolated city blocks, the pattern is roughly the same as in the four other cities. More particularly, Lima is closest to Bogotá in terms of typologies. The typologies most found in areas where the isolation of the most educated is the highest are also medium-rise slabs (34%), apartment blocks (28.3%) and concentrated good quality housing (16%).

The fit with Bogotá is also close with respect to the typologies present where the isolation of the least educated is high. Concentrated low-quality housing (30%) comes in first, low-rise slab (28%) second and slums (11%) third.



left  
**Buenos Aires Isolation of the most educated**  
Lowest  
Highest  
Source: Urban Age research

left  
**Buenos Aires Isolation of the least educated**  
Lowest  
Highest  
Source: Urban Age research



left  
**Isolation of the most educated: Miraflores**  
Miraflores, one of the wealthiest residential districts in Lima, is located in the southwestern portion of the central city and overlooks the Pacific coast. It presents a mix of typologies – apartment blocks and towers, medium-rise slab and good quality housing.  
Source: Google Earth

right  
**Isolation of the least educated: San Martín de Porres**  
Located in the North of Metropolitan Lima, San Martín de Porres was born in the latter half of the 20th century through a process of land invasion. Its actual urban form is characterised by concentrated low-quality housing.  
Source: Google Earth

### Summary

A look at the isolation patterns of the least and most educated segments of the population for the five South American cities reveals that a great diversity exists for the relationships between isolation and building typologies. However, two general observations can be made.

First, no typology seems to prevent social isolation by itself. All different typologies that were used to describe the built environment of these cities are either housing isolated groups of highly educated or of poorly educated people.

Second, although all five cities present a unique pattern of isolation with respect to building typologies, it is possible to group them into three regional sub-groups.

The first contains the two Brazilian cities and is characterised by a strong proportion of the least educated isolated in slums (42% in Rio de Janeiro and 62% in São Paulo). This is juxtaposed with a high percentage of the most educated being isolated in high-rises (29% in Rio de Janeiro and 40% in São Paulo).

The second is made up of Bogotá and Lima where the least educated are mostly isolated in low-rise slabs and concentrated low-quality housing, and the most educated are isolated in

medium rise slabs, concentrated good quality housing and apartment blocks.

Buenos Aires can be put into a category of its own: the least educated are isolated in dispersed and concentrated low-quality housing, and in formalised slums while the most educated are split between inner city apartment blocks and suburban high-end housing.

#### Percentage of building typologies featuring in areas of extremely high levels of isolation of the most and least educated

This table presents the results the building typology count for the isolation index. The percentages were calculated by overlaying the census tracts or city blocks where the least and most educated are the most isolated on aerial photographs and by then counting the occurrences of particular typologies. The number of cases used to calculate them is much higher than for the other indices owing to the particular interest in the relationship between inequality and spatial isolation. The ten general typologies, presented here in order of increasing economic standing, were designed to encompass the great variety of building types in the five cities under investigation.

Source: *Urban Age research*

	São Paulo isolation		Rio de Janeiro isolation		Buenos Aires isolation		Bogotá isolation		Lima isolation	
	most educated	least educated	most educated	least educated	most educated	least educated	most educated	least educated	most educated	least educated
<b>Dispersed low-quality (%)</b>		11.9		35.2		27.8		2.7		5.8
<b>Hillside slum (%)</b>		24.8		16.2				4.1		4.8
<b>Slum (%)</b>		21.8		10.5		13.0		9.5		10.6
<b>Formalised slum (%)</b>		15.8		15.2		21.3		15.5		6.7
<b>Concentrated low-quality (%)</b>		21.8		10.5		32.4	2.3	21.6	8.7	29.8
<b>Low-rise slab (%)</b>		4.0		2.9		5.6	5.2	33.8		27.9
<b>Medium-rise slab (%)</b>	21.6		5.7		1.5		39.5	2.7	33.7	7.7
<b>Concentrated good-quality (%)</b>	16.5		9.3	1.9			23.8		16.3	2.9
<b>Apartment blocks (%)</b>	5.2		30.8		50.0		15.1	6.8	28.3	3.4
<b>Apartment towers (%)</b>	40.2		29.0	1.0	4.5		14.0	3.4	12.0	
<b>Concentrated detached high-end (%)</b>	13.4		26.2	1.0	18.2				1.1	
<b>Individual detached high-end in (%)</b>	3.1		4.7		25.8					
<b>Number of cases</b>	97	101	107	105	66	108	172	148	92	104

### 3.3.7 Exposure

The five maps on the opposite page show the results of the exposure of the least to the most educated group for each census tract and city block. The areas in which the least educated are most exposed to the most educated are in the darkest shade of brown.

The initial observation is that the Bogotá and Lima maps appear very different than those of the other three cities. São Paulo, Rio de Janeiro and Buenos Aires display a very marked difference between the situation in their inner core and the one that exists in the fringes of their metropolitan regions. The areas where the least educated are most exposed to the most educated are located in and around the urban core, with the exception of a few patches in which the exposure value is very low. In Buenos Aires, once again the marks of transport infrastructure are strong – the areas surrounding them feature high levels of exposure.

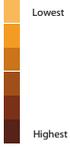
The fringes of these three cities display the lowest levels of exposure, a result in line with the fact that they already were their least diverse areas.

In Bogotá and Lima, on the other hand, the whole city seems to present a much more diverse pattern, with areas where exposure is high mixed with areas where it is low. While Lima does present a difference between the core and the periphery, albeit to a much smaller degree than the aforementioned cities, it is hard to distinguish the core from the periphery in Bogotá. Even the northern corridor that appeared as the least diverse presents a significant number of areas where exposure values are high.

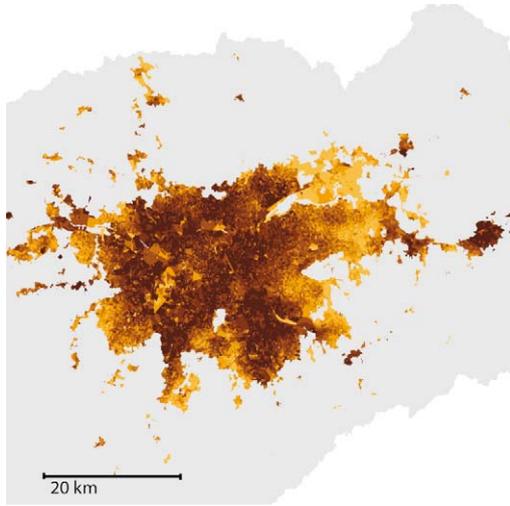
below  
Paraisópolis in São Paulo where  
the most affluent areas of the city  
directly border with informal  
settlements.  
*Google Earth Pro*



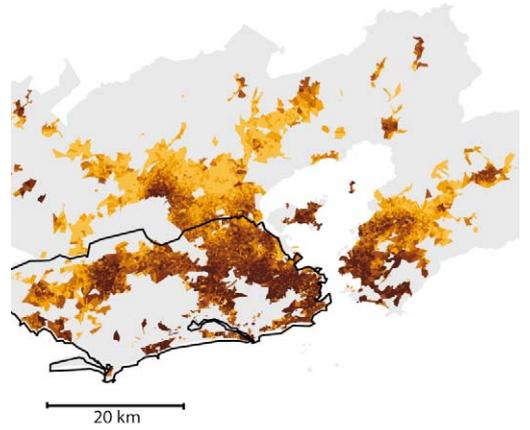
Exposure of the least educated to the most educated groups



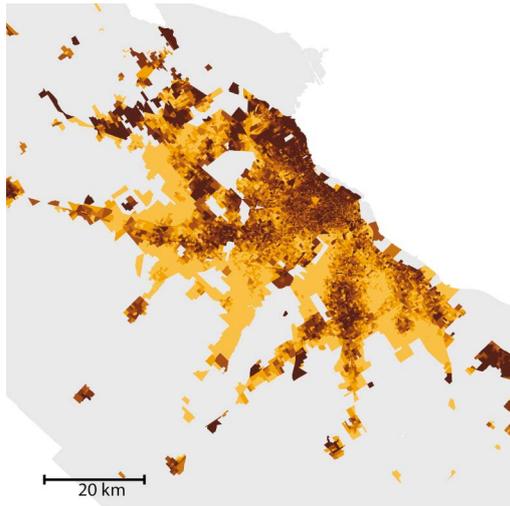
Source: *Urban Age research*  
\* Limited comparability with the other four cities due to a discrepancy in census years and a difference in data collection methodology.



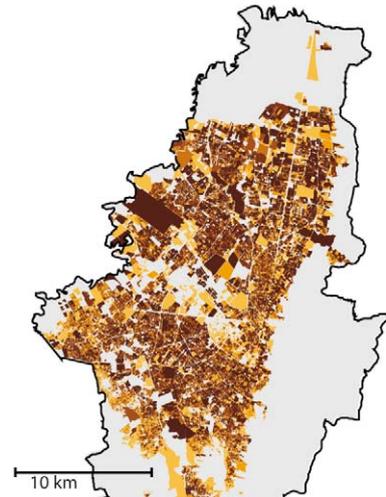
**SÃO PAULO**



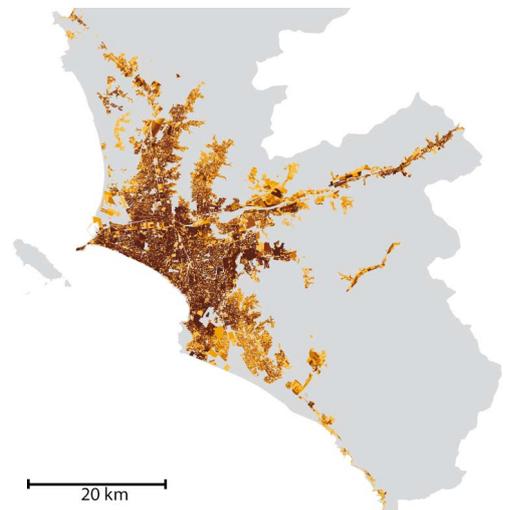
**RIO DE JANEIRO**



**BUENOS AIRES**



**BOGOTÁ**



**LIMA\***

### 3.4 CONCLUSION

This chapter introduced the overall dynamics of inequality and related some of its key features to cities and urban territory. The first part mainly looked at different types of inequalities and provided an overview of the central dynamics at various geographic levels. While inequality on the global scale is greater than levels found in most countries, contrasting the difference between nations and cities leads to a different picture: Income inequalities that exist within cities tend to be relatively similar to those of their respective countries. There was, further, no clear indication that the level of inequality in the cities analysed is consistently above or below national levels. Finally, no correlation is observable when contrasting national urbanisation and inequality levels.

The second part of this chapter focused on the five largest South American cities, São Paulo, Rio de Janeiro, Buenos Aires, Bogotá and Lima, and developed a principle narrative on various dimensions of inequality detectable through the analysis of four key indicators. These four indicators – dissimilarity, diversity, isolation and exposure – were calculated on the basis of four different educational attainment groups and assigned numerical values to statistical subunits (census tracks or blocks) in each of the five cities. With education levels being the shared basis for all indices, the first comparative mapping effort

looked at the proportion of poorly educated in all subunits in each city. The picture derived from this first exercise set the stage for the subsequent, index-specific analysis and established the overall dynamics of social segregation in each of the case study cities. These dynamics include:

- a centre-periphery divide with pronounced intermediate areas along transport corridors or within the vast urban territories between the core city and the outer fringes
- the topographical relevance for patterns of inclusion with seafronts in all three relevant cases (Rio de Janeiro, Buenos Aires and Lima) characterised by exclusionary dynamics and mountain ranges (Lima, Bogotá and Rio de Janeiro) similarly leaving their mark on patterns of inclusion and exclusion
- the general alignment of zones dominated by the least educated population group and zones lacking public transport infrastructure (with rail systems as general proxy)

Based on the above, the following caveats were highlighted with regards to the individual indices:

- high levels of dissimilarity were most pronounced in areas where the proportion of better educated groups is above average (all cities). To a lesser extent, extreme dissimilarity is also produced by areas housing an above average proportion of the least educated (in particular in Rio de Janeiro and Buenos Aires)

below  
Young boys playing football in Rio  
de Janeiro.  
*Dante Busquets*



- low levels of dissimilarity dominate the intermediate territories of urban agglomerations, located between the city centre and the periphery, and along the main transport corridors
- high levels of diversity coincide with low levels of dissimilarity, broadly reflecting the overall diverse pattern of educational groups at the metropolitan level
- only Buenos Aires presents high levels of diversity throughout the most central parts of the city
- high levels of isolation of the best educated are predominately found within the city centre and along the seafronts and main transport corridors, and correspondingly, high levels of isolation of the least educated are a consistent phenomenon of the urban fringe
- high levels of exposure of the least to the most educated are more pronounced in central areas as well as along the main transport corridors .

To conclude from the metropolitan-wide comparative overview, the most problematic pattern of exclusion is related to the isolation of the least educated section of society along the city fringes, where little compensation through either access to public infrastructure (in particular transport) or indeed access to better educated population groups is possible to mitigate educational inequalities.

In addition to the metropolitan-wide pattern for each index, the analysis of building typologies found in the most extreme cases of each indicator allowed important insights into the inscription of inequality into urban form. Although a range of typological patterns and their dominance for the various extremes were established, an overall conclusion will have to emphasise that no building typology by itself seems to ensure greater diversity or inclusion by itself. However, besides a greater resilience of areas with mixed typologies in accommodating difference, certain typologies can easily be excluded as an option for inclusion. Obviously, slum and informal housing will mostly cater to the least educated sections of society while large detached houses and apartment towers create zones of exclusivity for the most educated. More flexible in terms of social composition are a range of concentrated housing, city block and slab typologies.

Overall, the analysis presented here is intended as an introduction to possible research methodologies at the interface of the spatial dimension of socio-economic indicators and the urban form of specific neighbourhoods. It is hoped that the research presented here will lead to a wide range of follow-up questions and clarifications in an ongoing research effort on the crucial link between the physical and the social characteristics of cities.



**METHODOLOGICAL ANNEX**

All the spatial indices used in this study are based on the work developed by Feitosa et al. and require estimating the local population intensity of all the localities of the city. The local *population intensity of a locality j* ( $L_j$ ) expresses its population characteristics:

$$\check{L}_j = \sum_{j=1}^J k(N_j)$$

Where  $N_j$  is the total population in areal unit  $j$ ;  $J$  is the total number of areal units in the study area; and  $k$  is the kernel estimator which estimates the influence of each areal unit on the locality  $j$ . We can calculate the local population intensity of group  $m$  in the locality  $j$  ( $L_{jm}$ ) by replacing the total population in areal unit  $j$  ( $N_j$ ) with the population of group  $m$  in areal unit  $j$  ( $N_{jm}$ ) in equation (3.1):

$$\check{L}_{jm} = \sum_{j=1}^J k(N_{jm})$$

For the analysis carried out in this study a Gaussian function was used as a kernel estimator with a search radius of 500 metres for all the cities.

The generalised spatial dissimilarity index  $D(m)$  is a spatial version of the generalised dissimilarity index  $D(m)$  developed by Sakoda (1981). The  $D(m)$  index is a measure of how population proportions of each areal unit differs, on average, from the population composition of the whole study area. Given a set of population groups, the *generalised spatial dissimilarity index*  $D(m)$  captures the dimension evenness/clustering. The formula of  $D(m)$  is:

$$\check{D}(m) = \sum_{j=1}^J \prod_{m=1}^m \frac{N_j}{2Nl} |\check{\tau}_{jm} - \tau_m|$$

where

$$l = \sum_{m=1}^M (\tau_m)(1 - \tau_m) \quad \text{and} \quad \tau_{jm} = \frac{\check{L}_{jm}}{\check{L}_j}$$

In equations (3.3) and (3.4),  $N$  is the total population of the city;  $N_j$  is the total population in areal unit  $j$ ;  $\tau_m$  is the proportion of group  $m$  in the city;  $\tau_{jm}$  is the local proportion of group  $m$  in locality  $j$ ;  $J$  is the total number of areal units in the study area; and  $M$  is the total number of population groups. In equation (3.5),  $L_{jm}$  is the local population intensity of group  $m$  in locality  $j$ ; and  $L_j$  is the local population intensity of locality  $j$ .

The spatial exposure and the spatial isolation indices capture the dimension exposure/isolation. Given two population groups in an urban area, the *spatial exposure index of group m to group n* measures the average proportion of group  $n$  in the localities of each member of group  $m$ :

$$\check{P}_{(m,n)}^* = \sum_{j=1}^J \frac{N_{jm}}{N_j} \left( \frac{\check{L}_{jn}}{\check{L}_j} \right)$$

Given one population group in an urban area, the *spatial isolation index of group m* ( $Q_m$ ) is a particular case of the exposure index that expresses the exposure of group  $m$  to itself:

$$\check{Q}_m = \sum_{j=1}^J \frac{N_{jm}}{N_j} \left( \frac{\check{L}_{jm}}{\check{L}_j} \right)$$

All these indexes can be decomposed by its local contribution of each locality of the city to the overall segregation. These local scores can then be mapped revealing those areas of the city that contribute mostly to the general spatial segregation.





# 4 URBAN AGE CITY SURVEY

left

Praça do Patriarca

As part of the 2008 research focus, Urban Age commissioned a city survey about the quality of life in São Paulo to better understand the public's perception of current urban trends. This chapter highlights the survey's major findings.

*Tuca Vieira*

**CHAPTER 4 – URBAN AGE CITY SURVEY  
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above

Recent data from the National Household survey has shown growth of favelas in the SPMR region from 8.14% of households in 2001 to nearly 13% of households in 2007. *Dante Busquets*

## 4.1 INTRODUCTION

Cities have been burgeoning worldwide. In the last five decades, most countries have experienced an inversion between the number of rural and urban dwellers. In Brazil, more than 86% of the population lives in urban areas<sup>1</sup> which have undertaken unbridled growth generating a number of urban tensions. A great example of a city with rapid and disordered growth is São Paulo, which together with 38 municipalities makes up the largest metropolitan area in Brazil, and the third largest urban agglomeration in the world.<sup>2</sup>

It is widely recognised that city form influences the behavior of its population, and the population influences the spatial organisation of the city. To better understand this symbiotic relationship, with respect to perceptions of quality of life, Urban Age conducted a survey in the São Paulo Metropolitan Region (SPMR), paying a close

attention to urban services and infrastructure and focusing on two major issues for metropolitan regions today, violence and transport.

This report presents the main results of the survey and is organised in 7 sections:

1. Technical note on survey methodology and sample
2. Inhabitants and characteristics of the SPMR
3. Views of the city
4. Satisfaction with urban infrastructure and public services
5. Government evaluation
6. Violence
7. Transport and mobility

Where data is available, comparisons will be made with the Urban Age London Survey.

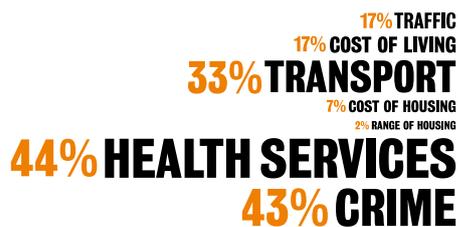
<sup>1</sup> UN World Urbanisation Prospects 2009

<sup>2</sup> Ibid.

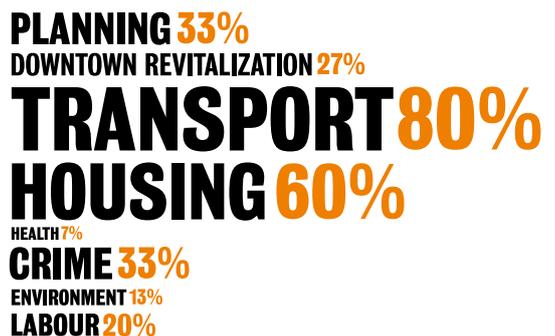
### The city's top challenges

Sources: Public view (left) from Urban Age São Paulo poll conducted by Ipsos Mori (2008). Leader and expert opinion (right) extracted from meetings in August 2007 with 44 key individuals working in various urban spheres of government and private practice.

### PUBLIC OPINION



### LEADER & EXPERT OPINION



### 4.2 SURVEY METHODOLOGY AND SAMPLE

Urban Age São Paulo Survey was carried out in June 2008, with 1000 face-to-face interviews, using a structured questionnaire, 35 minutes in length. The survey targeted people living in the São Paulo Metropolitan Region (SPMR), age 16 and over. The SPMR has 39 municipalities and according to the most recent data from IBGE (Brazilian Institute of Geography and Statistics), accommodates more than 19 million inhabitants in an area of 7.943,818 km<sup>2</sup>.

The results were analysed in two groups: the capital city (municipality of São Paulo) and the other 38 municipalities that constitute the

metropolitan region of São Paulo. The census tracts selected were proportionally allocated according to the population within each group, as shown in Table 4.1.

The census tracts were separately selected in the two stratum. Such selection was systematically made from a random starting point. The census tracts in both stratum were ordered according to the average income of the person responsible for the household. This technique is known as implicit stratification.

In the metropolitan region stratum, the census tracts from all 38 municipalities were ordered according to the average income of the person responsible for the household. The selection was

Figure 1

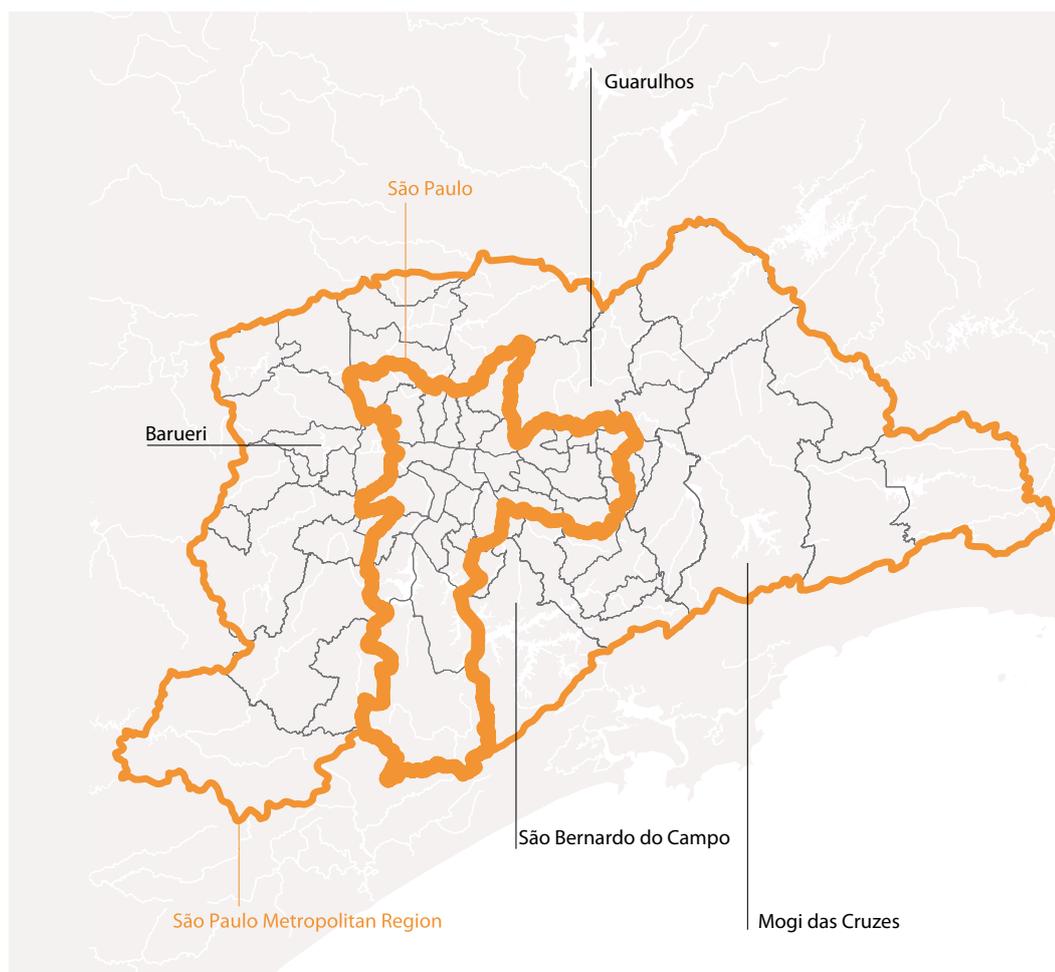


Figure 4.1  
Map of SPMR  
Source: Urban Age São Paulo survey

	Population	%	Census Tract
<b>Capital city</b>	10,886,518	57	57
<b>SPMR without city of São Paulo</b>	8,337,379	43	43
<b>Total</b>	19,223,897	100	100

Table 4.1  
Sample allocation in strata  
Source: IBGE, Population Counting 2007

made systematically as previously mentioned, with probability proportional to the size of the population in that tract.

A similar procedure was applied to the Capital city stratum, but the census tracts were explicitly stratified by regions of São Paulo city (downtown, south, north, east and west). The census tracts were allocated in such stratum proportionally to the pollution of each one.

Within every census tract selected in the sample, interviewers chose people to be interviewed, respecting specific quotas of the tract. The quotas definition was based on information from the National Census 2000, supplied by IBGE, for each census tract, following gender, age range, education level and economic status (economically active population and non-economically active population). In addition, as the information from the census may not be the most up-to-date, information from the National Survey by Household Samples from 2006 (PNAD 2006) was also used in order to make adjustments in the sample quotas as a whole.

Where interviewers were able to follow the quotas strictly, the sample was proportional to population considering the gender, age range, education level and economic status. However, due to the fieldwork difficulties, this was not always possible. Thus, to make small adjustments to the non-filling of the quotas, the sample was weighted by gender vs. economic status vs. education level vs. area (capital city and metropolitan region). It was not necessary to adjust the age range, as the quotas were strictly followed for this variable.

### 4.3 INHABITANTS AND CHARACTERISTICS OF THE SPMR

In 2007, IBGE estimated that the SPMR has 19,223,897 inhabitants, of which 52% are women. The total number of households in the SPMR is 6,012,854 (source: IBGE, Population Counting 2007), most of which are composed of 2 to 4 persons.

Access to basic infrastructure is almost universal: 99% of households have electricity, 98% are connected to the city water supply network, 93% have garbage collection service, and 83% are connected to the sewer network. However, access to higher education is still low, with only 13% of population attending university.

When it comes to the views of SPMR urbanisation, there has been an intense process of vertical development: 23% of households in the SPMR live in vertical developments (IBGE, PNAD 2006).

Sampa, as the city of São Paulo is also called, is the major economic hub in South America, commonly referred to by Brazilians as “the city of work and wealth”. Located on a plateau, the city has no beaches or hills, which allows for a horizontal growth, spreading the urban expansion toward surrounding areas. Such distribution affects people’s mobility, as they usually have to traverse the city to commute to and from work.

Only 14 km divide the metropolitan area of São Paulo from the metropolitan area of Campinas – together, these two metropolitan areas constitute a macro-metropolis, occupying an area of 11,698 km<sup>2</sup>, an enormous urban space, which accommodates 13% of the Brazilian population.

São Paulo is the main Brazilian capital in terms of size and wealth, and it is the city with the most

Figure 4.2  
Education of SPMR Population  
Source: IBGE/PNAD 2006

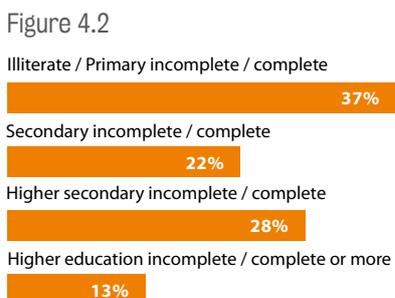
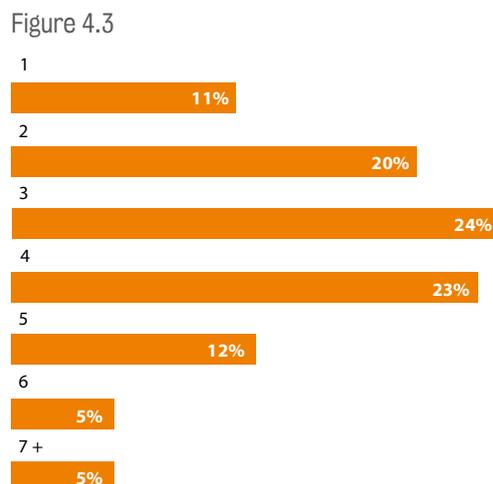


Figure 4.3  
Number of people living in the household  
Source: IBGE/PNAD 2006



cosmopolitan profile. In this aspect, especially due to the diversity of its people and culture, it is similar to London. It is home to the greatest population of migrants from the northeastern region. There is also a strong presence from Italian, Spanish and Portuguese communities, as well as a large Arab and Jewish population. São Paulo also has the biggest population of Japanese descendents outside of Japan.

The SPMR is an area of great attraction for economic migrants, as it is the richest metropolitan region in the country. Within its boundaries, it concentrates 57.2% of the gross domestic product of the state of São Paulo, and 19.4% of the country's GDP. Official statistics (PNAD 1990, 2000, 2006) indicate that the migration flow is declining, mainly because of the devolution of industrial production to other areas in the interior of the state and in states other than São Paulo.

Nonetheless, considering the sample of the Urban Age Survey, migrants constitute 46% of SPMR's population, with 39% originating from the state of São Paulo and approximately 37% from the northeast, especially Bahia and Pernambuco states.

Opportunities for economic mobility draw workers to the SPMR, which has a monthly mean income of R\$1,340.24 and a median of R\$1,000.00. The economic class division places half of SPMR households in the middle class bracket (Urban Age Survey, 2008).

Furthermore, through income redistributive programs like "Bolsa Família", around 12% of the households have one person that receives financial assistance from the government which, according to PNAD 2007, is less than the 15% national average. However, despite such programs in São Paulo, wealth still coexists with high rates of poverty in slums, currently numbering over 1,500.

São Paulo is a city of dramatic contrasts. In São Paulo overall, 11.1 per cent of the population live in favelas, a typical consequence of the urbanisation process in the SPMR. According to census data from 2001, in SPMR, 8.14% of households were located in favelas. Recent data from 2007 estimates a growth of favelas in the region; correspondingly, now nearly 13% of SPMR households are located in favelas.<sup>3</sup>

The informal settlements are mainly located in the periphery of the towns, but are also present in some central areas, as in the case of favela Paraisópolis, which is juxtaposed to one of the richest areas of São Paulo, the neighbourhood of Morumbi. Paraisópolis has around 80,000 inhabitants, second only to largest favela in the city, Heliópolis, which has approximately 120,000 inhabitants.<sup>4</sup>

As one of the biggest cities in the world, São Paulo shares many of the beauties and tragedies of being a major cosmopolitan centre. What is most striking is the level of inequality and diversity inside this one city.

3 PNAD 2007

4 Ibid.

Figure 4.4

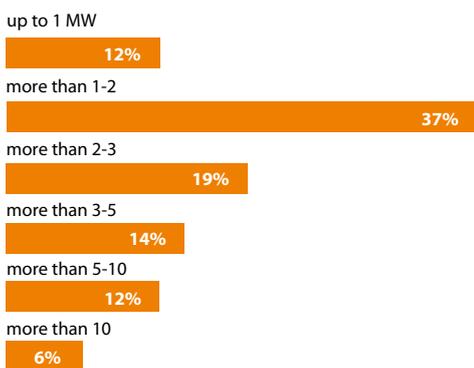


Figure 4.5

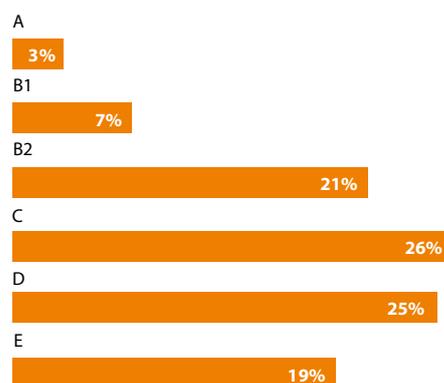


Figure 4.4 Household income, in minimal wages\*

\* Minimal wage in 2006 was equivalent to R\$ 350 per month  
Source: IBGE/PNAD 2006

Figure 4.5 Economic Class

Economic classes have been established according to level of material wealth (i.e. appliances and other luxury items) and educational attainment, with the class A representing the most privileged and class E the most deprived.  
Source: Urban Age São Paulo survey

### 4.4 VIEWS OF THE CITY

The commissioned survey about quality of life in São Paulo gave insight into the public's perception of their city. Half of SPMR's population consider themselves satisfied with the city in which they live. However, the level of satisfaction of Paulistanos<sup>5</sup> is lower when compared to Londoners – 60% of Londoners are satisfied with the city as a place to live, and 22% declare themselves as very satisfied.

When discerning who is more satisfied with the city, data indicate that poorer and older inhabitants of SPMR are happy with the city, while in London, young and richer people are the more satisfied.

Despite the influence of age and class, education seems to be the most important variable correlated with satisfaction levels in the cities of SPMR. The more educated people are in SPMR, the less likely they are to be satisfied with the city.

What are the factors that better explain people's level of satisfaction with the city in which they live? To answer that question we tested the correlation of level of satisfaction with the city as a place to live against various demographic and socioeconomic variables, adding to the model other variables related to housing and city's services and infrastructure.

Results reveal that income is not the best predictor for satisfaction with the city, but

rather education, place of residence and satisfaction with the provision of services.<sup>6</sup> The higher the education of Paulistanos, the lower their satisfaction with the city. The higher the satisfaction with the provision of services and infrastructure, the greater their satisfaction with the city. Those who live in slum areas or nearby favelas are less satisfied with the city as a place to live.

It is important to note that satisfaction with services has a strong effect on satisfaction with the city only when considered as a whole (see Table 4.3 overleaf). Looking at each service individually, the correlation is low to moderate, public school bearing the most weight.

But what are the aspects of the city that Paulistanos most like and most dislike? And what are the differences between Paulistanos' and Londoners' perceptions?

Comparing the views of Paulistanos and Londoners, living in a very different global city, both single out job opportunities and the range of shops as the best things about their city. In London, many people also single out the diversity of the city – London is more diverse than anywhere else in Europe. Interestingly this is not an issue in São Paulo: although the city has a diverse series of migrant communities, most of its inhabitants do not seem to take it for granted – only 6 per cent see it as a positive factor worth mentioning. Perhaps that is the difference

<sup>5</sup> The term *Paulistanos* will be used here to refer to the inhabitants of the SPMR.

<sup>6</sup> "Satisfaction with services offered" is an index based on the satisfaction Paulistanos declared to have with 15 different services (public health services; private health services; public school; private school; subway; train; bus; police stations; children care education; on-street parking; private parking; Quality of the public realm, e.g. streetscape, pavement, bike paths; Main facilities like lottery shop, bank, supermarket, post offices, etc; cinemas; libraries). Satisfaction varies from 1 to 5, meaning respectively very dissatisfied; fairly dissatisfied; neither satisfied nor dissatisfied; fairly satisfied; very satisfied. And 0, if the respondent didn't have any opinion on the matter. So, the index varies from 0 to 75. The higher the index, the higher the satisfaction with the city.

Figure 4.6 Levels of satisfaction with the city as a place to live

Source: Urban Age São Paulo survey

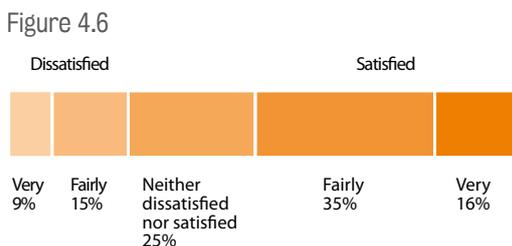


Figure 4.7 Net Score (+/-) satisfaction with the city as a place to live – London and SPMR

Source: Urban Age São Paulo survey; Ipsos MORI

Figure 4.7

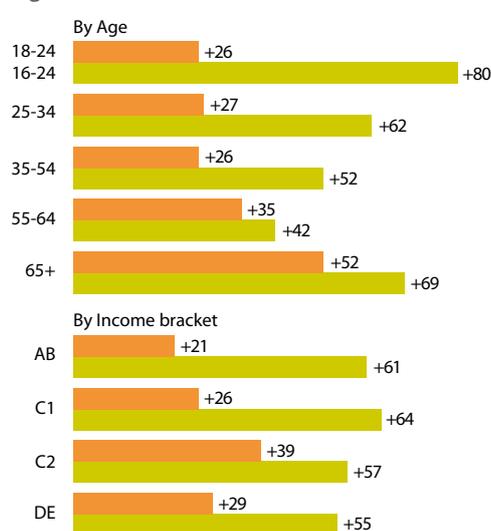


Figure 4.8

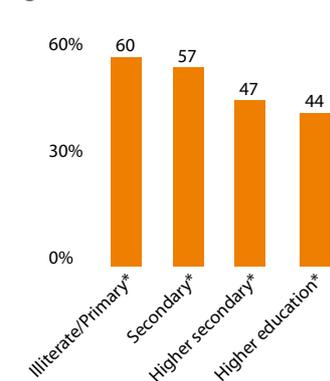


Figure 4.8 Levels of satisfaction with the city as a place to live, according to education – SPMR

\* Level of education determined by enrollment rather than completion. Source: Urban Age São Paulo survey

Figure 4.9

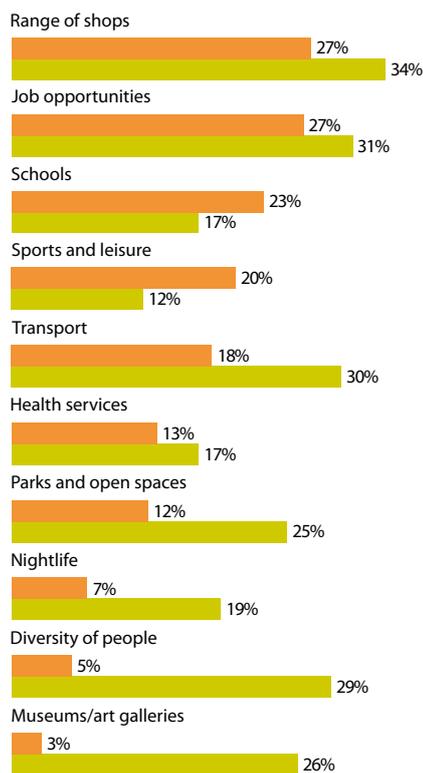


Figure 4.10

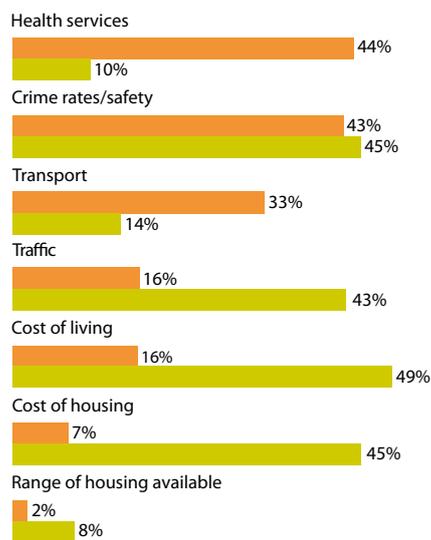


Figure 4.9  
What people like most about living in the city – London and SPMR

Legend: São Paulo (orange), London (green)  
Source: Urban Age São Paulo survey, Ipsos MORI

Figure 4.10  
What concerns people most about the city – London and SPMR

Legend: São Paulo (orange), London (green)  
Source: Urban Age São Paulo survey, Ipsos MORI

between a city built on international migration and one that is thousands of years old but has only changed dramatically by migration recently.

The views of people in the capital and in the other municipalities of the SPMR are quite different. For the metropolitan region inhabitants, school, transport and range of shops are the best things.

It is when one analyses problems and priorities for change that people's opinions in the two cities are very different. While for Londoners the top three issues are the cost of living, traffic, and housing, Paulistanos are more worried about health services, safety and crime rates, and public transport.

When weighted against residents' level of satisfaction with city, there are no significant differences in the order of the elected worst and best things of the city.

Within the SPMR, people's views of the gravity of issues differ according to location; people in the capital consider crime rates to be the top problem, while for people in the other cities of SPMR health services are.

For Paulistanos, the top priorities to improve the city are all related to public services – problems aggravated by the fact that the city has grown too fast without adequate planning. As the "locomotive of Brazil", São Paulo's population has grown from 3.8 million in 1960s to more than 19 million people today.

While the migration of people to São Paulo is diminishing and the pace of population growth is slowing down, public services are now under huge pressure. Ratings of these are very

negative compared to London. When asked what are the top priorities for improving the quality of life in the city, Paulistanos listed health services, education and public security; while for Londoners, price of housing, public security and price of public transport topped the list.

For the capital inhabitants, education is the top priority, while for inhabitants of the other cities of SPMR, public health service is. Across the board, environmental issues only emerge timidly in the views of the public and even in the experts' views<sup>7</sup>; implying public policies for the environment have a lower impact on satisfaction with the city.

When asked about their propensity to move away from the city, only a minority is highly inclined to do so – 19% rated their inclination to move from 8 to 10. And the correlation between satisfaction with the city as a place to live and propensity to move is weak, -0.258.

In fact, most Paulistanos (54%) were born and/or have lived all of their lives in the same city. A marked difference in relation to London, as there are more people in São Paulo who have always lived at the same address and in the same city.

Among the ones highly inclined to move (19%), 53% would choose a city in the state of São Paulo – more than 20% would stay within the SPMR, just changing cities, most likely closer to a place of work or study. A pattern illustrated in residents' responses; residents of the capital mostly work and/or study in the city they live. Only 5% of people in the capital work or study in a different city, while 33% of people in the other cities of the metropolitan area work or study in a different city than the one they live.

<sup>7</sup> For the views of leaders and experts, consult Urban Age South America Newspaper. URL: [http://www.urban-age.net/0\\_downloads/South\\_America\\_Newspaper\\_English.pdf](http://www.urban-age.net/0_downloads/South_America_Newspaper_English.pdf)

Figure 4.9a  
Inclination to move away from the city, from 0 to 10 – SPMR  
Source: Urban Age São Paulo survey

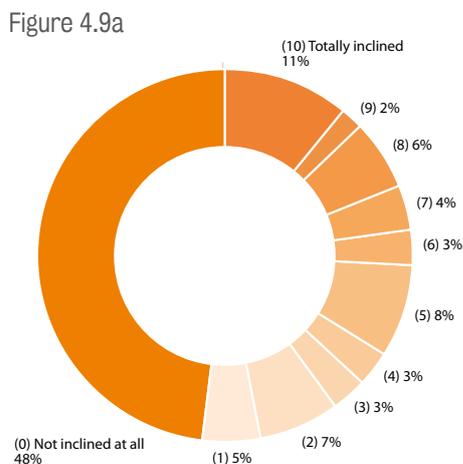


Figure 4.10a  
Top things that should be priorities to improve 'city' as a place to live – London and SPMR in %  
Sources: Urban Age São Paulo survey, Ipsos MORI

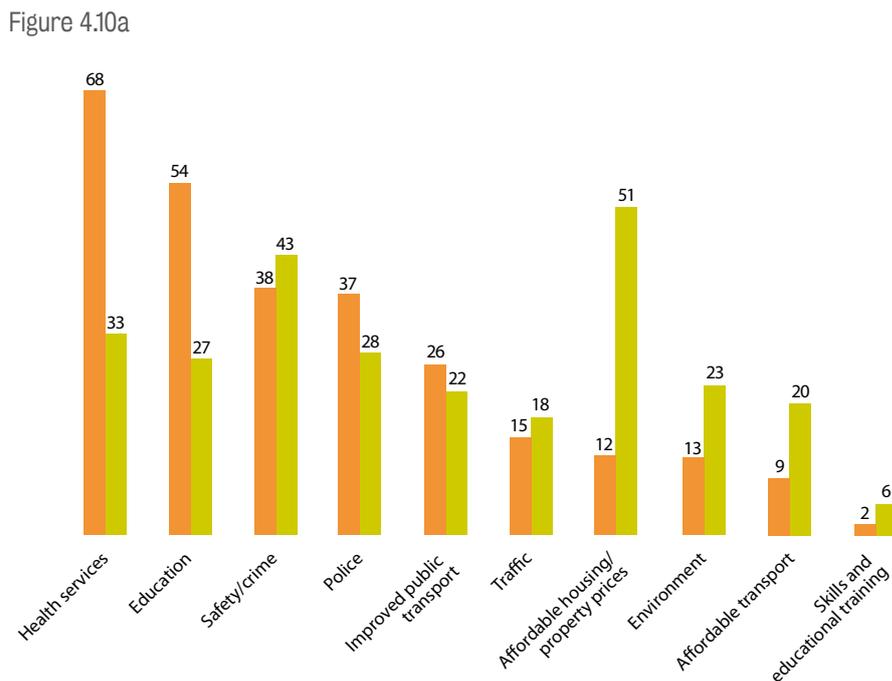


Table 4.3  
Correlation for satisfaction with the city as a place to live and satisfaction with city provision of services and infrastructure  
The Spearman correlation is used to assess the rank order of each variable.  
Source: Urban Age São Paulo survey

Spearman Correlation	Satisfaction with city	Spearman Correlation	Satisfaction with city
<b>Public school</b>	0.211	<b>Bus</b>	0.140
<b>Train</b>	0.200	<b>Libraries</b>	0.131
<b>Police stations</b>	0.198	<b>Main facilities</b>	0.129
<b>Public health services</b>	0.195	<b>On-street parking</b>	0.128
<b>Subway</b>	0.182	<b>Private parking</b>	0.123
<b>Child care programmes</b>	0.149	<b>Quality of public realm</b>	0.105
<b>Private school</b>	0.149	<b>Cinemas</b>	0.082
<b>Private health services</b>	0.140		

## 4.5 SATISFACTION WITH URBAN INFRASTRUCTURE, QUALITY OF ENVIRONMENT AND PUBLIC SERVICES

Evaluating the top three environmental problems of the city, people that live in São Paulo point to the quality of the air, pollution generated by traffic and the pollution of rivers (Tietê and Pinheiros are two big rivers inside the city that are of great concern to its population). The high volume of traffic and poor fuel quality (in Brazil, diesel has 500 particulates per million, while in Europe and the US, diesel has 10 particulates per million), as well as the sparse amount of green areas in the city make air quality a serious problem for residents in central areas of São Paulo. In outer areas, sewage systems are seen as more problematic. Interestingly, climate change gets little recognition in São Paulo, a huge concern for only 8% of people.

Satisfaction with the provision of urban infrastructure and public services is low in the SPMR. The only services with which the majority of the population is satisfied are banks, supermarkets, lotteries and post offices. But when it comes to public services, like transport, public school, public security, Paulistanos' satisfaction in general is low.

Healthcare is the main target of criticism when respondents are inquired about their level of satisfaction with the services presently provided in the city. From all services cited, public healthcare has the lowest satisfaction score. In Brazil, in contrast to most developed countries, families pay for most healthcare themselves. For each R\$ 10 spent in the sector, families pay R\$ 6.02 and the government pays R\$ 3.88, according

to a study conducted by the Brazilian Institute of Geography and Statistics (IBGE) between 2000-2005. Average expenses of Brazilian families for healthcare corresponded to 8.2% of all their consumption in 2005.

There is a high level of satisfaction with installations such as movie theatres, libraries, metro, child care.

Concerning movie theatres, there is a great difference in assessment when the groups are separated: in the capital, 51% are satisfied or quite satisfied with this item, whereas in the metropolitan area the percentage of approval is only 25%.

The correlation between overall satisfaction with the provision of services and place of residence (if it is in or near a favelas – slum) is low, only 0.259 (eta coefficient).

	Total	Very/fairly dissatisfied	Neither satisfied nor dissatisfied	Very/fairly satisfied
<b>The range of shops</b>	27	23	24	31
<b>Job opportunities</b>	27	20	29	29
<b>Schools</b>	22	19	22	24
<b>The range of sports and leisure</b>	21	19	24	21

Table 4.4  
Best things of the city, according to satisfaction with the city as a place to live

Source: Urban Age São Paulo survey

	Total	Very/fairly dissatisfied	Neither satisfied nor dissatisfied	Very/fairly satisfied
<b>Health services</b>	44	46	46	42
<b>Crime rate</b>	43	45	38	45
<b>Safety in São Paulo</b>	34	29	35	35
<b>Transport</b>	33	34	36	31

Table 4.5  
Worst things of the city, according to satisfaction with the city as a place to live

Source: Urban Age São Paulo survey

Figure 4.11  
Top problems regarding quality of environment in the city

SPMR total  
Capital  
SPMR without capital

Source: Urban Age São Paulo survey

Figure 4.11

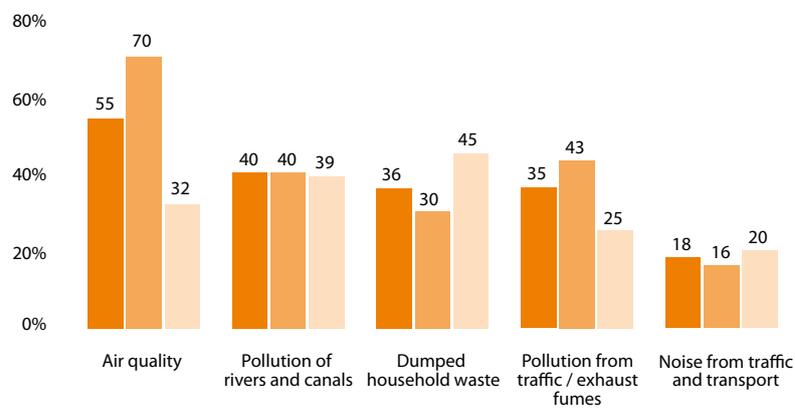


Figure 4.12  
Best things about living in the city – Capital and MR without capital

Total  
Area capital  
Area MR

Source: Urban Age São Paulo survey

Figure 4.12

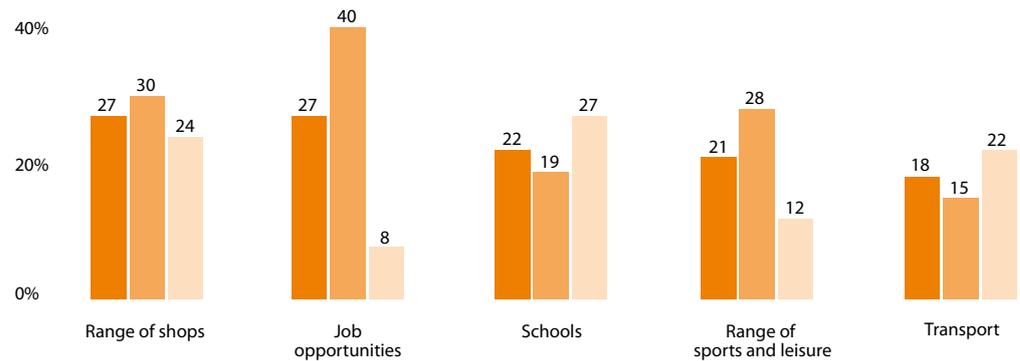
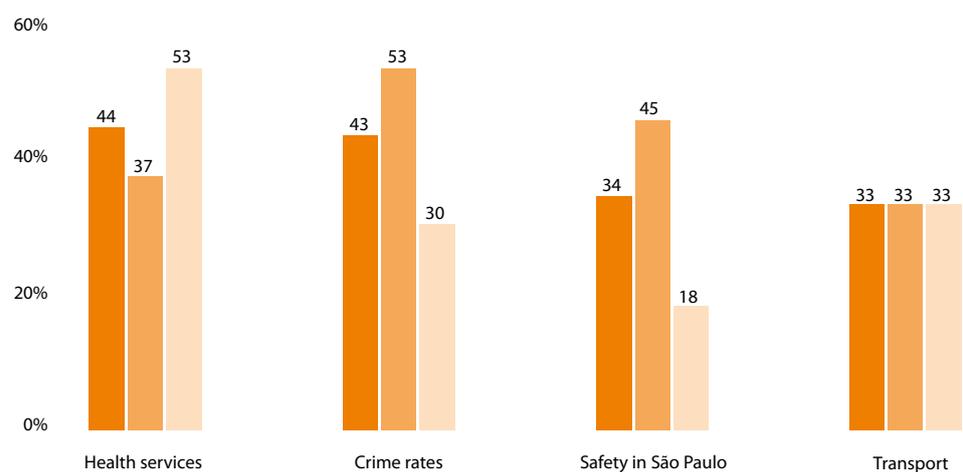


Figure 4.13  
Worst things about living in the city – Capital and SPMR without capital

Total  
Area capital  
Area MR

Source: Urban Age São Paulo survey

Figure 4.13



### 4.6 GOVERNMENT EVALUATION

A peculiar characteristic in São Paulo is that civic and political society seems much less effective than elsewhere. Its people are less politicised than in other big cities of the developed world. In Brazil, voting is compulsory,<sup>8</sup> but half of people in São Paulo cannot remember whom they had voted for governor in the last election, while around 42 per cent cannot remember the name of their candidate for mayor. Men and people with higher education and/or higher income have better recollection of whom they voted for in the past elections.

The name of the present governor, José Serra, is the most recalled in both cases. Of those who voted in the municipal elections, 9% declared they voted for José Serra and 7% voted for Marta Suplicy. Highlight should be given to the percentage of youngsters aged 16-24 years old who reported voting for no one, either for governor (27%) or for mayor (30%).

Satisfaction with the government in general is low, although it is a little higher for local government than for the state government, reflecting criticism of health services and public safety. Overall 23% declare to be satisfied with governor and 29% with the mayor. Note that in the metropolitan area without the capital, satisfaction with mayors is higher.

It is worth mentioning that the group of individuals who have no opinion at all exceeds the percentage of individuals who are satisfied, and regarding the governor, it also exceeds the

number of those who are dissatisfied. In London, the level of satisfaction with the mayor is much greater than that of São Paulo (44% of Londoners declare to be satisfied with city government).

Recall of candidates can be seen as a proxy for interest in politics. Political apathy, despite low satisfaction with so many public services, reveals an attitude amongst citizens of the SPMR that views elections and political engagement as an ineffective way to improve urban life.

Concerning the state government, the main reason highlighted for dissatisfaction is the most generic: bad administration (11%). Public health (10%), absence of doctors in hospitals (11%) and public security (8%) appear in the rankings.

The reasons for a less favourable evaluation of city government are bad administration (7%), unpaved streets (7%), unmet demand for doctors (6%) and disregard of unemployment (6%).

Indifference to voting and discontent with elected government illustrate a cyclical problem where lack of education, and the slow development of a 'middle' class, together with a very polarised society contribute to this lack of political participation and accountability. São Paulo has to overcome these obstacles to produce a more democratic city, especially given its social and economic inequalities. It needs to keep its economy growing but in a more sustainable manner. It faces huge challenges on quality of life, and to make progress, the city will need to try to reduce social and economic inequality, despite a political system that seems destined to preserve the status quo.

<sup>8</sup> Voting in Brazil is compulsory for people age 18 to 70, and it is voluntary for the illiterate and people age 16-18 or older than 70 years old.

Figure 4.14

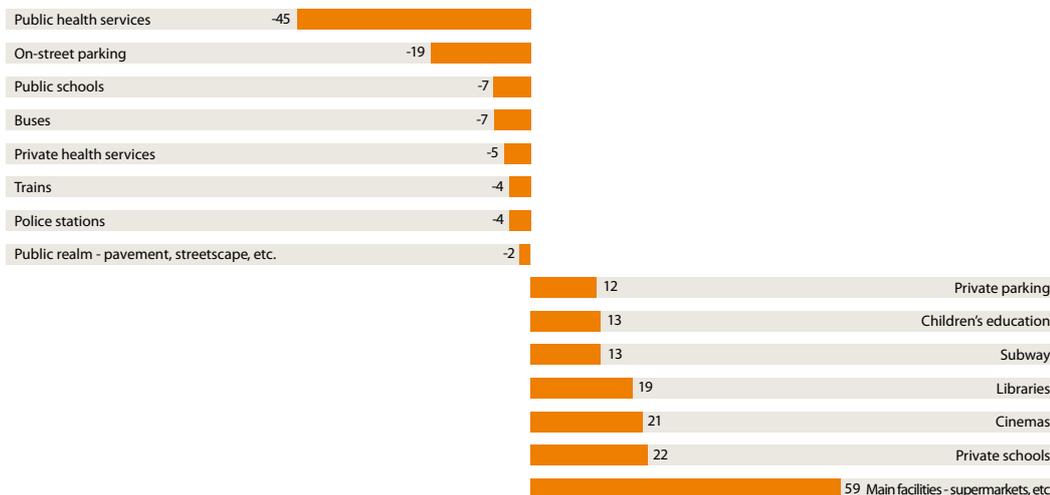


Figure 4.14 Satisfaction with services offered in the SPMR (Net Score +/-)

Source: Urban Age São Paulo survey

Figure 4.15  
Percentage of people that do not recall whom they voted for in the last mayor election

Source: Urban Age São Paulo survey

Figure 4.15

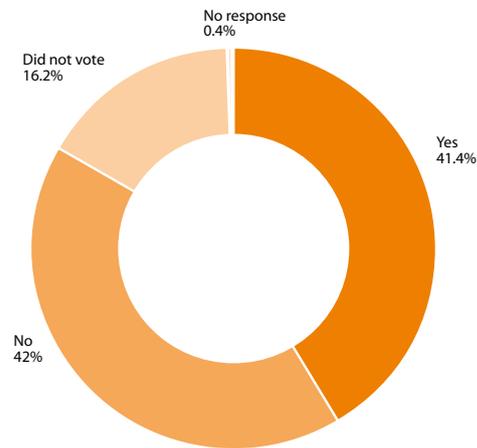


Figure 4.16  
Satisfaction with government (%very and fairly satisfied)

Legend:  
■ Governor  
■ Mayor

Source: Urban Age São Paulo survey

Figure 4.16

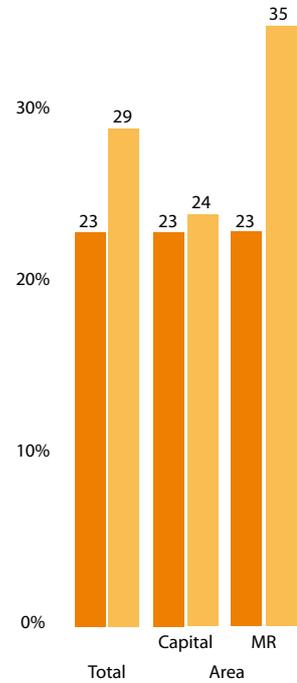


Figure 4.17  
Reasons for dissatisfaction with governor

Legend:  
■ SPMR total  
■ Capital  
■ SPMR without capital

Source: Urban Age São Paulo survey

Figure 4.17

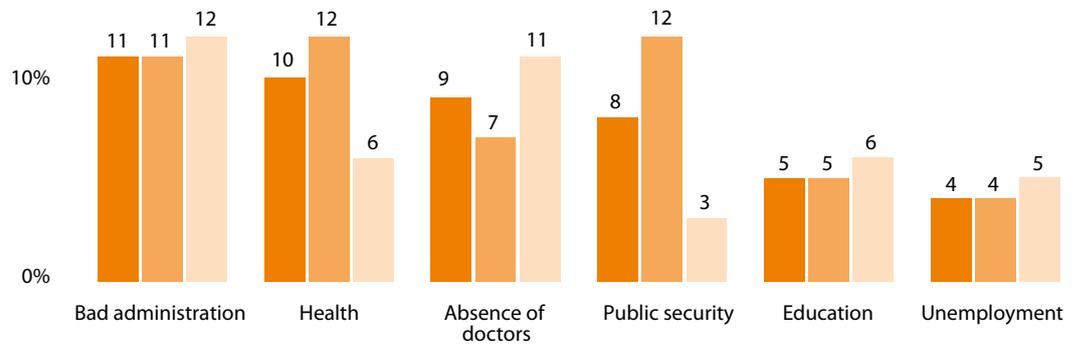
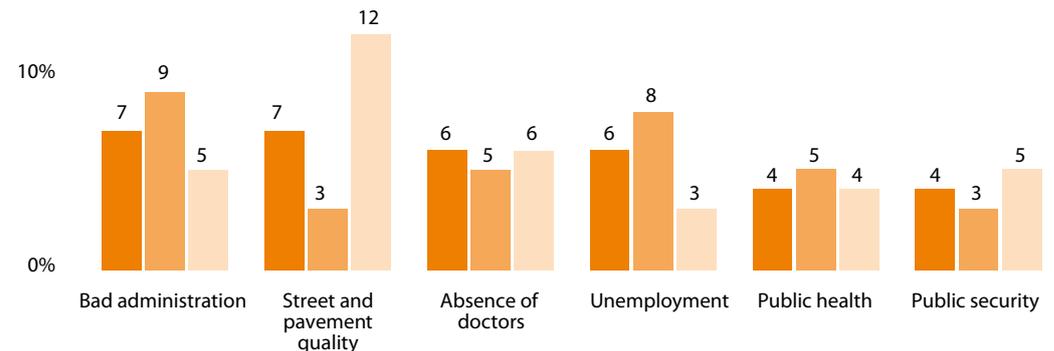


Figure 4.18  
Reasons for dissatisfaction with mayor

Legend:  
■ SPMR total  
■ Capital  
■ SPMR without capital

Source: Urban Age São Paulo survey

Figure 4.18



### 4.7 VIOLENCE

Crime and violence have become a structural problem in Brazil. Data from the Ipsos MORI Global Advisor survey (2007) indicate that when asked about the most worrying topics in the country, 53% of Brazilians point to crime and violence as being the most worrying issues. The same proportion of British people points to crime as the most problematic issue in their country as well – but the reasons for their concern are quite different and the official statistics show that crime rates in Brazil are extremely high when compared to the UK.

Considering the case of São Paulo specifically, official statistics show crime rates are in decline across the city as a whole, as displayed in figure 4.19. Homicide rates in particular have shown a sharp decline, from nearly 60 homicides per 100,000 in 2000 to 12 per 100,000 in 2007.

Despite the decline, the relative high rates of crime can explain why Paulistanos are twice as concerned as Londoners when it comes to fear of crime in their own neighbourhoods after dark.

Overall, the most mentioned reasons for feeling unsafe in the city for Paulistanos were fear of burglary (65%), being mugged or attacked (47%), lack of police (41%) and drugs (39%). For Londoners most cited reasons are fear of being attacked or mugged (38%), burglary (36%), lack of police (29%) and knife crime (28%).

Reasons for feeling unsafe varies a bit according to the location of the household, people living

in closed condominiums are more fearful of being a victim of “sequestro relâmpago” (a kind of kidnapping). And some other differences are shown in table 4.6.

SPMR data show that women feel much more unsafe than men. Wealthier classes (AB) feel more unsafe than poorer classes (C, DE). People living in closed condominiums declared to feel fairly worried about crime, and around 54% of people living in favelas declared to be very worried about crime.

People in the capital might be more worried about crime than people living in other cities of the metropolitan region, but when it comes to actions taken to protect themselves and their houses data shows that there are no differences. Overall 8% of people have some kind of security devices installed on their household (like alarms, cameras, etc.), and as expected wealthier residents (AB) use those resources more than poorer residents.

The perception of crime and the feeling of insecurity in the city are influenced by experiences of people. About 59% of respondents acknowledged to have been robbed or have a close relative who was. Rates for those who have had a close encounter with theft/ robbery are higher in the capital than in the other cities of the metropolitan region. Overall 1% of the respondents have been kidnapped and 2% had someone in the family who had been; while, half (47%) declared that they knew someone who had been murdered.

Figure 4.19

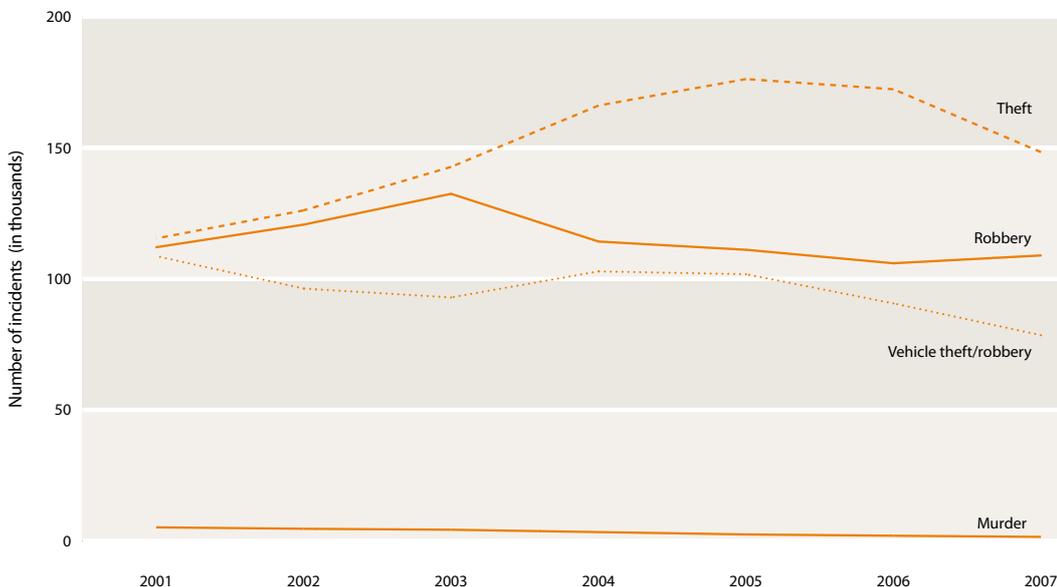


Figure 4.19  
**Crime official statistics in São Paulo**  
 Source: Secretaria da Segurança Pública de São Paulo

Figure 4.20  
Percent of people who feel unsafe walking in the SPMR streets in the evening by themselves

- Total
- Gender
- Class
- Area

Source: Urban Age São Paulo survey

Figure 4.20

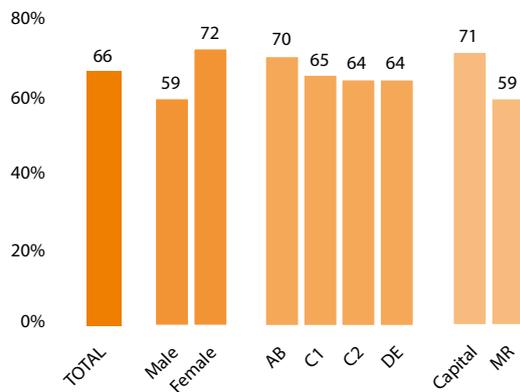


Figure 4.21  
Percent of people that are worried about crime in the SPMR

- Total
- Gender
- Class
- Area

Source: Urban Age São Paulo survey

Figure 4.21

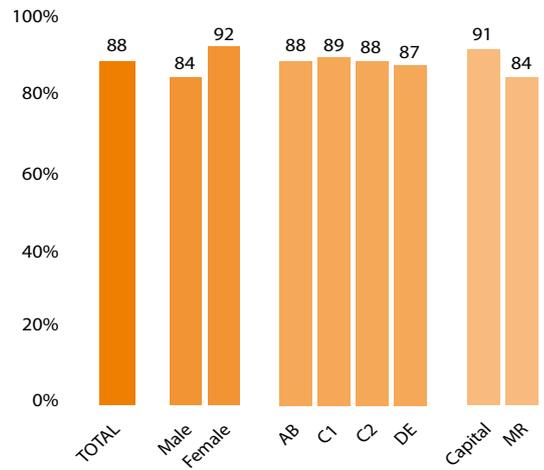


Figure 4.22  
How safe people feel walking outside the neighbourhood in the evening by themselves – London and SPMR in %

- São Paulo
- London

Source: Urban Age São Paulo survey, Ipsos MORI

Figure 4.22

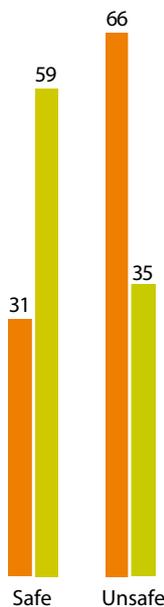


Figure 4.23  
Reasons for feeling unsafe in the city – London and SPMR

- São Paulo
- London

Source: Urban Age São Paulo survey, Ipsos MORI

Figure 4.23

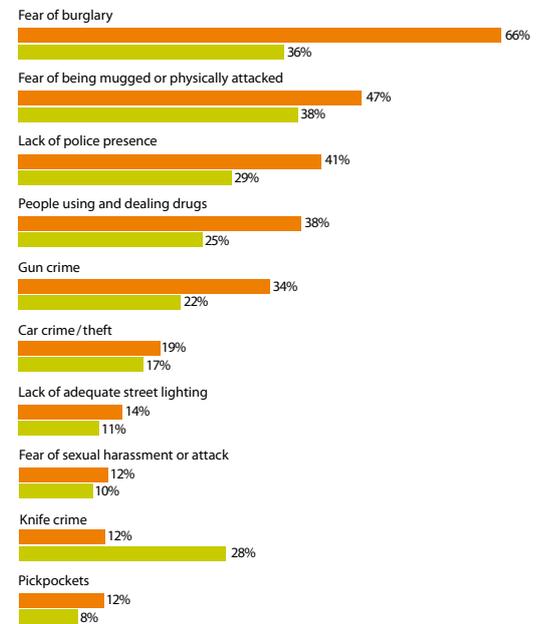


Figure 4.24  
Amount people would be willing to pay per month for private security, SPMR

Source: Urban Age São Paulo survey

Figure 4.24

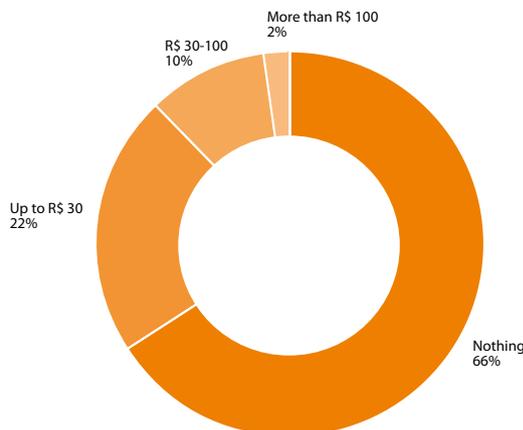
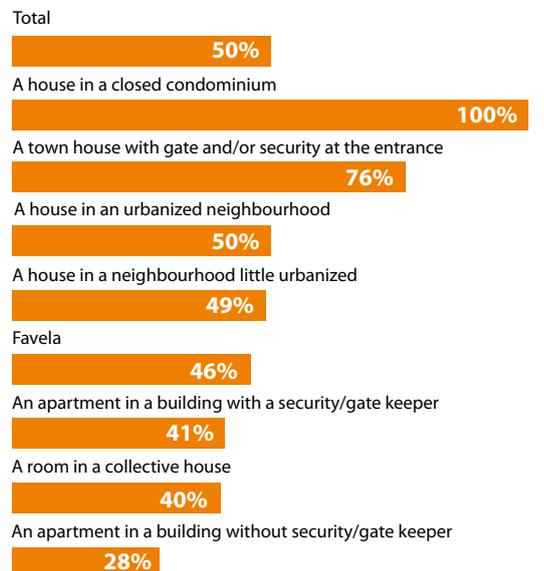


Figure 4.25  
Percent of people who feel very unsafe walking in the city streets in the evening by themselves, according to the location of the household

Source: Urban Age São Paulo survey

Figure 4.25



## 4-17 CITIES AND SOCIAL EQUITY

	Total	A house in an urbanised neighbourhood	A house in a neighbourhood little urbanised	A house in a closed condominium	A town house with gate and/or security at the entrance	An apartment in a building with security/gate keeper	An apartment in a building without security/gate keeper	A room in a collective house	Favela
<b>Fear of burglary</b>	65	<b>69</b>	<b>56</b>	<b>100</b>	<b>76</b>	46	<b>78</b>	<b>76</b>	<b>54</b>
<b>Fear of being mugged or physically attacked</b>	47	<b>49</b>	<b>43</b>	<b>100</b>	59	<b>55</b>	<b>70</b>		<b>54</b>
<b>Lack of police presence</b>	41	<b>40</b>	<b>44</b>		35	30	37	<b>45</b>	<b>46</b>
<b>People using and dealing drugs</b>	39	37	42		41	<b>65</b>	<b>39</b>	20	
<b>Gun crime</b>	34	36	30		<b>100</b>	30	8	<b>80</b>	
<b>Car crime/theft</b>	20	23	12		35	33	7		
<b>Lack of adequate street lighting</b>	15	16	10		<b>76</b>	6	23	22	
<b>Fear of sexual harassment or attack</b>	13	14	9		35	23		18	
<b>Pickpockets</b>	12	12	12		35	6			
<b>Knife crime</b>	12	13	6		<b>100</b>	20			
<b>People being drunk or rowdy in the streets</b>	10	9	7			<b>47</b>	34	22	
<b>Fear of the dark/night</b>	9	10	6		41	15			
<b>Teenagers hanging around on the streets</b>	8	9	5			16			
<b>Lightning kidnapping (sequestro relampago)</b>	8	8	6	<b>100</b>		6			

Table 4.6  
Reasons for feeling unsafe in the city, according to location of household

Source: Urban Age São Paulo survey

What factors have the greatest influence in determining the sense of insecurity among people? To answer to that question we tested the correlation of a number of different variables with the way people feel walking alone in their neighbourhood after dark. The intention was to understand what makes people feel unsafe.

Results shown in table 4.7 indicate that income, place of household (located in a favela), satisfaction with police stations and possession of safety equipment at home do not influence peoples' feeling of insecurity. Gender, education and having already been assaulted or robbed are the factors that best explain people's insecurity. Women, people with higher education and the ones that had been previously robbed have higher probability of feeling insecure in SPMR.

There are many actions to be taken in order to increase the safety of SPMR inhabitants. Urban Age survey tested 12 actions and only two of them were perceived as less effective to increase the level of security among residents of SPMR: building more prisons and closing places that sell alcohol by 11 pm.

Since the feeling of insecurity is high and Paulistanos identify a problem in the provision of public security, 56% of people endorse the use of private security in their streets. There are no significant differences in the acceptance of public security according to class, age, area or education. But there are differences when it comes to the amount people would be willing to pay in order to have that service. The more educated and the wealthier are inclined to pay more.

And how about the use of transport, how safe do Paulistanos feel using different types of transport at night, alone? According to the survey, the most unsafe way to commute alone at night is by walking. And the safest way is using the metro, followed by car. Train, bike and buses are also seen as being less safe.

Table 4.7  
**Logistic regression for perception of safety in the city – SPMR**  
 Reference categoris: Gender (Male);  
 Income (up to R\$ 1,750); Favela  
 (household located in a slum);  
 Education (Up to Fundamental);  
 Police station satisfactions  
 (Dissatisfied); Have been assaulted/  
 robbed? (No); Security device/  
 apparatus (No)  
 Source: Urban Age São Paulo survey

	Estimative	Odds ratio	Standard Error	P-value
<b>Gender</b>	0.672	1.959	0.233	0.00
<b>Favela</b>	0.162	1.176	0.232	0.49
<b>Income</b>	0.211	1.235	0.326	0.52
<b>Education</b>	0.509	1.664	0.249	0.04
<b>Police station satisfaction</b>	0.332	1.394	0.231	0.15
<b>Have been assaulted/robbed?</b>	1.088	2.967	0.243	0.00
<b>Security devices/apparatus</b>	0.190	1.209	0.578	0.74

Figure 4.26  
**Houses which have some kind of security device**



Source: Urban Age São Paulo survey

Figure 4.26

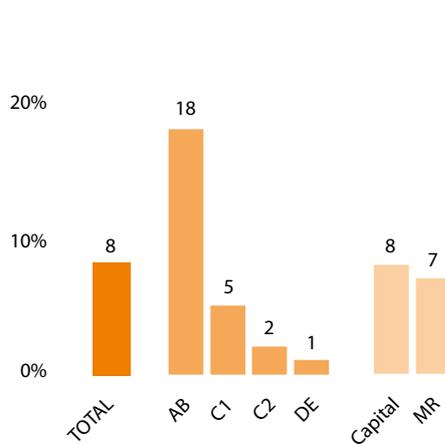


Figure 4.27

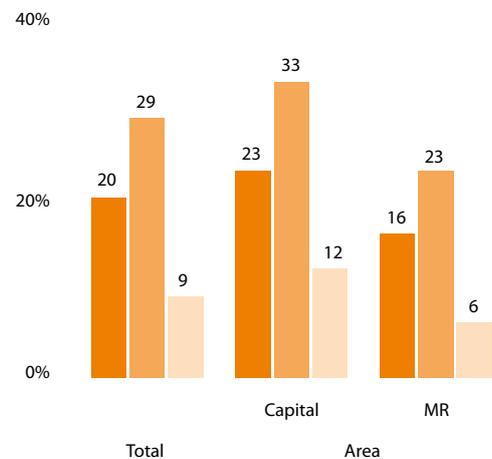
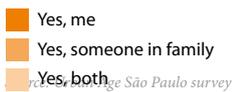


Figure 4.27  
**Have you or anyone in your family been robbed in the city?**



Source: Urban Age São Paulo survey

Figure 4.28

Figure 4.28  
**Actions to be taken that would make people feel safer (Net Score +/-)**

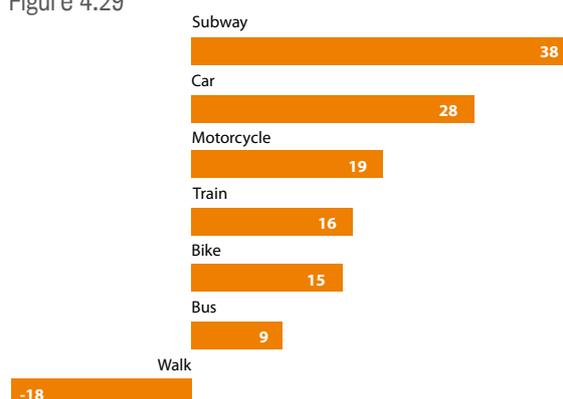
Source: Urban Age São Paulo survey



Figure 4.29  
**People that feel safe using public transport alone at night, SPMR. Net Score (safe/unsafe, excluding the ones that do not use mode of transport)**

Source: Urban Age São Paulo survey

Figure 4.29



### 4.8 TRANSPORT AND MOBILITY

Transport is the most important issue facing the city of São Paulo today, according to the Urban Age Survey research with specialists and civic leaders – and one of the top three problems according to mass opinion.

Traffic congestion is a big problem; it is not uncommon to face more than 100 km of congestion in the city. Traffic congestion is due partially to the late development and poor offer of mass public transport systems; planned in the 1930s, the first metro line did not operate until 1974 and today the underground is still only 61 km long. On the other hand, the city has 17 thousand km of roads, and 15 thousand buses and 6 million cars. In addition, the growth of the total automobile fleet is fast, outnumbering the level of population growth by far (see figure 4.32).

People’s main destination is principally to the workplace, 63% of people in the SPMR. Going shopping is the second main destination, with

10% of people. Today people spend an average of 47 minutes to get to work. On average men take more time than women to get to work, 54 minutes for men and 41 minutes for women. People in the capital also take more time, 51 minutes on average, while people in other cities in the metropolitan area take around 41 minutes.

On average, people use two modes of transport to reach their main destination daily. Women, older people, people that do not work, people in higher classes and people that live in the metropolitan region take on average only one mode of transport to get to their main destination.

According to the origin destination study, run by the São Paulo metro company, the distribution of the average daily travel is 33% by walking, 29% by individual transport and 32% by public transport. The motorised travels are mainly by car (41%), then bus (36%) and metro (9%).

In all activities surveyed (work, school/college, shopping and leisure), walking prevails. Cars are

Figure 4.30

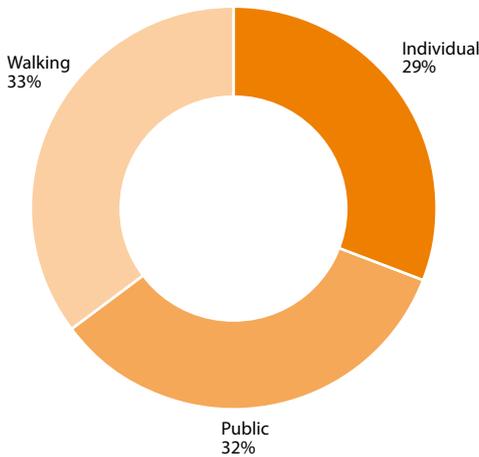


Figure 4.32

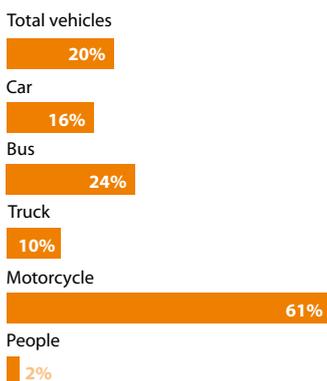


Figure 4.31

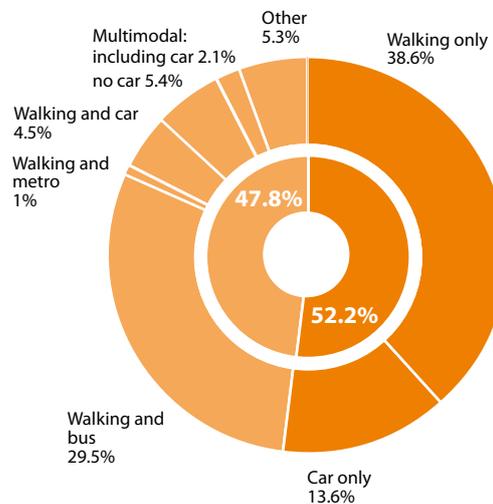


Figure 4.33

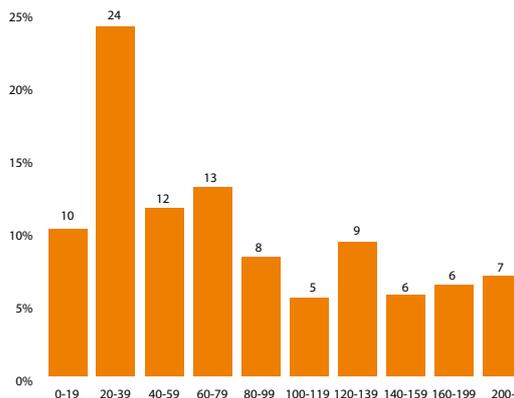


Figure 4.30

Modal split of trips to work and school within the SPMR

Source: Origin/destination study, São Paulo Metro, 2002

Figure 4.31

Modal split for all trips to primary daily activity within the SPMR

In the past, most surveys have tended to assume that journeys occur by only one mode of transport. This survey allowed for more specific and dynamic information about the main daily journey and it captures the multiplicity of different means of transport used by those surveyed. The largest percentage of people (39 per cent) only walk to their main daily destination; the second largest travel mode (30 per cent) combines walking with bus transport.

Source: Urban Age São Paulo survey

Figure 4.32

% Growth in fleet and people from 2002 to 2006

Source: Fundação SEADE

Figure 4.33

Return travel times to main daily destinations in the SPMR

Almost one quarter of those surveyed require between 20 and 40 minutes for their combined return journeys to their main daily destination. More than 7 per cent spend more than 3 hours on these daily journeys.

Source: Urban Age São Paulo survey

Table 4.8  
Time required to reach destinations according to location of household  
Source: Urban Age São Paulo survey

	Total	A house in an urbanised neighbourhood	A house in a neighbourhood little urbanised	A house in a closed condominium	A town house with gate and/or security at the entrance	An apartment in a building with security/gate keeper	An apartment in a building without security/gate keeper	A room in a collective house	Favela
<b>Library</b>	25	24	28	5	-	13	20	-	-
<b>Cinema</b>	31	31	36	15	-	26	21	-	20
<b>Public offices</b>	23	23	24	10	36	8	6	32	90
<b>Hospital</b>	30	29	32	7	49	13	28	37	39
<b>Museum</b>	50	45	64	30	-	50	-	-	20
<b>Shopping mall</b>	31	30	36	20	47	28	22	52	50
<b>Theatre/concert hall</b>	42	38	58	-	-	23	28	-	-
<b>Public park</b>	31	30	38	15	15	8	15	13	30

Figure 4.34  
Return travel times by household type in the city of São Paulo  
Average travel times for residents of favelas are significantly higher (100 minutes) than those living in formal settlements which are not close to favelas (70 minutes). The average return travel time for the main daily activity of those surveyed is 80 minutes – slightly lower than the travel to work average (85 minutes).  
Source: Urban Age São Paulo survey

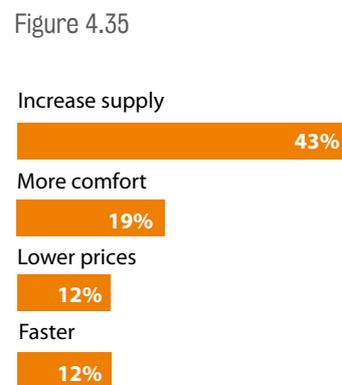
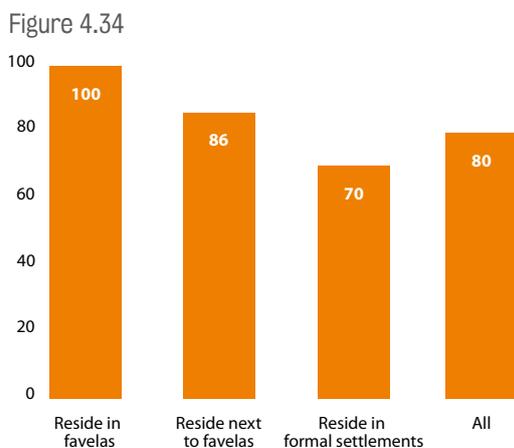


Figure 4.35  
How public transport should be in order for people to use it  
Source: Urban Age São Paulo survey

more used for shopping and leisure activities. As part of their main daily journey, most people include walking (81%), around 36% a bus ride and 16% car travel. Only 6% use the metro, and 6% car pool at some point of their journey. Around 60% of people in the SPMR do not own a car, but 81.6% of them would buy a car if they

could afford it. Those willing to buy a car were asked if that car would become their main mode of transport, and the vast majority answered yes – 83%. Lower classes and less educated people are more willing to make the car their main mode of transport.

People were also asked if they would change their mind and use public transportation if there

Figure 4.36  
Travel times to key destinations  
Legend: Time required (dark orange), Time accepted (light orange)  
For all urban destinations on the right, actual average travel times exceed the acceptable levels as stated in interviews. The ratio between the two is similar although slightly higher for those facilities further away, for example museums, theatres and concert halls.  
Source: Urban Age São Paulo survey

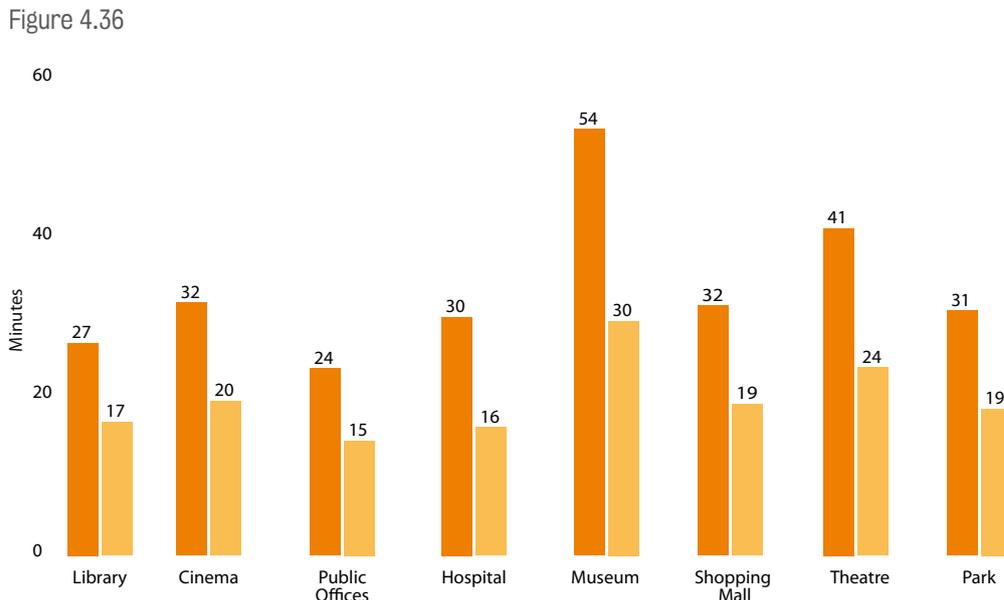
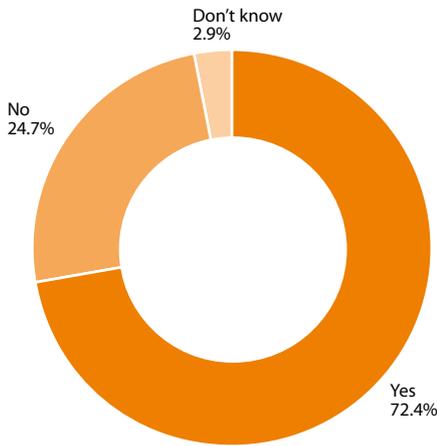


Figure 4.37



was an efficient public transport system. About 86% of people declared they would use public transport, but under certain conditions, the accessibility would have to be improved as well as increased comfort, lower fares and enhanced speed and reliability. Older people and less educated interviewees were less willing to change and use public transport. Also people are less willing to change in the capital (79%) compared to people in other cities in the metropolitan area (90%).

The time required for SPMR inhabitants to reach certain destinations is appalling. In their opinion, the amount of time required to reach 8 different destinations in the city is above the accepted time, especially museums, theatres and concert halls, hospitals and public parks.

Comparing views of inhabitants from the capital and other cities in the metropolitan region, we can see that differences in time required and accepted are bigger in the capital when comparing to the other cities in the metropolitan region for museums, theatres, public parks and hospitals. While in the metropolitan region, shopping malls, cinemas, libraries and public offices have higher differences than in the capital.

The time required to get to specific destinations according to the location of household show some differences. The travel time for residents of favelas and marginalised settlements to surveyed destinations was significantly longer which

Figure 4.39

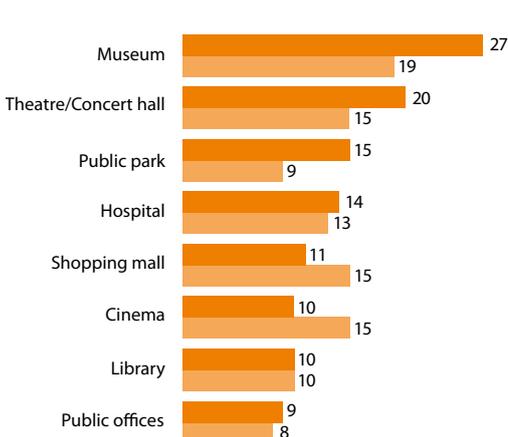
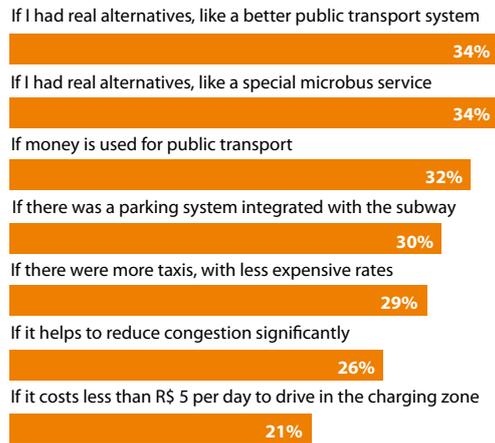


Figure 4.38



reflects their limited access to those places.

When asked about the priorities in public policy to solve the traffic problems in SPMR, people pointed to the expansion of the metro and rail networks as the most important one (35%), followed by the expansion of bus corridors (20%), roads and highways (14%), expansion of the rodizio (plate limitation – 7%) and the adoption of a congestion charge (3%). Around 16% reckon the only way to improve is to adopt all the previous actions while 5% did not give an opinion.

Mass public opinion also declares to be favourable to policies that reduce car use and promote public transport in addition to walking and cycling; overall more than 72% are supportive to public policies that would promote such actions. People living in the other cities of metropolitan region, the ones in higher classes and the higher educated ones are more supportive than the others.

People were asked if they would be sympathetic about the idea of a congestion charge, given specific conditions. It is noticeable that people are more supportive to that action when consequences are presented, for example, when they consider they could have a reasonable alternative like a better public transport system or microbuses service around their neighbourhood.

Figure 4.40

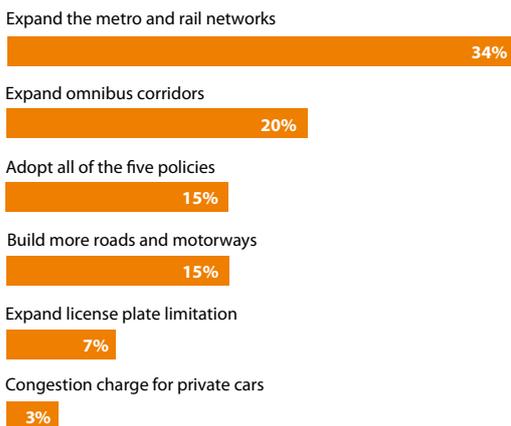


Figure 4.37  
Agree to reduce car use and promote public transport, walking and cycling  
Source: Urban Age São Paulo survey

Figure 4.38  
Support for congestion charge, according to specific consequences  
Source: Urban Age São Paulo survey

right  
Most Paulistanos incorporate walking as part of their daily commute.  
Dante Busquets

Figure 4.39  
Difference between time required and total time accepted to reach destinations, in minutes  
Legend: Capital (MR), Metropolitan Region (MR)  
Source: Urban Age São Paulo survey

Figure 4.40  
Public view on solving transport problems  
A vast majority of those surveyed would prioritise the expansion of the metro and rail network followed by expanded bus corridors. Approximately fifteen per cent of those surveyed adhere to the classic – and in most cities unsuccessful – strategy of building more roads and motorways as a priority  
Source: Urban Age São Paulo survey





# 5 SAFE SPACES, SAFE CITY

## Modes of living in São Paulo

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Crime in Jardim Ângela, once  
declared by the United Nations as  
the homicide capital of the world, is  
today substantially reduced thanks to  
community and state interventions

*Tuca Vieira*

**CHAPTER 5 – SAFE SPACES, SAFE CITY  
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## 5.1 INTRODUCTION

Security is an essential theme to reflect upon within São Paulo today, as security and violence – real, perceived or imagined – are essential themes which guides the daily life of every citizen. Violence is an acute portrait of the tensions that characterise São Paulo’s urban inequalities as well as an expression of the city’s perverse risk-based economy. This economy of risks is intrinsically associated with the city’s social and spatial segregation as perceived threats and risks shape the parochial segregation of the fortified enclaves and the cities of walls,<sup>1</sup> as well as the citywide segregation of inhabitants according to class, education, income and race. Indeed, the São Paulo metropolitan area is a disjointed assemblage of urban territories with several centers and peripheries created by this widespread segregation.

For this reason, mapping the city according to potential and effective “safe spaces” offers insights into the range of living conditions in São Paulo and the feasible opportunities for improvement. “Safe spaces” can be characterised in many ways: dense landscapes of private security employees and apparatuses, areas controlled by organised crime, neighbourhoods renowned for their high level of associative or communitarian initiatives, or even parts of the city centre occupied by “juvenile tribes”, are all examples of pacified spaces where violence has decreased. If a very broad sense of the term is used, there are then many ways to promote security.

This mapping exercise also highlights the extreme inequalities present in the city in terms of living conditions, access to policies and the right to urbanity. Therefore, a “safety map” – informed by data, ethnography and pictorial research of a selection of districts – would provide a pretext to discuss the differences between areas in the city, the underlying themes such as the availability of public equipment and goods, the legal and illegal solutions available to each social class and the possibilities of change or immobility that are associated with these strategies.

The study also contemplates a reflection of how some of these strategies actually contribute to the maintenance of the cycle imposed by violence, showing that in many cases, in São Paulo, the pursuit of security can promote even more segregation and violence.

The present study is organised around the

discussion of these safe spaces. The first part begins with a quantitative description of four different districts within the city that offer a broad picture of segregation, unequal access to public provisions and poverty, in comparison to the city of São Paulo itself. In the second part of the study, two of the four selected urban areas were chosen for field work.

## 5.2 THE CITY OF SÃO PAULO – LIVING CONDITIONS AND VIOLENCE

This section presents the spatial distribution of social groups within the city of São Paulo with specific reference to the socioeconomic conditions and the occurrence of homicides. It therefore aims to contextualise the four areas chosen for comparison within the complex social, economic and territorial dynamics of the city of São Paulo. It is preceded by a short summary of key historical developments in the Metropolitan Region of São Paulo (SPMR) and in Brazil, which heavily influenced its urban development.

Throughout the 20<sup>th</sup> century, São Paulo, the largest city in Brazil, underwent an urban growth process, which acquired its greatest intensity at the start of the 1950s, when the population growth rate reached its peak of 5.6% per year (1950/1960). For the next two decades, the city, located in the most industrialised region of the country, benefited from sustained economic growth and received millions of migrants from other Brazilian states. This population influx, owing to a promising job market and better living conditions, is considered one of the largest world population movements during this era and up until the 70s, was the key driver behind São Paulo’s population growth.

One consequence of this period of accelerated growth was the proliferation of illegal urban settlements in the SPMR. While Rio de Janeiro’s topography has facilitated the contained growth of slums in the surrounding mountains from the early 19th century, in São Paulo, the main solution for the poor during this boom period was to occupy the urban outskirts, which contributed to the horizontal spreading of the city, and later, to the formation of the SPMR (Taschner, 1997; Marques and Torres, 2005). The vast majority of the migrants came from the poorest regions of the country and were therefore unable to pay any of the costs entailed by formal housing. With limited resources and overwhelming growth,

<sup>1</sup> Caldeira, T. (2000) *City of Walls: Crime, Segregation, and Citizenship in São Paulo*, University of California Press, Berkeley

successive governments failed to respond quickly and efficiently to the growing housing demand. As a legacy of this chaotic growth, one of the most disparate income distribution problems in the world developed. In 2000, the Gini index for the city of São Paulo was 0.62. In other words, São Paulo became a huge city characterised by some of the most extreme living conditions: from a rich minority with international consumption patterns to a multitude of people who live, up until this day, in illegal settlements in poor and insalubrious urban environments.

Though the severity of São Paulo's inequality can be attributed to lack of government intervention, its catalyst can be found in the period of crisis in the Brazilian economy, which started toward the end of the 70s and intensified in the 80s. One of its consequences was the reduction in the economic activities of the SPMR and, therefore, the supply of jobs. The results were the continuous growth of the unemployment rate, especially in the formal job market (registered jobs), and the concomitant drop in the real income of the workers. With a few years of exception, the situation remained until the beginning of the 21<sup>st</sup> century. In fact, it was only very recently that the job market conditions have improved.

For the first time in three decades, the unemployment rate started to decline in 2007 to 10% within the SPMR. However, this level is still higher than what it was prior to the economic crisis in the beginning of the 1980s. In the case of São Paulo, the key impact of this crisis – associated with the economic restructuring of the industrial sector – was the loss of industrial jobs, which inevitably led to a drop in people's incomes

and the growth of the informal job market. This drastic plunge in income was also exacerbated throughout the hyperinflationary period (1985 – 1994), which tended to punish the poorest people more directly.

During the economic crisis of the late 80s, the Brazilian political system initiated a course of institutional changes that would herald the democratisation process. These changes and subsequent policies under the newly formed democratic government would address social conditions; however, the underlying consequences of the economic downturn would remain neglected. Over the past two decades, the democratic governments have implemented a number of policies to increase the access to public services for the poorest population. In addition to universal healthcare and primary school education, the enhanced provision of basic urban infrastructure has increased access to potable water, electricity, etc, in households formerly neglected during the previous decades of fast economic growth. The exception to this expansion of services is that access to proper sanitation systems has yet to be universalised. Other benefits introduced under the democratic governments were the guarantee of subsidies for the elderly, the physically impaired, and those with little to no income, the approval of a number of labor laws and, more recently, the establishment of income transfer programmes with concessions for poor families (Figueiredo, Torres and Bichir, 2006).

For some authors, these advancements in areas of social laws and public services have minimised the negative effects of the economic crisis and job market deterioration. However, these policies only explain the improvement of

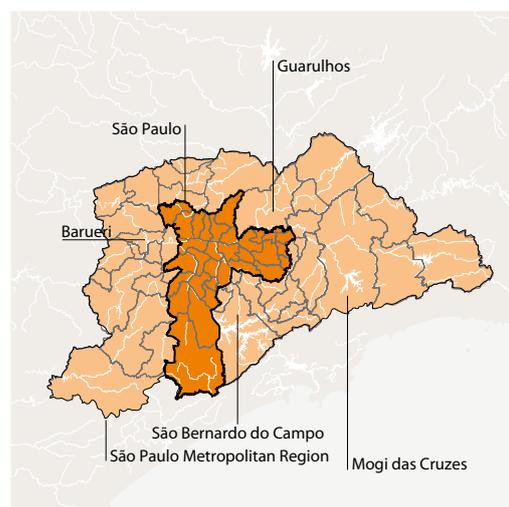


Figure 5.1  
State municipalities  
Source: Urban Age research

Figure 5.2  
Location of SPMR and the city of São Paulo

São Paulo has an estimated population of 10.8 million people in 2007 with a population density of approximately 7,100 inhabitants per square kilometre. The SPMR is composed of 39 cities, with a total population estimated at almost 20 million people.  
Source: Urban Age research

the social indicators within an environment of worsened economic conditions. In spite of all of these recent advancements, the pattern of high social inequalities still persists and has been intensified by settlement trends, which continue to marginalise poorer families and prevent them from living in serviced parts of the city. It is not surprising, therefore, that this social inequality is reflected in the urban space.

Figure 5.3 illustrates the spatial distribution of monthly income per capita in the different areas of the municipality of São Paulo in 2000. The locations in yellow concentrate the lower income populations of the city (from zero to a maximum of R\$ 300 per capita); the darker the colour, the better peoples' incomes (the darkest shade shows the concentration of the populations with an average income between R\$ 2,500.00 and R\$

3,400.00 per capita)

With few exceptions, the most distant areas – or the borders of the city – concentrate a lower income population. On the other extreme of the distribution, the higher income people tend to live in the so-called Southwest vector of the city. Nevertheless, it is possible to notice that there are intermediary values. In overall terms, the more distant from the Southwest vector of the city, the lower people's incomes.

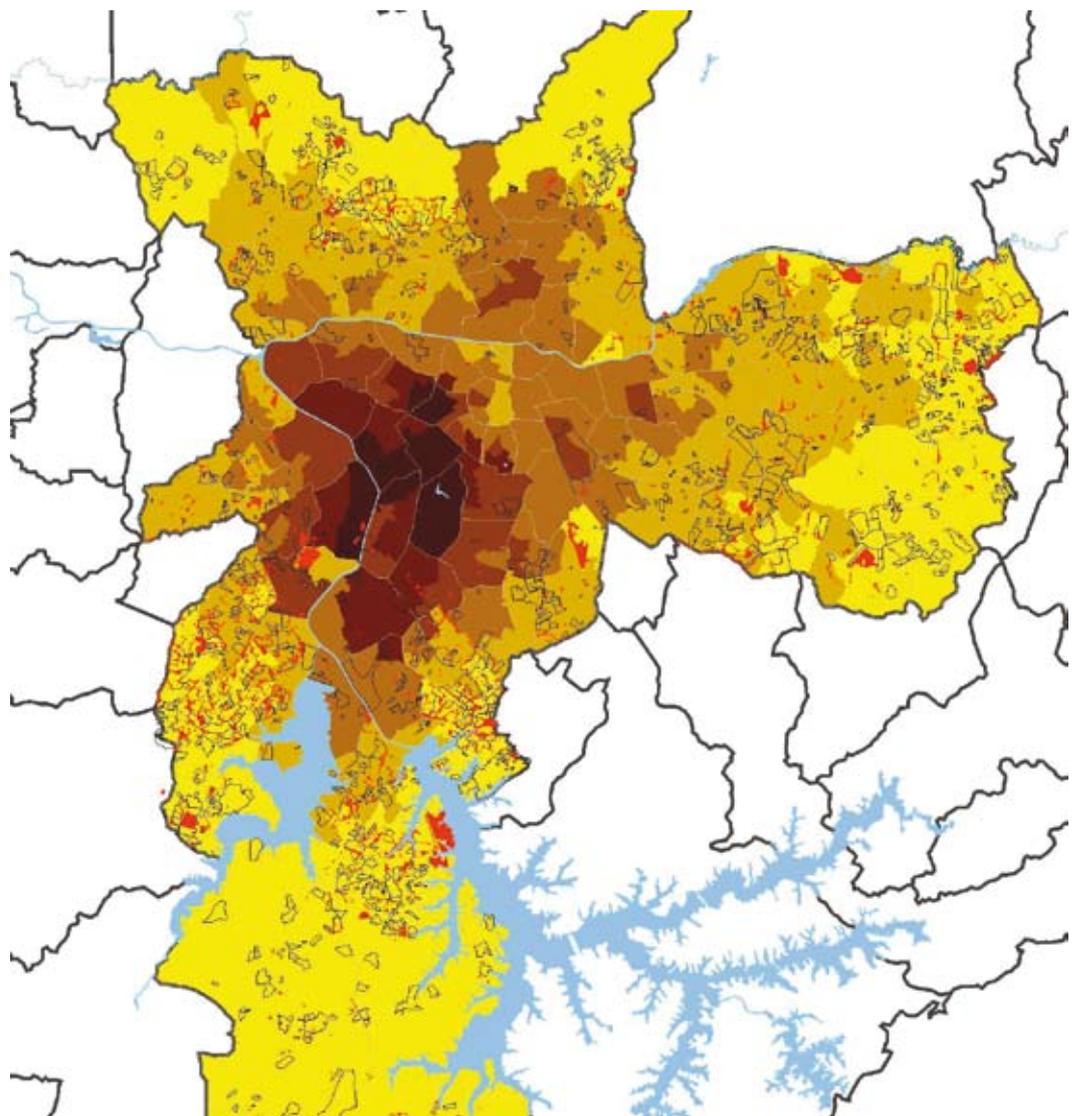
Besides this information, figure 5.3 illustrates the location of the slums (data from 2002) and the irregular or illegal housing settlements (data from 2000). The slums are represented by the areas in red on the map, with a striking presence in the South and Southwest areas of the city. Unlike Rio de Janeiro, the slums of São Paulo are rarely located in the more central areas of the city;

Figure 5.3  
Average household income per capita [R\$] Location of slums and informal settlements

0 - 300
300 - 600
600 - 1200
1200 - 1800
1800 - 2500
2500 - 3400

MRSP municipalities  
 Districts  
 Irregular/illegal settlements  
 Water  
 Favelas

Source: IBGE, Seade and CEM



exceptions to this rule are the two largest slums in the city – Paraisópolis and Heliópolis. A similar pattern can be observed in the cases of irregular and illegal housing settlements (in black), which are primarily concentrated in the outskirts of the city.

As seen in the beginning of this section, the urban settlement patterns in São Paulo throughout the past decades took place with little government intervention and housing policies for the poor. The illegal housing settlements and slums in the city triggered a trend of settlement in neglected peripheral areas. Throughout the years, because of the growth and consolidation processes of these occupations in self-developing neighbourhoods, it became increasingly more complicated for the government to ensure a minimum standard of services in these areas. As a result, some occupations developed around the two large artificial lakes in the southern area of the city to facilitate ad hoc access to water and sanitation but all the while jeopardising the surrounding environment and the two main water supplies of the SPMR.

Given the complexity of these situations, we chose four areas that provided significantly different contexts. The chosen areas are as follows:

1. The central area of the city, and the Southwest vector, within a rich area, with very few records of homicides in 2005 – Jardim Paulista;
2. The far east side of the city, in a neighbourhood created by the government towards the end of the 70s as a social housing solution, with a more socially precarious nature than the other areas of the city – Cidade Tiradentes;
3. The north side of the city, in an area that integrates neighbourhoods of lower middle class with highly concentrated slums and territories under environmental protection – Cachoeirinha and Brasilândia; and
4. The southeast side of the city, in a neighbourhood that has been consolidated for many decades but still has problems due to lack of the government involvement, strong presence of slums and illegal housing settlements, and one of the highest homicide rates in the city – Jardim Ângela.

In the next section, more details are provided about the main socioeconomic characteristics of these four chosen areas.

### 5.3 FOUR DISTRICTS COMPARED

The selected districts, taken together, form a general picture of the outstanding socioeconomic and demographic heterogeneity within the city. In almost all of the dimensions analysed, the districts of Jardim Paulista, Cidade Tiradentes, Cachoeirinha and Brasilândia and Jardim Ângela can be distinguished from one another with regards to important aspects. Figure 5.4 presents the main indicators for socioeconomic and demographic conditions of the four selected areas.

The difference in the population size among the selected areas is significant. While in the Jardim Paulista district there were 83,667 residents in the year 2000, in the Cidade Tiradentes, Cachoeirinha and Brasilândia and Jardim Ângela districts there were 190,657, 394,977 and 245,805 residents respectively, with household densities varying from 2.53 residents per household in Jardim Paulista to 3.83 in Cidade Tiradentes. The percentage of children also varies substantially between the areas, with Jardim Paulista at one end (12% of children in the total population), and Cidade Tiradentes (35%) at the other, followed by Jardim Ângela (33%) and Cachoeirinha and Brasilândia (32%). As many of the CEM projects have demonstrated, the high percentage of children in the population tends to intensify the social vulnerability of poor areas. Additionally, data has also shown that the population group 18 to 24 years old, has a greater incidence of homicides and violence which leads one to infer that the areas with a younger population are, therefore, more vulnerable to violence against human life.

The income differences between the districts are also very large. While Jardim Paulista has an average household income per capita of 18 times the minimum wages<sup>2</sup> (R\$ 7,827.73), Cachoeirinha and Brasilândia had an average household income per capita of 2.15 minimum wages (R\$ 890.67), followed by Jardim Ângela with 1.49 minimum wages (R\$ 618.35) and Cidade Tiradentes with 1.40 minimum wages (R\$ 581.00).

The education level of the household heads varies substantially in the areas, once again distinguishing Jardim Paulista from the other selected districts. While the male heads of households have an average of 13.32 years of education and female headed households have 12.77 years, Jardim Ângela has respectively 5.19 and 4.84, Cidade Tiradentes, 6.12 and 6.01, and

<sup>2</sup> For the minimum wage in force in August of 2008 – R\$ 415.00

Figure 5.4  
Socioeconomic and demographic  
characteristics of the selected  
areas

\* people who state having, being or

belonging to

Source: Sample from the IBGE  
Census, 2000

	Jardim Paulista	Cidade Tiradentes	Cachoeirinha and Brasilândia	Jardim Ângela
<b>Total people in the selected district (s)</b>	83,667	190,657	394,977	245,805
<b>Total households</b>	33,091	49,840	106,084	65,239
<b>Household density</b>	2.53	3.83	3.72	3.77
<b>Household income per capita in terms of minimum wage</b>	18.86	1.40	2.15	1.49
<b>Average number of years of education of the household heads</b>	13.32	6.12	6.15	5.19
<b>Average number of years of education of the female household heads</b>	12.77	6.01	5.50	4.84
<b>In %</b>				
<b>children within the population</b>	12.33	35.21	31.66	33.43
<b>blanco (white) people</b>	90.83	49.09	60.49	47.93
<b>negro (black) people</b>	1.64	11.05	7.22	6.09
<b>amarelo (asian) people</b>	2.98	0.11	0.68	0.31
<b>pardo (brown) people</b>	3.63	39.16	30.50	44.59
<b>Índios (indigenous) people</b>	0.10	0.15	0.13	0.19
<b>people with an ignored colour</b>	0.82	0.43	0.98	0.89
<b>negro and pardo (black and brown) people</b>	5.26	50.21	37.72	50.69
<b>people born in another State</b>	28.36	34.58	31.32	43.33
<b>* no religion</b>	7.62	14.58	9.10	10.72
<b>* Catholics</b>	74.69	55.74	65.24	69.53
<b>* traditional Evangelists</b>	1.79	2.53	2.54	1.91
<b>* Pentecostal Evangelists</b>	1.46	21.57	16.50	13.52
<b>* Kardecists</b>	4.17	0.97	1.63	0.31
<b>* Afro Brazilian religion</b>	0.05	0.52	0.62	0.25
<b>* Oriental origin religion</b>	1.05	0.70	0.37	0.26
<b>* Esoteric religion</b>	0.08	0.02	0.07	0.01
<b>* other religious segments</b>	8.99	3.29	3.55	3.12
<b>* do not state their practiced religion</b>	0.11	0.09	0.39	0.38

Cachoeirinha and Brasilândia, 6.15 and 5.5. It is also important for the reader to notice the differences between the selected areas with respect to the average number of years of education and the difference between male and female headed households: Jardim Ângela and Cidade Tiradentes have lower education levels but a situation of greater equality between men and women, while Cachoeirinha and Brasilândia and Jardim Paulista have higher levels of education but with a greater difference between the sexes.

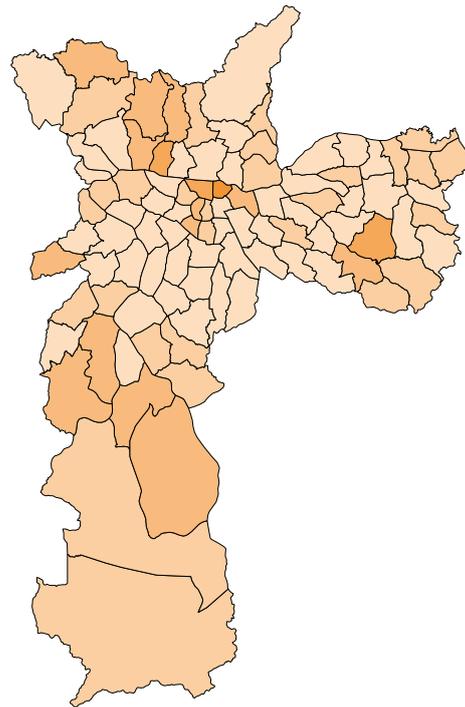
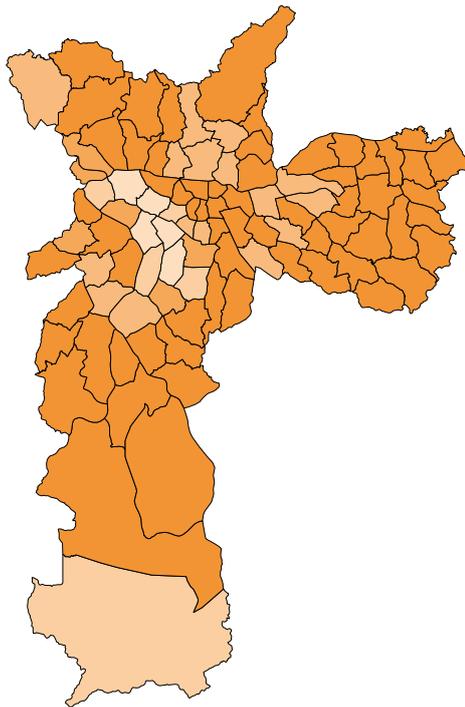
The racial heterogeneity is also substantial between the areas selected for the study: Jardim Paulista's district is overwhelmingly *blanco* (white) (90.83% of the population), with a contingency of *negros* (black) and *pardos*<sup>3</sup> of just 5.26%. Whereas the Cidade Tiradentes, Cachoeirinha and Brasilândia and Jardim Ângela districts are

predominantly black: in Jardim Ângela, 50.69% of the population is composed of *negros* and *pardos*; in Cidade Tiradentes, this number is 50.21%; and in Vila Nova Cachoeirinha and Brasilândia, 37.72%.

The population distribution in terms of religious beliefs is very similar between the areas. The only difference is the percentage of people who state being Pentecostal Evangelists: in Cidade Tiradentes, Cachoeirinha and Brasilândia and Jardim Ângela, this percentage is 21.57%, 16.5% and 13.52% respectively, whereas in Jardim Paulista, only 1.46% of the inhabitants state being Pentecostal Evangelists.

In comparing the socioeconomic and demographic aspects of the selected areas, the resulting portrait is highly heterogeneous and distinguishes two groups: on one hand, Jardim

<sup>3</sup> A term based on self-declaration, the closest concept would be someone of mixed-race.



left  
Figure 5.5  
Homicide rates per district,  
municipal district of São Paulo,  
2000

right  
Figure 5.6  
Homicide rates per district,  
municipal district of São Paulo, 2007

per 100,000 inhabitants

- 0 – 10
- 10 – 15
- 15 – 20
- 20 – 30
- 30 and over

Sources: PRO-AIM/SMS-SP, IBGE  
and Fundação SEADE

Paulista and on the other, Cidade Tiradentes, Cachoeirinha and Brasilândia and Jardim Ângela. Nevertheless, as one will see further ahead, in the ethnographic description of the selected areas, even in areas with less prominent socioeconomic and demographic characteristics (which is the case of Cidade Tiradentes, Cachoeirinha and Brasilândia and Jardim Ângela), the differences between them are, at times, very accentuated, especially with regards to the way the safe spaces have been produced.

#### Homicides trends in selected districts

In a heterogeneous city such as São Paulo, it is not surprising for the homicide rates to also fluctuate from one area to another. The analysis of the homicide data for the São Paulo districts from 2000 to 2007 effectively highlights the pronounced differences between them, despite an overall reduction in the number of homicides<sup>4</sup> (and, consequently, the rates of homicide occurrences per 100,000 inhabitants). If, in absolute terms, all the chosen districts in the municipality of São Paulo experienced a significant reduction in the homicide rates, their relative positions have had fewer alterations: there are fewer deaths, however the most – and least – violent districts in 2000 were still largely the same in 2007.

The homicide rates in the city of São Paulo have presented a clear and consistent drop from 2000 to 2007. There was a reduction of 78.8% overall (from 57.3 homicides per 100,000 inhabitants in the year 2000 to 12.1 homicides per 100,000 inhabitants in 2007; in absolute terms, a reduction of 5,979 homicides in the year

2000 to 1,311 in 2007). Out of the 96 districts of São Paulo, only two (Vila Leopoldina and Lapa) had a slight increase in the homicide rate per 100,000 inhabitants and in the absolute number of homicides.<sup>4</sup> The greatest reduction in the homicide rate took place in the district of Ermelino Matarazzo (from 68.4 homicides per 100,000 inhabitants in 2000 to 3.6 in 2007, a reduction of almost 95%). Even with annual fluctuations, it is undeniable that there has been a marked reduction in the homicide rate within the municipality of São Paulo.

The analysis of the amplitude of the variation of homicide rates has much to tell about the decrease in homicides in the city of São Paulo from 2000 to 2007. In 2000, the districts with the highest homicide rates were Parelheiros (106.6 per 100,000 inhabitants), Cidade Tiradentes (102.9), Guaianazes (102.7), Sé (99.1), São Mateus (91.7), Jardim Ângela (91), Cachoeirinha (88.2) and Brasilândia (87.5), in comparison with an average rate in the municipal district of São Paulo of 57.3 homicides per 100,000 inhabitants per district. The districts with the lowest homicide rates in 2000 were respectively Jardim Paulista, with 3.6 homicides per 100,000 inhabitants, Perdises (5.9), Moema (7), Lapa (8.3) and Pinheiros (9.5). Therefore, the amplitude of variation of the homicide rate in the São Paulo districts in 2000 that is the difference between the highest and lowest rates was an impressive 103 homicides per 100,000.

In 2007 when the latest records for homicide rates per district in the city of São Paulo were released, the districts with the greatest homicide

<sup>4</sup> It is possible to notice that the Vila Leopoldina and Lapa districts had, in 2000, some of the lowest homicide rates. This increase can be attributed to the effect that small variations – in this case, positive – have over the fluctuation of this data; if the comparison had been made with the year 2006, these very same districts would effectively have shown reductions in the homicide rates per 100,000 inhabitants.



above

Over the last twenty years, the Pentecostal Church has become increasingly mainstream in Brazil with television stations and political candidates. Its growing popularity and presence is extremely evident with large facilities, such as the one shown above, in favelas and peripheral areas which are commonly associated with deprivation and violence.

*Tuca Vieira*

rates (per 100,000 inhabitants) were Pari (32.4), Bom Retiro (26.4), Parque do Carmo (25.1), Limão (22.1), Belém (19.9), Bela Vista (18.8) and Brasilândia (18.7). The districts with the lowest rates, in turn, were Jardim Paulista and Barra Funda (with a zero homicide occurrence), Itaim Bibi (1.4), Moema (1.5) and Saúde (1.7). Therefore, the amplitude of variation of the homicide rate per 100,000 inhabitants according to district in São Paulo in 2007 was 32.4.

The amplitude of the variation of the absolute numbers in homicides perhaps is the most persuasive piece of data supporting the reduction of homicides in São Paulo within the period 2000 to 2007. In 2000, from a total of 5,979 records of homicides in São Paulo, the district of Grajaú registered 286 homicides, followed by the districts of Jardim Ângela, with 223 homicides, and Brasilândia, with 216. The districts with the lowest numbers of homicides were Marsilac, with one record of homicide, Jardim Paulista and Vila Leopoldina (each with three recorded homicides). The amplitude of the variation, that is the difference between the maximum number and the minimum number of homicides registered per district, was 285 homicides. In 2007, Grajaú, Jardim Ângela and Brasilândia were still the districts with the greatest number of homicides (with 65, 53 and 50 recorded homicides, respectively). Jardim Paulista and Barra Funda, with zero recorded homicides, were still the districts with the fewest homicides. Therefore the amplitude of the variation of the absolute number of homicides in 2007 was 65.

This data clearly indicates that although the sharp decline of the homicide rates was consistent throughout the city districts, when one analyses the spatial distribution of homicides, there were few alterations between the most (and least) violent groups of districts from 2000 to 2007. In 2000, the six districts with greater numbers of homicides were Grajaú (286), Jardim Ângela

(223), Brasilândia (216), Sapopemba (206) Jardim São Luís (202) and Cidade Tiradentes (195); the five districts with the lowest numbers of homicides were, respectively, Marsilac (one homicide), Jardim Paulista and Vila Leopoldina (both with 3 recorded homicides), Barra Funda (with 4), Moema (5) and Jaguará (5). In 2007, the six districts with a greater number of homicides were Grajaú, Jardim Ângela, Brasilândia, Jardim São Luís, Cidade Dutra and Campo Limpo (with 65, 53, 50, 44, 35 and 30 recorded homicides respectively); the six districts with the lowest number of homicides, in turn, were Jardim Paulista and Barra Funda (no homicide record), Marsilac, Moema, Consolação and Alto de Pinheiros (with one record of homicide each). The analysis of the homicide rates per 100,000 inhabitants also reaches very similar results.

Figures 5.5 and 5.6 show a spatial distribution of the homicide rates per district in São Paulo in 2000 and 2007. The illustrated centre-periphery pattern in the spatial distribution of homicides in São Paulo reproduces the correlation observed in previously discussed socioeconomic and demographic indicators.

The assessment of the homicide indicators and their spatial distribution revealed two general patterns. With regards to the amplitude of the variation, despite positive demographic growth, there have been marked reductions in the homicide rates per 100,000 inhabitants in São Paulo and a smaller difference between the extreme cases. Secondly as shown with the spatial distribution of the homicide records in São Paulo, there has been consistency among the districts which were more – or less – violent. Therefore, in the city of São Paulo – more specifically, in 94 of the 96 districts in the capital – there are fewer homicides in 2007 than in 2000; however, the districts that were relatively the most violent in 2000 continued to be the most violent in 2007.

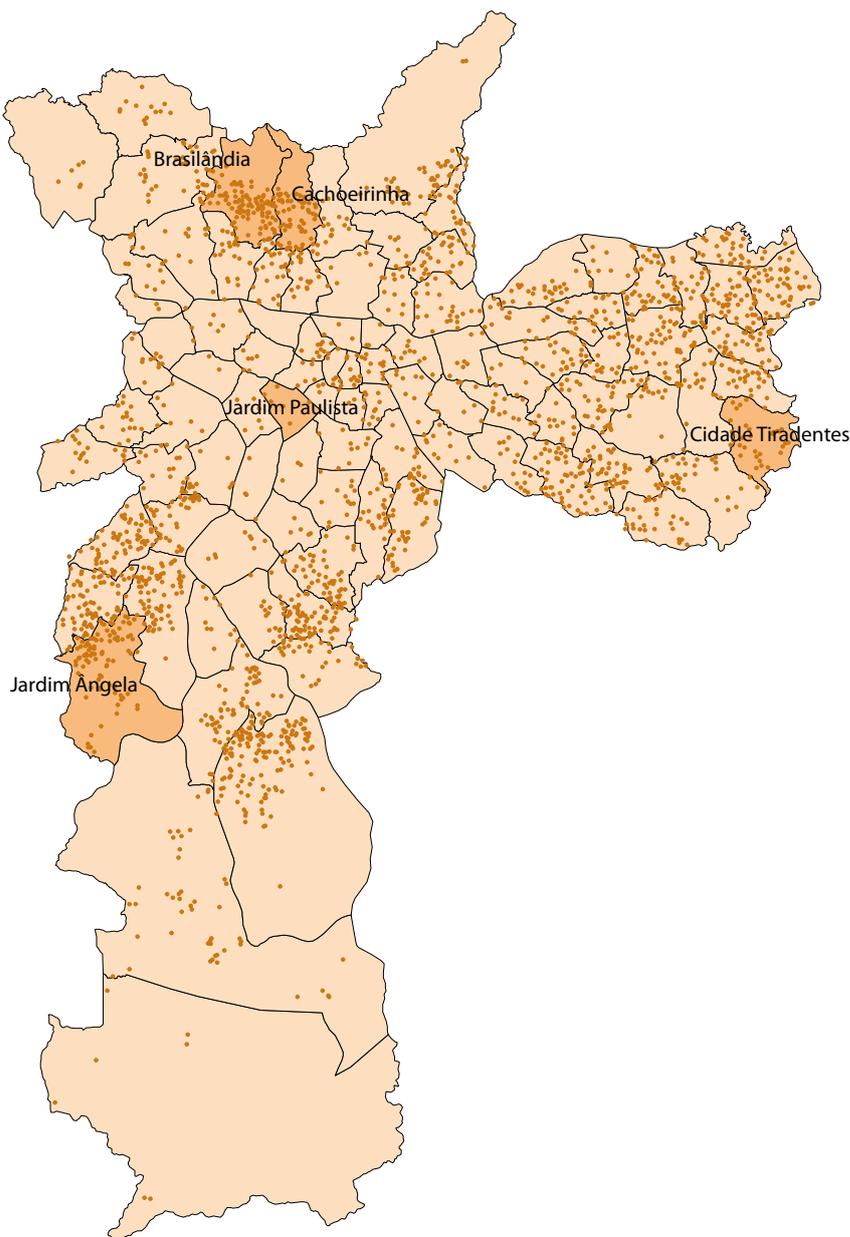


Figure 5.7  
Homicides in São Paulo with  
selected districts, 2005

● Homicide  
SPMA  
Selected areas

Sources: PRO-AIM/SMS-SP, IBGE  
and Fundação SEADE

#### Homicides in the selected districts and in São Paulo, 2000-2007

The analysis of the data on homicides in the city of São Paulo indicated that, even though the absolute number and the homicide rates experienced a significant reduction between the years 2000 and 2007, violence takes place with greater – or lesser – intensity in certain districts. Specifically, the evident decline of violence in the chosen districts did not affect their relative position with regards to the level of observed violence. The five districts selected for this study are, in this sense, exemplary: Cidade Tiradentes, Cachoeirinha, Brasilândia and Jardim Ângela were among the districts with greater rates and a greater number of homicides from 2000 to 2007. Within this period of time, the Jardim Paulista district remained amongst those with the lowest

rates and lowest number of homicides. Figure 5.7 illustrates the distribution of homicides in the municipal district of São Paulo for the year 2005 and the location of the districts.

Figure 5.8 introduces the decline in homicide rates for the selected districts in São Paulo. Initially, one notices the convergence of the homicide rates of the Cidade Tiradentes, Jardim Ângela, Cachoeirinha and Brasilândia districts with the average rate of the municipality of São Paulo. Upon closer inspection, one notes the relative stability of the homicide rate in the Jardim Paulista district, but the decrease in the homicide rate for Cidade Tiradentes, which starts off the period with the most elevated rate to reach a rate lower than the city average for 2007. Finally, one can detect the reduction in the amplitude of variation.

Figure 5.8  
Homicide rate 2000 to 2007 for  
selected districts and São Paulo  
Municipality

Source: PRO-AIM/SMS-SP

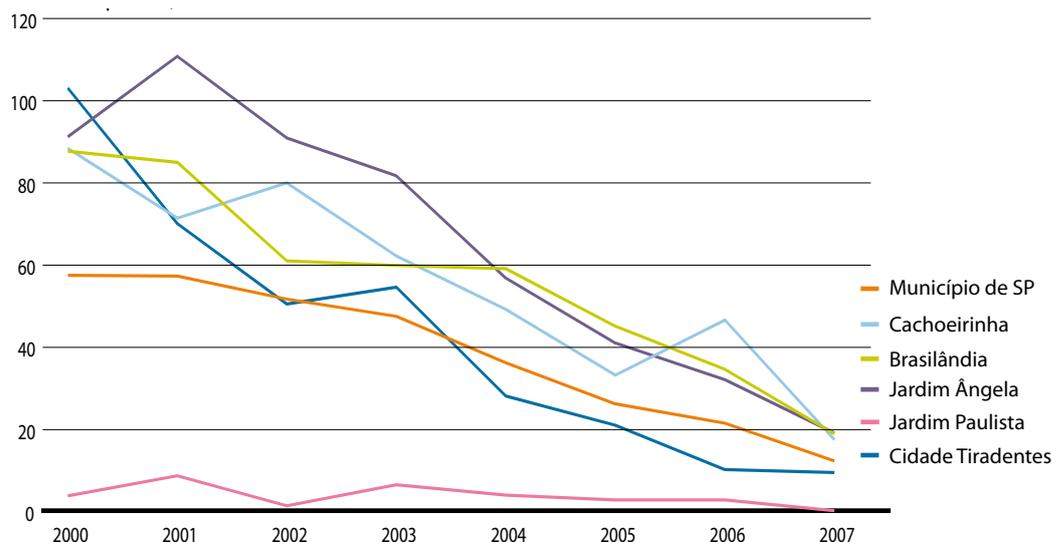
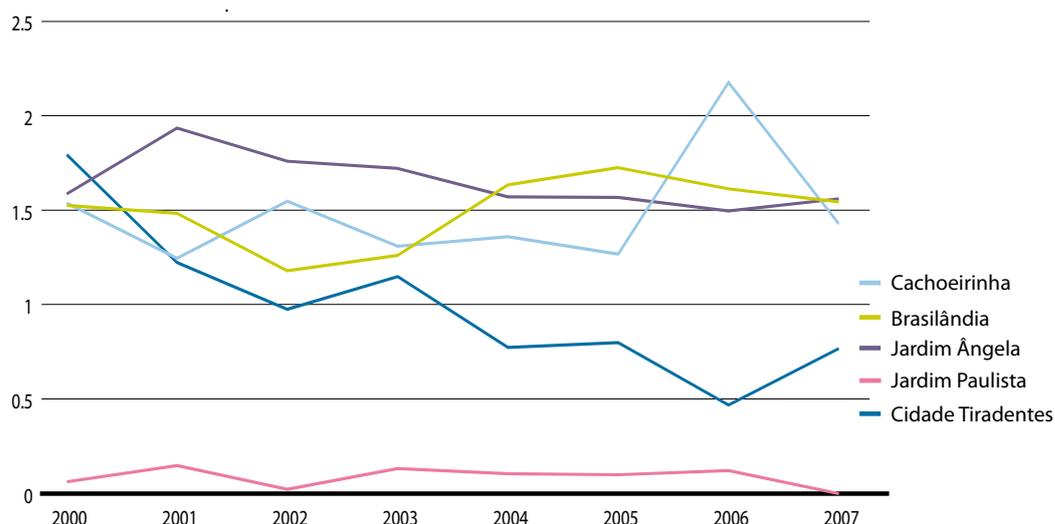


Figure 5.9  
Ratio of district to municipal  
homicide rate 2000 to 2007

Sources: PRO-AIM/SMS-SP, IBGE  
and SEADE Foundation



5 The homicide data introduced here is different from the previous data, considering that it comes from distinguished data sources and is organised differently. In the results per district, presented above, the homicides are counted based on the occurrences of the event and are tallied by administrative district. Whereas in the second case, the event keeps a record of the residential address of the victim, regardless of where the crime took place. The advantage of having this information is to be able to disaggregate them, considering that every homicide case refers to a specific point in the space. The first measure, therefore, evaluates the most violent locations and the second measure evaluates the intensity of the victimisation of this type of crime. Also in regards to the information about the homicide, it is necessary to point out that in not all of the cases were the addresses located (due to a lack of information) and that very often many of the addresses are just in close proximity.

As one can observe a convergence of the homicide rates of the selected districts with the average rate of the municipality, it is necessary to mention that this movement is fairly slow, especially when comparing the rates of every district to the city average. In 2000, the ratio between the average homicide rates of the selected districts and the average rate for the municipality of São Paulo was 1.3 (that is, the average homicide rate of the selected districts was 30% greater than the city average); in 2007, this ratio dropped to 1.06 (that is, the average of the selected districts was six per cent greater than the city average). Nevertheless, when analysing the cases individually (the homicide rate of a single district against the average rate of the city), the differences stand out.

While Cidade Tiradentes improved its position significantly relative to the city average (the

homicide rate in the district in 2000 was almost 80% greater than the average rate of the city, but then dropped to a rate 25% less than the average rate of the city in 2007), the positions of the Brasilândia and Jardim Ângela districts stand practically unaltered (52% greater than the average rate of the city in 2000 and 54% in 2007, and 58% greater in 2000 and 56% in 2007, respectively). Figure 5.9 illustrates this data: 1 refers to the average of districts analysed (average of the averages): the closer they are to one, the closer the rates are between them; the more distant they are to one, the greater the differences are between them.

In order to provide further detail of the discrepancies across districts, four maps are presented below to illustrate, in a more realistic manner, the differences between the urban patterns and the occupation of the land as well as

those between the spatial distribution of the slums and the locations where the homicide victims lived in the year 2005.<sup>5</sup>

Figure 5.10 illustrates the distribution of homicides in the Jardim Paulista district. Take note of the organisation of the street addresses, highly geometrical, indicating the planned occupation of the region; the absence of slums; and the lack of homicide cases where victims reside in the area selected for the fieldwork.

On Figure 5.11, in the Cidade Tiradentes area, one sees the geometric urban occupation pattern (the area is characterised by the presence of some of the largest social housing complexes in the city of São Paulo); the existence of some slums, in spite of the large number of social housing complexes built by the government in the region; and a greater presence of homicide victims from the highlighted area.

Figure 5.12 has outlined the areas of Cachoeirinha and Brasilândia. The absence of planned urban occupation is highly evident, except for a couple of blocks. The number of

slums and their extensions, in turn, is very high and spatially dispersed, especially in the direction of the north and east. Additionally, the number and location of residences of the homicide victims is striking in comparison with the other areas seen so far. Finally, it is important to underscore the dispersion of homicide victims' residence locations.

Figure 5.13 illustrates the areas of the Jardim Ângela district, similar to the previously discussed areas. The absence of a land use plan is clear (as seen in the illustration of the street addresses in the region). The region has the most important water supplies of the city of São Paulo (Guarapiranga Dam and rivers of the region), and the illegal settlements throughout this territory produce very harmful environmental impacts on the quality of the water consumed by the residents of the Metropolitan Region of São Paulo. The large number, extension and dispersion of the slums is also striking, in addition to the number of homicide victims' cases found in the area highlighted.



Figure 5.10  
Jardim Paulista, homicides in 2005

- Homicide
- Area of study
- District area

Source: PRO-AIM/SMS-SP, IBGE and SEADE Foundation and CEM



Figure 5.11  
Cidade Tiradentes, homicides in 2005

- Homicide
- Area of study
- Favela

Source: PRO-AIM/SMS-SP, IBGE and SEADE Foundation and CEM



Figure 5.12  
Cachoeirinha and Brasilândia, homicides in 2005

- Homicide
- Area of study
- Favela

Source: PRO-AIM/SMS-SP, IBGE and SEADE Foundation and CEM



Figure 5.13  
Jardim Ângela, homicides in 2005

- Homicide
- Area of study
- Favela
- Guarapiranga reservoir

Source: PRO-AIM/SMS-SP, IBGE and SEADE Foundation and CEM

## 5.4 FIELD RESEARCH

### 5.4.1 Introduction

This chapter is divided into four sections. Section one presents a brief history of the neighbourhoods selected for further study and the residents' opinions on the major changes, not only in the urban space and infrastructure, but also in terms of the provision of public services and safety. Section two gives further detail of the urban design of both neighbourhoods and the most relevant features that stand out from a public safety perspective. Section three examines the characteristics of the (un)safe spaces in the core of the two neighbourhoods and the effects on the area's sociability, on the access or the use of the public spaces and on the day-to-day routine of the residents. And last, Section four analyses the formal and informal local safety strategies and arrangements for every neighbourhood.

The fieldwork was conducted in the month of July 2008 in two neighbourhoods that have distinctive socioeconomic and demographic characteristics in terms of homicide occurrences: Cidade Tiradentes and Jardim Paulista.<sup>6</sup>

In addition to the interviews with key actors of the area (long time residents, civil servants, representatives for community associations, and businesses), the data was collected on walks along distinctive routes and during time spent in some areas – at distinctive times of the day and days of the week. The data provides information about the landscape, physical design, and the routine of the neighbourhood, namely internal and temporal variations of the flow (of people and cars). This methodology facilitated more natural conversations and rapport with the residents and visitors of the neighbourhoods along the routes. From these dialogues, interviewers acquired a keen awareness of which spaces were avoided and the reasons why, in addition to the (public, private and community) arrangements and initiatives conducted to preserve or improve safety, to enrich the neighbourhood's reputation and to curtail instances of violence. Furthermore, these testimonies and observations are punctuated with corresponding news articles obtained from resident association websites and public institutions and with photographic material to better illustrate the analysis or data presented.

<sup>6</sup> For Cidade Tiradentes, it was established that the area would be around the new terminal, Avenida dos Têxteis, Núcleo Maravilha and Rua dos Marceneiros (access to the old bus terminal). In Jardins, the defined outline to conduct the study involves the blocks between the following streets: Melo Alves, Consolação, Bela Cintra, Haddock Lobo, Augusta and Padre João Manuel; and perpendicularly: Av. Estados Unidos, Rua Oscar Freire and Alamedas Lorena, Franco, Itu, Jaú and Santos.

<sup>7</sup> Originally Jardins was part of the Cerqueira César neighbourhood. Sub-district of the Capital, in 1938 the Cerqueira César neighbourhood, during the district rearrangement in 1991 was fragmented into Consolação, Bela Vista and Jardim Paulista districts.

<sup>8</sup> Material obtained from the news files from the following website: Sociedade dos Amigos, Moradores and Empreendedores do Bairro Cerqueira César – SAMORCC: [http://www.samorcc.org.br/03\\_1\\_arquivos.html](http://www.samorcc.org.br/03_1_arquivos.html).

### 5.4.2 Key changes over time

In terms of the urbanisation processes in each neighbourhood, Jardim Paulista and Cidade Tiradentes are significantly different from one another. The first, located in the central region, followed the urban development of the city and constitutes the southeast vector, a highly valued area of São Paulo.<sup>7</sup> Viewed as an extremely safe area, the neighbourhood boosts mix-use development with a high-end residential area alongside the luxury commercial district of São Paulo (picture 5.1).

Jardins is a place for leisure and strolling, with a wide array of amenities such as restaurants, bars, bookstores, movie theatres and other entertainment (picture 5.2). In view of this fact, the neighbourhood attracts residents as well as visitors. According to Fabio Saboya, the president of AME Jardins (Association of Residents of Jardim Europa, América, Paulista and Paulistano), commented in an interview granted to Folha de São Paulo in 08/07/07:<sup>8</sup>

The guy who lives in Santana or Anália Franco who has more money wants to live in Jardins, however; whenever he has a relative over for the weekend, he takes them for a ride on Avenida Europa, to see Ferrari. He will not take him to Brás Leme, or Voluntários da Pátria or Cantareira.

Fabio Saboya, president, AME Jardins

The neighbourhood recently underwent a remodeling process financed by a partnership between the store owners and the government: the sidewalks on the most commercial streets were widened, favouring the circulation of pedestrians. The region is also known for its abundant quantity of native trees that have been largely preserved since the 19th century and are still present amid a generous design of sidewalks.

In a different way, Cidade Tiradentes is a complex set of social housing settlements – the largest in Latin America – which were largely built, particularly after the 80s, in a peripheral location on the extreme east side of the municipality. The area was purchased by COHAB (Metropolitan Housing Company) by the end of the 70s from Fazenda Santa Etelvina and was converted from rural to urban territory by incorporating low value pieces of land to the urban fabric. The large-scale production of the



left  
**Picture 5.1: Jardins**  
 Southeast of the Municipal District of São Paulo, SPMR. Luxury commerce established in the neighbourhood.

right  
**Figure 5.2: Jardins**  
 Rua Haddock Lobo. Group of youngsters from the neighbourhood.

housing settlements can be seen in the evenness of the landscape. (Pictures 5.3 and 5.4)

Two decades ago Cidade Tiradentes was perceived as one of the worst places to live in the city of São Paulo. The key problems pointed out by the population were distance, violence and modest public investment in the region. One long time resident pointed out that the neighbourhood had a weak shopping area and basic urban infrastructure:

Only the houses had electricity and then came the streetlights. In the beginning, there was no asphalt, no plumbing, the houses were different (...) They have built many fences. There were many cheap looking homes made of wood, and they covered the facades for these homes (...) There were no supermarkets, no shopping areas. There was only one van that would sell door-to-door. There was only one bus line which would stop running at 8 pm”.

Owner, small neighbourhood market

Today, the territory, which was formerly a battleground for different criminal organisations, is controlled by a single criminal faction called the PCC (First Command of the Capital). Under

the PCC, the territorial disputes in the region have ceased, consequently reducing the number of deaths in the neighbourhood. The history of violence in the neighbourhood, which is only present in the memory of an older population and in the few remaining homicide indicators is giving way to a reputation of a region with economic development potential.

A relatively new area, Tiradentes has had a substantial and intense transformation process since its inception, according to an old time resident: “it [the neighbourhood] exploded not very long ago, when I moved here everything was still embryonic”. In recent years, one of the key changes was the construction of the Cidade Tiradentes Terminal, which significantly improved the residents’ access to other regions of the city, thereby reducing the distance and the sense of isolation. The construction of the bus terminal also improved the circulation and flow of residents to other sectors of the neighbourhood. This public investment, which has been modernised during one of the last administrations, unleashed numerous private investments around the terminal, as well as on the nearby streets, mainly on Avenida dos Metalúrgicos.



left  
**Picture 5.3: Cidade Tiradentes**  
 East Side of the Municipal District of São Paulo, SPMR. Housing settlements built on a large scale.

right  
**Picture 5.4: Cidade Tiradentes**  
 East Side of the Municipal District of São Paulo, SPMR.

The changes that took place can be seen in the narratives of the Tiradentes residents, primarily those who arrived in the neighbourhood in the 80s and have witnessed the evolution the neighbourhood:

It changed, evolved quite a lot. It has a market, a police station, a square, a hospital. In the past, over here it was too ... there were many difficulties: there were only two bus lines, there was no market, no asphalt, it was mainly dirt roads ...

*Female taxi driver, resides and works in the neighbourhood*

Conversely, in the Jardins neighbourhood, the transformations that took place aimed to improve the existing norm, such as the widening of sidewalks. In fact, residents' testimonies disregard change as insecurity and place value on the consolidation and the stability of the neighbourhood, which is associated with a sense of tranquility – safe, guaranteed – as revealed by Mr. P, who has been living on Rua Lorena for 33 years:

Let's just pretend that this is just like Bauru, where I was raised. There was a lot of movement, three train lines. They got rid of them and then there was no movement (...) Things have already been settled, it's peaceful, there aren't that many changes.

*Old time resident and manager of his apartment building*

The general perception of each neighbourhood was deduced from the narratives of residents. Residents described and evaluated their environments according to the neighbourhood's assets, with specific regard to entertainment and consumption facilities and the social bonds formed within the area. Therefore, the neighbourhood's assets are not only related to infrastructure, services and housing, but also to sociability. What the neighbourhood "has to offer" seems to shape the residents' perception and valorisation of the neighbourhood and their "desire" to stay or to leave.

As purported by a long time resident of Jardins, "I don't leave the area, everything is nearby"; in fact, he assured the interviewers that he goes "everywhere on foot, I rarely use the car" for shopping and entertainment activities. A young resident who also works in the neighbourhood stated: "I prefer to live here because it's close to Paulista, everything is on Paulista", referring to

the main avenue in the region. Both residents also stated that their children went to school in the neighbourhood and go to the same sports club, *Clube Athletico Paulistano*, located in the Jardins region. Additionally, interviewers found that not only families, but the neighbours also met at the club: "just in my apartment building, there are four residents who go to the club", according to one of the residents, who concluded "same club, same ambience". From these narratives, one supposes that the economically privileged of São Paulo go to the same spaces (schools, clubs, etc). The text extracted from the official website of this organisation, whose open physical space is guarded by tall walls and security equipment, illustrates this argument:

In these 107 years of life for more, the Club had to adapt. The members started demanding a more proper infrastructure for the population that grew. The parents from the past became grandparents, great grandparents and the Paulistano family expanded with time ( ... ) the so dreamed of Garage offered another convenience, among so many others that only the Paulistano offers, such as a Hairdresser, Barbershop, Physiotherapy, a place for children to play, swimming pools, courses, concerts, [and] conferences. Everything with safety and convenience. This is the reason why this "town", amid Centenary trees, deserves the title of "my second home", [as] attributed by many of its members.<sup>9</sup>

*Clube Athletico Paulistano, Jardins*

An important aspect to highlight with regards to each neighbourhood's assets is the presence or arrival of public and/or shopping infrastructure and the vital role these amenities seem to play as a "point of reference" for residents. During an interview, an old time resident of Vila Nova Cachoeirinha — an area in the northern periphery of the municipality — pointed out that "today you have a hospital, McDonald's, large attractive things," which are important as references for one's household, "today I can say behind the fire department street." The resident explained that, in the old days, "There was no point of reference, the only point of reference was the neighbourhood's graveyard." According to the resident, these "points of reference" add value to and make the area "more integrated" to the rest of the city.

<sup>9</sup> <http://www.paulistano.org.br/> visited in 08/13/2008

In addition to the recent developments, the Tiradentes neighbourhood is also valued by the residents because of their social networks in the areas, primarily pointing out family and friendship relationships. According to a Community Health Agent (ACS), there is a counterpoint between what the neighbourhood has and what it is lacking, “I would like to move from here, it’s very far from the subway, [but] it’s my family that keeps me here.”

For other residents interviewed, (owners of small businesses, for instance) there are the professional bonds or activities through social networks that promote their income in the neighbourhood. According to another ACS:

Because this is where I found my job, I really like my girlfriends, here people are poor but warm, more solidarity”. After speaking about the changes over time in a small slum in Tiradentes, known as Núcleo Maravilha, a young female resident stated the following: “I wouldn’t trade this place for any other ... it’s great now (...) I know everyone (...) I’m a Natura and Avon representative.

Community Health Agent, Tiradentes

Though these social bonds are a highly valued assets, the recent developments and subsequent movement of people put them at risk. The residents expressed resentment that these bonds were deteriorating in terms of intensity and frequency of contact. Some old-time residents stated that with the recent changes and subsequent demographic shift – the departure of the old-time residents and arrival of strangers – the neighbourhood has become “colder” and the people are “more distant”. According to these residents, during times of “hardship” people were “closer”, “more united.”

Still, despite marginal deterioration of social

bonds, Tiradentes’ improvements endow residents and new arrivals with more securities. According to a male resident who arrived in Tiradentes during the removal of the Águas Espraiadas slum, which was located in a rich, central area of the city, the neighbourhood’s distance from the city centre is offset with enhanced freedom and access to facilities offered:

Over there [the Águas Espraiadas area] is better for work, most of those who came here lost their jobs. Would I move? I would not move, there isn’t a better place to go [to]. There are worse places with no asphalt. We live here because it’s what we can afford (...) Here, you are in a freer place, you have more space, [and] sanitation.

Male resident, Tiradentes

Additionally, the security of tenure increases the residents’ access to asset capital as they are able to improve and invest in their housing, especially for commercial activities, which plays a vital role in further securing their livelihood: “where else would I have this,” pointed out a resident who was already building the third floor of her house.

In Tiradentes, these recent changes in the neighbourhood reinforced the concurrent public initiatives undertaken, which together supported the accreditation of the area. There was public investment in urban service networks (increased access to transportation, electricity, water, etc.) and the physical implementation of long-awaited social policies (construction of schools, day care centres, health clinics, police stations, etc.) (pictures 5.5 and 5.6).

The increased presence of civil servants – police officers, teachers, doctors, nurses, Community Health Agents – made the government “closer” and broadened residents’ access to public services. As stated by an old-time resident, “today, if there



left  
Picture 5.5: Cidade Tiradentes  
East side of the Municipal District of São Paulo, SPMR. Court on Avda. dos Metalúrgicos.

right  
Picture 5.6: Cidade Tiradentes  
East side of the Municipal District of São Paulo, SPMR. New Hospital on Avda. dos Metalúrgicos

right

**Picture 5.7: Cidade Tiradentes**

East side of the Municipal District of São Paulo, SPMR. Large architecture undertakings. To the left we have the Igreja Congregação Cristã do Brasil, to the right the large Casas Bahia store and towards the bottom the new bus terminal.



is any situation, you call the Military Police, I can't complain, they come fast".

The private investment in the area is demonstrated with the "arrival" of large commercial stores or services that are "centred in the city" or franchises of well known chains. Residents are pleased with the arrival of Casas Bahia, Compre Bem — part of the Pão de Açúcar chain, which is found in the more "elite" areas — Supermercado Dia%, the future Marabraz, and Lojas Cem. Furthermore, large Neopentecostal and Evangelist churches, Igreja Universal do Reino de Deus, Assembléia de Deus and Congregação Cristã do Brasil, were built or renovated as pointed out by one resident, before: "the churches did not have benches, there were chairs"(picture 5.7).

These new developments encouraged residents' hopes for other possible undertakings, amongst them: "they say that McDonald's is interested in the region"; "they say that there will be a bank over there that isn't even Brazilian". With the possible arrival of Expresso Tiradentes, there is speculation that the neighbourhood will receive more public and private investments: "According to the vice mayor, he said that it's going to be as valuable as Avenida Paulista" (old-time resident, owner of a paint store in the neighbourhood).

From the residents' narratives, one can observe the synchronised integration of distinctive public actions and private investments with the "withdrawal" or spatial concentration of the criminals in certain areas:

With the arrival of the Military Police, criminality reduced substantially. This street became calmer (...) There weren't stores that wanted to be here, it was really difficult (...) It's [crime] still out there, but it's towards that side [area 81]"

Old-time resident, owner of a small market in the neighbourhood

As a result of new commerce and infrastructure, the residents pointed out the increased "motion" or flow of people within the spaces. For some, it is this process that led to the withdrawal of crime; one resident commented that "When it's developed, the criminals go away ... it attracted Casas Bahia, and it pushed the criminals away ... criminals don't like movement". Another observed the benefit of increased movement to security is demonstrated with the transition of a previously empty and unsafe plot of land in area 65 of the old terminal deemed "a place for dead bodies" to a safe and valued place or a "palace", as one resident stated:

If you think of those people from area 65 who came in 84'. I had to jump over a dead body to get to the bus station and catch the bus. Over there, it was terror land, and then it became a palace. It was a place to unload dead bodies, [then] the residents themselves got together against this.

Female old-time resident from Sector G

In terms of safety, the positive effects of these general improvements in the neighbourhood are evident. However, the concentration of the large public and private developments (Hospital, CEU, Battalion, Casas Bahia, Igreja Universal, among others), around the new terminal on Avenida dos Metalúrgicos and in nearby regions, has made it the most valued area of Cidade Tiradentes, creating unintended negative externalities for the wider community:

Avenida dos Metalúrgicos improved a great deal, it was horrible. After the terminal came, it got better. They fixed the sidewalks, they planted trees, and they built the CEU, in front of the Hospital. There's transportation everywhere..., the government invests more down there.

Old-time female resident of Avenida dos Têxteis

The establishment of this “new centre” in Tiradentes raised the housing prices of the homes nearby, leading to a concentration of middle-class people in the surroundings. For those who live in the surrounding areas, the concentrated and centralised development has created a sense of distance and estrangement. Therefore, there seems to have been a reproduction, on a very small scale, of inequalities found between the centre (“down there”) and periphery (“up here”):

It’s lacking a market. Everything is centralised down there (...) Having a bank up here would be ideal.

Female resident, store owner, Tiradentes

It lacks proximity on part of the administrative sub-district. For them, Cidade Tiradentes is just that avenue down there (Av. dos Metalúrgicos). They take care of the sidewalks; they make squares ... However they forget about the other streets, it’s lacking the construction of streets (...)

Old-time resident, owner of a small market, Tiradentes

Lastly, according to the residents’ evaluation, the neighbourhood is in grave need of more banks and green areas, especially since the latter adds value to the region and significantly raises quality of life. Some residents said that they had to travel outside the neighbourhood to the wealthier East Side areas, such as Tatuapé and Penha, to access green areas or leisure spaces, “I go to Parque do Carmo, otherwise I have to go to Tatuapé.”

With regards to the banks, according to some residents, the stigma, generated from the infamous criminality in the area, deterred their arrival. An owner of a small neighbourhood store stated that “Some banks wanted to open branches here, but they were afraid of the criminals. Now they want to install one branch.” Also, before the recent arrival of ATM machines, residents had to travel great lengths to conduct their financial business. “It’s more comfortable now. The ATM machines came. Before we had to go to São Mateus, we had to go to Negreiro” explained another owner of a small business.

In spite of increased access, these installments are insufficient due to the increased demand for such services. Residents still have to queue in long lines to carry out their banking activities, especially around their payday:

They told me to open an account on Consolação ... There isn’t anybody there. The Bradesco branch has two cashiers. You have few cashiers for too many people. You stand in line for two hours. The fifth day of the month is hell to make payments (...) This place really deserved a large branch, there are too many people ...

Owner of a small business, Tiradentes

Similarly, access to public services is still limited. Residents complained of the buses being overcrowded and infrequent, “It lacks more express lines, they move slowly, they wait for the passengers. If they could, they would put one on top of the other, and for this reason I qualify it [the transportation] as horrible,” (male resident, owner of a small store). Also, there is reported dissatisfaction with the provided public education. Thus, some residents send their children to schools located in other neighbourhoods “the Tatuapé schools are much better, you see that the parents participate, here the parents did not participate as much” (Community Health Agent). A concerned resident stated that his grandson studies in Penha:

You can only study up to the eighth grade [in Tiradentes]. My grandson had to go to the boondocks. Here, the education is weak, there is no vacancy. They get to the eighth grade and they don’t know how to read. There is an excess of students in the classroom, [and] overloaded schools.

Resident, Tiradentes

Therefore, in spite of the provision of public services and recent private investments in the area, there is still inequality with regards to the distribution of and access to quality services. However, overall in Tiradentes, these improvements have had a significant effect on improving the neighbourhood’s safety and securing the livelihoods of its residents. Conversely, efforts in Jardins have mainly prioritised enhancements to and the greater maintenance of the status quo. The next section explores further the impact of physical design on the social environment in each area.

### 5.4.3 Urban design and public space

Below, more detailed aspects of the urban design of each neighbourhood are introduced. More emphasis is given to the elements of physical design which have strategically increased safety.

#### Jardins

Local shopping facilities are generally in two to three storey buildings, with ceiling to floor windows, which are aligned with the edge of the sidewalk. The residential buildings are vertical towers which are detached from the sidewalk by 6 to 15 metre buffer space. Overall, the sidewalks are wide (between two and five metres), with high-quality pavement constantly maintained by the city (picture 5.8).

All of these features of design, as previously discussed, ensure comfortable and safe movement, so residents and visitors may safely go about their day to day routine and casually window shop.

With the exception of Oscar Freire, a street lined with high-end retailers, the streets in Jardins accommodate the local traffic of residents<sup>10</sup> during rush hour as well as the daily traffic of shoppers and those who are employed in area. On Rua Augusta, one finds more varied commerce from street paddlers, which, due to increased control from the municipality, have been reduced drastically, to restaurants that serve the population who work in the region. According to the manager of one of the stores, “Augusta has become too popular”, or in other words, the area

has begun attracting a more diverse clientele, so the “most refined” stores have moved to the side streets or to shopping malls.

The neighbourhood residents and the local store owners agreed that, in addition to the flower beds dedicated to the native species, there should be more efforts made with regards to landscaping, such as flower boxes or flowerpots positioned at random on the sidewalk with a variety of plant species. According to the president of SAMORCC, considering the priorities of the demands ranked by the residents, “safety comes first”, followed by maintenance and recovery of the urban and landscaping sanctuary. In fact, throughout the interview, the president mentioned that the original remodeling project of Oscar Freire only covered the 45° parking and the underground wiring of external cable lines, but the tree planting was SAMORCC’s “idea”.

The pedestrians on the sidewalks, for the most part, find vast provision of public telephones, mail boxes, newsstands, and benches under the shade of native bromeliads. All signs are well indicated, including those for visually and physically impaired people (the curbs have wheelchair access which lead to crosswalks). Also, the electric installations are removed from sight (underground or with specific maintenance galleries) and the apparatus for signaling and public lighting blend effortlessly with the environment and undergo constant maintenance checks under a private initiative.

<sup>10</sup> Residents almost always leave and arrive by car and use the underground garages of their residential buildings for parking as an extra security measure.

**Picture 5.8: Jardins**

Southeast side of the Municipal District of São Paulo, SPMR. Width and traffic of Rua Oscar Freire.





**Picture 5.9: Jardins**  
Southeast side of the Municipal District of São Paulo, SPMR. Tall protection wall of residential buildings on Rua Augusta.

The pedestrian traffic along the sidewalks moves at a casual pace. The dimensions of the streets and the clearance area between buildings and the sidewalks facilitate window shopping and ease of movement. This buffer area and wide sidewalks create public spaces where the visual control between the pedestrians and the salespeople inside the stores, behind high panes of glasses, is carried out with total complicity.

The recent enlarging of the sidewalks – on Rua Oscar Freire and prospectively Alameda Lorena – restricts the circulation of cars to just two lanes. Also, with stoplights every 100 or 200 metres, cars are forced to move at slow speeds. According to the news article, published in *Folha de São Paulo* on June 27th, 2007, stoplights are used as a means to control the traffic of strangers:<sup>11</sup>

In order to further shield the neighbourhood, the Jardins residents sent the public agencies a request to implement an action to restrict the access to neighbourhood streets. The proposal is to have a longer interval between red stoplights of the streets that grant access to the neighbourhood, to encourage the drivers to stay on the main traffic ways (such as Av. Nove de Julho).

The Society of Friends, Residents and Entrepreneurs from the Cerqueira César Neighbourhood

Consequently, the vehicles and the pedestrians move around the area at similar speeds, which is another form of visual control as movement within Jardins' public spaces is highly regulated.

#### Cidade Tiradentes

Cidade Tiradentes is mostly a residential area, where the small local commerce is located throughout the roads next to the urban terminal, along the corridors which connect the neighbourhood to the downtown area – Av. Iguatemi.

The residents identify three generations of buildings in Tiradentes. The ones from the first generation, built between 1984 and 1991 by COHAB and BNH; the ones from the second generation, built between 1992 and 2003 by COHAB and CDHU; and, finally, the ones built after 2004 by the Caixa Econômica Federal and the members of the community helping each other. The last generation of buildings stands out from the others, because their design draws heavily from the features of “middle class” condominiums, such as security watchtowers, lighting on the streets inside the condominiums, green areas, electronic gates, external window protection, community space for garbage and barbed wires (pictures 5.10 and 5.11). Over

<sup>11</sup> Material collected from the news file of the Society of Friends, Residents and Entrepreneurs from the Cerqueira César Neighbourhood – SAMORCC: [http://www.samorcc.org.br/03\\_1\\_arquivos.html](http://www.samorcc.org.br/03_1_arquivos.html).

left

**Picture 5.10: Cidade Tiradentes**

East side of the Municipal District of São Paulo, SPMR. Third-generation buildings built by Caixa, Avda. dos Têxteis.



right

**Picture 5.11: Cidade Tiradentes**

East side of the Municipal District of São Paulo, SPMR. Third-generation buildings built by the community members helping one another, Avda. dos Têxteis.



time, the residents living in buildings of older generations have also taken on these features when restoring their buildings (pictures 5.12 and 5.13).

In Tiradentes, there are noticeable differences between the “new and large avenues” and the smaller side streets in the neighbourhood. The first set of streets, primarily Avenida dos Metalúrgicos as well as other main traffic arteries such as Avenida dos Têxteis, exhibit wider sidewalks and streets with new or improved lighting and signaling patterns. In contrast, smaller side streets have little to no public signaling or traffic control artifacts; in fact, in these cases, residents arranged for their own solutions, such as speed bumps on the streets to control the speed of the vehicles.

Furthermore, along the larger avenues of the neighbourhood, light posts had extensive arms that coincide with the street axis, as well as new wiring and cabling. It is important to highlight that this pattern of “extensive arms” is only found in the more central and consolidated areas of the city, facilitating traffic circulation on the streets and the use of sidewalks for alternative purposes such as commerce. Therefore, these “arms” encourage the economic dynamism and increased flow of people and goods in the neighbourhood. On the contrary, the side streets and peripheral regions of the neighbourhood were equipped with “short arm” lighting posts (picture 5.15). Due to the smaller size of the streets or sidewalks, this

form of lighting was installed. However, their function is restrictive, as they generate blind spots hiding parts of the street.

The better condition of the sidewalks in front of the new developments, which are uniform and wide (2.6 metres), has enabled the circulation of people, primarily on Avenida dos Metalúrgicos and Souza Ramos (its continuation), which, on weekends becomes considerably congested on account of the supermarkets, green spaces (in linear squares) and leisure activities. A female resident, owner of small store in the neighbourhood explained:

After having built the terminal, the flow and movement increased [in that street] and at night, it's really busy because of the school (...) The commerce has to give access to the movement, I studied this area very much ... I noticed that it was busy, that it has the produce street fair on Sunday.

*Small store owner, Tiradentes*

Pedestrian and car traffic generated by the “new centre” overflows onto surrounding streets and those that grant access to distinctive sectors of the neighbourhood. It is along this street vector that most of the stoplights and pedestrian lights are concentrated.

Conversely, interviewers found that these smaller side streets, with lesser quality lighting, were the “most stigmatised” because of their

left

**Picture 5.12: Cidade Tiradentes**

East side of the Municipal District of São Paulo, SPMR. First-generation buildings built by Cohab and BNH, Avda. dos Têxteis.



right

**Picture 5.13: Cidade Tiradentes**

East side of the Municipal District of São Paulo, SPMR. Second-generation buildings built by Cohab and CDHU, Avda. dos Têxteis.





left  
**Picture 5.14: Cidade Tiradentes**  
 East side of the Municipal District of São Paulo, SPMR. Light post on Avenida. Avda. dos Têxteis.

right  
**Picture 5.15: Cidade Tiradentes**  
 East side of the Municipal District of São Paulo, SPMR. "Short arm" light post on a street perpendicular to an avenue.

association with crime. In addition to this stigma and makeshift lighting, these areas are characterised by twin homes facing alleys – as opposed to streets – where cramped space must be shared among pedestrians, vehicles, daily activities such as laundry (picture 5.16).

Lastly, the neighbourhood boosts hardly any green and leisure spaces and of these few, most remain neglected by the City and lack regular maintenance. The government has started a "tree planting" initiative in the area which can be identified by the white metal columns meant to protect the saplings, but many of these trees are dried out and awkwardly located along the streets (picture 5.17). Given that the creation of green and leisure space is a great priority to the Tiradentes residents, some grassroots initiatives to produce such spaces are detailed in the next section.

From the conversations with the Tiradentes residents, interviewers found that "gaps" left by lack of government provision of infrastructure or physical space, were overcome by the residents' own initiative.

Some residents expressed their demands for better quality green and leisure areas; "we would like to have a decent square", stated a group of women who as residents of a smaller side street met in a "micro-park", improvised by the residents in a non-occupied constructed space. One woman demanded that "At the end of the street we would like to have a square, a garbage collecting area, so that we don't throw garbage out, we called City Hall, but they never come."

In fact, on some streets, the residents themselves installed benches and a playground, creating their own solutions to transform the "non-places", or non-occupied spaces, which were just piles of dirt. In the areas abandoned by COHAB (mostly for planned parking lots), they installed garages or small shops: hairdressers, bars, and butcher shops among others. The residents assessed their needs and implemented grassroots solutions which revitalised the spaces on the street (picture 5.18).



left  
**Picture 5.16: Cidade Tiradentes**  
 East side of the Municipal District of São Paulo, SPMR. Alley way for the "area with the small homes"

right  
**Picture 5.17: Cidade Tiradentes**  
 East side of the Municipal District of São Paulo, SPMR Green area of Sector G

left  
**Figure 5.18: Cidade Tiradentes**  
 East side of the Municipal District of São Paulo, SPMR. Improvised playground by the residents.



right  
**Figure 5.19: Cidade Tiradentes**  
 East side of the Municipal District of São Paulo, SPMR. COHAB's offset used for a tire shop



#### 5.4.4 Fear and (un)safe spaces

In both neighbourhoods studied, residents were asked about the spaces, in an attempt to identify in their narrative which characteristics made such spaces unsafe as well as how these spaces were constructed in the neighbourhood. Additionally, the analysis identified the consequences of the safety, or insecurity, in accordance with sociability, access or use of public spaces and residents' daily routine.

##### Jardins

In Jardins, the interviewees commented that, overall, they feel safe circulating in the area and the majority walk to key destinations. One long time female resident pointed out that the neighbourhood is “peaceful” and that she usually walks home from church at night between 10pm and 11pm. The young female residents interviewed stated that their night leisure activities also take place in this area – not only on the Jardins side, but also on the Bela Vista side; in both areas, there is a large concentration of nightclubs and bars. They explained that though they walk, alone or with others, at night, they always took some precautions such as carrying as little money as possible or “being alert while walking”

Because of the location where I live, my friends sleep over at my place. I usually go out at night in the Bela Vista neighbourhood, on Rua Augusta or Matias Ayres, I go on foot alone or with friends, I'm not afraid of coming back alone, I'm always alert, I also try not to be distracted, I walk fast, usually there is no problem

*25 year old female resident, who works in the neighbourhood*

According to the receptionist of the Mercure Hotel, who also is a female resident in the region, she goes almost everywhere on foot, “in Jardins, there isn't any area that I don't feel good. I prefer to walk, even when I go shopping I come back

on foot”. However, she pointed out that “Augusta on the Bela Vista side is slightly more dangerous”. Another young female resident, C., only takes taxis “when I'm more distant, like in Vila Madalena. Because of fear, I usually walk with little money on me.” Despite these precautions, interviewee C. stated that she still felt unsafe walking alone after a certain hour:

the corner of Bela Cintra and Santos is dark. I walk until 10pm. I do not leave home afterwards in the middle of the night. I'll do it only if I have somebody with me – not even to buy medicine – the other day I woke up and I was in pain, I'm glad that I had the medication at home.

*25 year old female resident, who works in the neighbourhood*

In spite of the sense of safety among most Jardins residents – none of them mentioned having been victim to assault or any other violent situation – some indicated that specific areas were more dangerous or crowded and subsequently, avoided by residents. The key driver behind the fear was the presence of “others”, who, in all of the cases, were outsiders. On the “other side of Augusta” opposite Jardins, the main “others” mentioned referred to the groups of youngsters (punks, skinheads, emos) who, in the past, were reported to have been responsible for beatings, fights, and homicides in the area. A neighbourhood visitor, who works in a store on Augusta, warned that at night, it seems to get more violent “because of these youngsters, skinheads, punks. One night, they beat up a policeman”. Another older female resident insisted:

I try not to go to the other side of Augusta because these guys catch people. I was not afraid, [but] now I am ... I'm afraid of those people who beat you up, [and] throw you on the ground, because of these things they show on TV where they beat this guy (...) Lost youth, you cannot trust them. I do not go there. I have no business there.

*Female resident, Jardins*

In addition to the “other side of Augusta”, a young female resident, C., pointed out that these groups occupy spaces throughout Rua da Consolação, on the Jardins side. She described an incident at the Pão de Açúcar supermarket, located near the corner of Consolação and Alameda Santos, “there was this uproar between the skinheads who came for the punks, it was too much disruption, they were drinking in the market, my friend’s brother also got beaten up”. The market which used to be open 24 hours served as an assembly point where these groups could buy and drink beer before heading to areas and nightclubs located “further down” towards Rua Estados Unidos. According to the interviewee C., “even [the supermarket] the employees were afraid”. She gave further explanation as to why this group was feared, “... down there, that crowd gets together. They walk around with a cane [potential weapon]. I’ve seen it. There are people snorting, smoking pot, I would cross the street. I was afraid.” Since early 2007, after the homicide of a waiter where punk groups were involved – on Rua Alameda Franca —, interviewee C. has avoided this area: “After that death, I never went back to those areas.”

The death of the waiter was followed by the highly publicised homicide of a French tourist in June of 2007 during the Gay parade, an annual event held on Av. Paulista. This was just the latest in a string of reported hate crimes, including attempted homicides, which targeted the homosexual population who frequented the Jardins area. According to the news file from the Public Security Department dated Nov. 10th, 2007, several operations were carried out to prevent future hate crimes:<sup>12</sup>

As [part of] teamwork, the Civil and Military police carried out, from early evening on Friday to the middle of the night on Saturday [Nov. 10], an operation that aims to prevent these violent actions from ethnic or sexual intolerant groups. In the patrolled area, which is composed of Jardins and the downtown area, there were no occurrences. This is the 4th edition of this initiative, which started after cases of aggression and homicides practiced by skinheads and punks in the middle of the year. With a map that was put together for the areas with the most incidence of hate crimes, the military police force from the 7th Battalion, side by side with the men from Decradi (Department of Police for Racial Crimes and Racial Intolerance), started to patrol the downtown and Jardins regions at

around 6:30pm. There were 12 men and three police cars mobilised by the MP and around 12 Decradi agents. Overall, 79 approaches were conducted.

News file from the Public Security Department

Followed by the news, Decradi’s head explained that “the objective is to identify the groups, confiscate the weapons and prevent intolerance crimes. It’s as if we were saying: look, we are keeping an eye on you, if you commit a crime.”. Additionally, he declared that the initiative had sound support from the community, “in a building situated on the corner of Rua Consolação and Alameda Santos, they saw the police approach: those who were standing on their apartment terraces gave us a round of applause for our actions”.

In addition to the police measures, the residents implemented their own safety measures; upon the request of the neighbours, the 24 hour market started closing at 10pm and “now, they no longer sell cold beer from the refrigerators” which has led to “a lot less loitering and disruption today”. The same goes for two bars located on the same corner where these groups would “have warm-up parties.” According to the female resident, C., the individuals who make up these groups “come from far away”. This was also implied in a statement from president of SAMORCC when he referred to the youngsters who loitered and painted graffiti on the buildings:

I’m going to tell you something, it’s not the neighbourhood resident. This is a neighbourhood that accepts residents from other neighbourhoods.

President of SAMORCC

Statements from some residents also conveyed fear of homeless people and beggars. A young female resident stated that at the bar on the ground floor of her building, “there is a homeless guy who sleeps there on weekends, [so] I walk into the building really fast.” She added that “there was a fight between homeless people, and other people called the police.” Along the same lines, the website for the SAMORCC resident association features a pop-up window that offers the telephone number of CAPE (Permanent Service Central) within the Social Assistance Department to file “complaints” against homeless people and beggars that loiter near homes.<sup>13</sup>

12 [http://www.ssp.sp.gov.br/home/noticia.aspx?cod\\_noticia=12519](http://www.ssp.sp.gov.br/home/noticia.aspx?cod_noticia=12519)

## COMPLAINTS

Begging and Homeless People

CAPE – Permanent Service Central (adults and minors, 24 hours)

Phones: 3228-5554/3228-2092/3228-5668

However, despite these perceived threats, visitors and store owners indicated that the most frequent crimes in the region are the robberies against pedestrians during the daytime, most of them approached by motorcycle riders, the breaking and entering of stores at night, mainly on Rua Augusta, and theft, as one saleswoman explained “there is this nutcase that passes by here begging every day, if you don’t give him anything, he curses at you, he can take your cell phone”.

Residents and visitors agree that Rua Oscar Freire is the safest street in Jardins. “This is the safest street of São Paulo” according to the sub-manager of a luxury jewelry store called H Stern, located on Rua Oscar Freire. The sub-manager confirmed that “I am not afraid, I’ve never seen any robbery” and that Oscar Freire is “like an outdoor shopping mall.” For an employee, who lived in Rio de Janeiro, the street’s safety can be attributed to the homogeneity of its visitors, “this makes you feel safer; in Rio, it’s more mixed up. You have slums right next to you.”

## Cidade Tiradentes

A few years ago, Cidade Tiradentes had one of the highest homicide rates in the city of São Paulo. Now, with the decline in the homicide rate, the most common crimes in the area are car theft and robbery. For some residents, the change in criminal activity is credit to the PCC (First Command of the Capital) gang’s control of the area. Furthermore, the concentration of criminality toward “the back” has enabled the residents to reconstruct the perceptions of the area in a more positive light and to restrict the stigma of criminality to secluded shadows. The following testimony of a female youth who has been living in the Maravilha slum for 15 years illustrates this argument:

Old-time residents, most of them were killed or left (...) We paid for it (...) [Then] it changed. In the past, the truck would take short cuts, they would not drive by here. [But] it got better, electricity, post-office (...) It was just (...) It’s been 10 years since I saw a dead body left on the street. [If] there was a

dispute, they went away [and] they died (...) Most of those who live here are good people, nice people, hard working, the bad ones are in the back.

Young female resident of the Maravilha slum

For this very same reason, disassociating oneself from the stigma, the areas associated with crime such as the “small houses” are avoided by residents at all costs:

They say that by 2012 they will build an avenue (...) I’m afraid of going to the small houses (...) Those tiny buildings where you get mixed up ... with any type of person ... (...) There are some bad people. In the small houses, they put everybody together mixed up. This is what people fear.

Young female resident of the Maravilha slum

Residents also identified “closed” or “maze-like” areas as spaces to be avoided, “the one with the least access is Maravilha... It’s not because it is the slums ... it’s a closed place, there are no sidewalks ... it’s just like a maze, no cars go in it, open sewage” (Community Health Agent).

Other areas identified by residents as “unsafe” were the oldest sectors of the neighbourhood: sectors 88, 81 and the railway area, where many years ago there were some activities from the Comando Vermelho (Red Command), a criminal faction from Rio de Janeiro. Also, empty areas where stores or some other facility has been constructed – therefore increasing movement and lighting — are no longer “ugly,” in other words, dark and potentially dangerous.

Other dark, empty areas, for instance parking lots, pose a threat to residents, especially those whose housing settlements are adjacent to such spaces. According to an old-time female resident, “we are more afraid of staying in than out (...) you leave for work at 4 – 5 AM (...) and people have already been assaulted, you leave and you don’t know who you’re going to encounter.” In this case, the sense of fear and susceptibility increases because of the lack of a secure barrier between the residence and the empty parking lot, where at night individuals gather for the consumption and sale of drugs, “the parking lot becomes a drug point, it doesn’t have any gate, free passage for everyone” (Picture 5.20).

In the past, through fear and intimidation tactics such as curfews and limited access and circulation, criminal factions successfully

13 Material collected from the news file of the Society of Friends, Residents and Entrepreneurs from the Cerqueira César Neighbourhood César – SAMORCC: [http://www.samorcc.org.br/03\\_1\\_arquivos.html](http://www.samorcc.org.br/03_1_arquivos.html)

produced an atmosphere of insecurity and a heightened sense of restriction which allowed for them to easily control the activity in the area.

There were people hanging from the trees [in sector 88]. They [criminals] took over, the people were so cornered inside the buildings and inside their homes ... You, as a resident, had no access. There used to be a curfew in Tiradentes. There were some people who did not obey it and were killed. There was no more access, everything was hidden... You couldn't take the children to school (...) The police were cornered. People would move away, they would say that it was not possible to raise a child in this place (...) [But] it changed when people stopped feeling fear.

Old-time female resident, sector G

Consequently, residents and law enforcement felt 'cornered' in their neighbourhood as they could not move and conduct their daily business freely. In another example of restriction, interviewers observed that some stairs from Sector G had busted light posts and *gatos* (illegal lighting connections). At night, only the latter would work, therefore guaranteeing visibility on the stairs, however leaving blind spots (pictures 5.22 and 5.23). One of the residents stated that the criminals threatened the Eletropaulo employees who came to repair the light fixtures.

Despite less visible criminal activity, the residents' close proximity of criminality and

the intricate social networks formed in the neighbourhood forces many to interact with crime directly or indirectly. For instance, one older resident explained how his son decided to be a police officer because "he was upset" after having been robbed by some of his friends; "his own childhood friend, what is this world coming to (...) Then he said, I'm going to become a police officer to end this." But because of the very social bond which spurred his son to join law enforcement, the resident stated that his son did not want to work in Tiradentes and, in fact, he works in Guaianazes: "He doesn't want to work here. He has his friends from when he was a kid, he says 'it's not nice to approach a friend and read him his rights.'"

As previously highlighted, the types of crime and the intensity of violence have changed drastically in Tiradentes. A community health agent affirms that "violence decreased a lot; the killings are reduced by 80%. It used to be a matter of death, it had people involved." In the past, the residents dealt with death and murders on a daily basis, as it was commonplace to see dead bodies strewn throughout the streets.

Over here it used to be a battlefield. Within this period of time, it was really tense. They no longer break into homes, PCC is out there. They would kill for no reason, they no longer shoot for any reason. The police officers are also better, they drive by, even if it's just to get it (money) ... the



left  
Picture 5.20

Cidade Tiradentes, East side of the Municipal District of São Paulo, SPMR. The unused garage by the residents and area without a protection wall.

right  
Picture 5.21

Cidade Tiradentes, East side of the Municipal District of São Paulo, SPMR. Protection gate of a home in the interior of a house settlement.

left

**Picture 5.22: Cidade Tiradentes**

East side of the Municipal District of São Paulo, SPMR out of order public light posts and *gatos* (illegal lighting connections).



right

**Picture 5.23: Cidade Tiradentes**

East side of the Municipal District of São Paulo, SPMR. Out of order public light post



most common crime is to sell drugs, today they sell drugs and they don't kill anybody anymore. Before the morgue had to come every weekend to collect the bodies, Today they don't kill as much ... Today, the guys talk

Male resident, owner of a small store.

Today, these “scenes of horror” or “battlefields” no longer permeate the day-to-day reality of the residents owing to the decline in homicides. According to residents, there is no “killing,” since the victim is executed elsewhere, a tribute to the presence of the PCC and a ploy which greatly reduces their sense of fear and stress generated from crime.

Although there is still an acknowledged criminal presence, many residents approved of the activities of the criminal faction that “imposed order” to the “mess” that used to take place with crime in the past. For others, the criminal faction brings a sense of peacefulness, but they are doubtful about how long the “order,” which imposes the control, will last.

In general, the changes that took place – the concentration of crime under one organisation and to a confined space, the increased presence of the police and the enhancement of public infrastructure and services – enabled the areas inside the neighbourhood to be freed, opening entrances and exits which granted the residents greater mobility and access. In this safer environment, residents resumed their daily activities within the neighbourhood (work, shopping, school, leisure, among others). Over time, more investment and facilities gravitated to the neighbourhood further ensuring the desired security.

14 Material collected from the news file of the Society of Friends, Residents and Interpreneurs from the Cerqueira César Neighbourhood– SAMORCC: [http://www.samorcc.org.br/03\\_1\\_arquivos.html](http://www.samorcc.org.br/03_1_arquivos.html)

### 5.4.5 Local security strategies

In both neighbourhoods studied, it was possible to identify, not only formal and obvious safety strategies, but also other subtle and informal ones which were more unintended consequences of other actions.

As seen in Jardins, as well as Tiradentes, the safety strategies – from enhanced lighting to increased presence of security guards and sentinels in private, public, and commercial buildings – had a ripple effect on the areas nearby. Therefore, the residents and visitors of these areas who are within the “visibility field” of the guards or the sphere of the movement and lighting generated by the stores, churches, schools, etc., benefit from these safety measures.

#### Jardins

In Jardins, the residents’ and store owners’ associations had direct and frequent dialogue with the government and police regarding safety and “order” issues, to avoid loitering and “disruption” on the street. According to one interviewee, “we have a very open channel with City Hall and with the safety department.” These channels enable the demands of the residents in terms of “security and peacefulness” to dictate the status quo.

For instance, the SAMORCC president stated that they want to remove the “hot dog stands” from the streets. The municipal authorities maintained that their removal took place due to public health issues, while the unofficial version explained that the policy meant to avert the commotion and movement the “hot dog stands” attracted. Below, in a fragment of a news piece reporting on the actions carried out by the government, one can find the extent of the collaboration behind the ‘siege’:<sup>14</sup>

São Paulo's City Hall will close the siege in regards to the illegal street peddlers that sell from a simple coxinha (chicken fried pastry) to an irresistible yakissoba dish. A taskforce involving the departments of Coordination of the Administrative Sub-district of some Municipalities, Law Issues and the Metropolitan Civil Guard were put together to find solutions for the candy/fast food businesses on the street,

*Jornal da Tarde 08/08/2007*

Additionally, SAMORCC's president stated that the Safety Committee (CONSEG) "works well" with the neighbourhood. They have a monthly meeting at Dante Alighieri School with the City Hall staff, a commander, and the police chief from the 78th Precinct. In the interviewee's words, "the demands are direct."

Listing the safety measures according to priority, SAMORCC's president stated that the first was to broaden the presence of guards in the buildings, followed by the installation of "cages" – strategy of double light posts at the entrance of every building — and finally a plan to create "interconnected buildings". According to the interviewee, the buildings on Rua Lorena have already been connected with silent panic alarms installed as an additional precautionary measure; "the idea is to be connected to a central monitoring system operated by a better trained staff." Moreover, SAMORCC has an Integrated Monitoring project for all of Rua Augusta which involves the installation of a visual monitoring system integrated with a daytime service from the Zeladoria Urbana – Police Officers with Disabilities – using 12 cameras connected to a service centre.

"Ame Jardins", which was inspired by a programme called "Neighbourhood Watch" implemented in the United States, has proposed a similar idea for the entire neighbourhood, called "Zeladores Urbanos." The project consists of the hiring and training of retired police officers to monitor the neighbourhood. In addition to reporting suspicious behavior, the watchmen would be obliged to report a variety of problems in the neighbourhood which would be sent to an information centre: debris located on the streets, a fallen tree on a street, signs of fire, etc.

Therefore, the new safety initiatives proposed for the neighbourhood include, not only an interconnected monitoring system, but also the

enforcement of these strategies by specialised individuals. The intent of the Residents Association of the Jardins neighbourhood in motivating such strategies is best summarised in the following piece extracted from an article by SAMORCC:

Once upon a time there was a chic area, very chic, at the heart of the largest city in Brazil. The liege from that kingdom lived happily, protected in a true island of peacefulness within an inflamed territory. There was no wall between the castles. The bottles from the parties and the debris from the constant remodeling work is collected on a scheduled date, time and location previously scheduled by selected collectors, who pushed their ecologically correct carriages, made of PET bottles. Everybody called themselves "neighbourhood watchers", keeping an eye on those who would go in and out of the streets, purposely equipped with slow stoplights to inhibit the traffic of strangers. This is the dream neighbourhood of the AME Jardins president (Association of Residents of Jardim Europa, América, Paulista and Paulistano), Fabio Saboya

*Folha de São Paulo, 08/07/2007*

Lastly, with regards to the neighbourhood's commercial area on Rua Augusta, the businesses have a stern safety strategy of protective barriers, i.e. gates and metallic doors that fortify the establishment from the street. Moreover, the establishments count on alarm systems connected to private security centres, whose indicative signs for this service can be seen from the street. In contrast, on Oscar Freire, the most evident presence of protection is a security guard and a sign that indicates that the store is protected by a private security company. In this last case, there is a more dissimulated approach of "transparent barriers" between the store and the street (six to ten metre tall windows). A more sophisticated strategy for the upscale street, the device is both alluring and preventative.

#### Cidade Tiradentes

In Tiradentes, there were distinctive developments aiming to increase the safety of the housing settlements. In the first and second generation buildings, with the restoration processes came the construction of walls and watchtowers, most of which were inactive, and the residents installed bars on the windows of the rooms located



A symbol of the old city centre and site of many public gatherings, Praça da Sé (Cathedral Square) was in 2006 part of the City Hall's regeneration scheme for Centro (the downtown area) under Mayor Kassab. It is often criticised for having ejected the homeless population.  
*Tuca Vieira*

on the bottom floors. For the residents, these actions went beyond safety: they belonged to a “consolidation” process of the real estate. On the other hand, the buildings from the last generation were already built with this equipment, along with active watchtowers and electronic gates. In addition, the residents themselves installed extra lighting in the areas where there was no public lighting, such as the space between the housing settlements and the street, since the existing lighting on the street and on the buildings was ineffective.

Additionally, after speaking with taxi drivers, business owners, and residents in Tiradentes, interviewers noticed that “to be known” and to work “with known people” generated a sense of security. In the first case, the residents mentioned that there was a social contract between criminals and long time residents in the neighbourhood, who were excluded from criminal acts due to this mutually respected pact:

In the past, it was more complicated, but not now ...  
(...) The people respect you more only if you have money ... My dad is very well known here. Nobody messes with him.

*Female taxi driver, who works with her father and at the time of the interview, was seven-months pregnant*

It's good now, we have a good relationship. Everybody knows Duda the tire repair shop guy, we are very well known. He knows good people, as well as the mafia people and vice versa. Everybody respects him; he's been here since 1980, when there was nothing here.

*Taxi driver, Cidade Tiradentes*

Furthermore, in the case of the taxi drivers, they pointed out that they only work with familiar people and that they do not “accept passengers at random from the street.” In fact, they generally work through a call service via their cell phones, that is, they only take pre-arranged fares. They state that the users for this service are mainly the residents who go to the subway station or people who are “coming back from a night out” or in emergency situations. One female taxi driver gave such an account: “the other day, I got this woman who was just about to deliver a baby here in the small slum (Maravilha). Afterwards, she came to show me the baby.”

Finally, similar to what was found in Jardins, the reduction of the working hours of the bars diminished the commotion and loitering in these locations: “there used to be a lot of disruption. Now they close earlier, in the past they were open all night long.” According to the explanation of the resident, it was the “Municipal law that states that the bars and restaurants can operate only until 10pm” which effectively made the owners close earlier.

## 5.5 FINAL CONSIDERATIONS

As chapter four has shown, there are applicable models regarding strategies for violence prevention or safety promotion. The studied areas describe two distinctive models.

In Jardins, the strategies included the renewal and widening of the sidewalks, investments in lighting, presence of private security guards (a widespread practice in Brazil), among others. The results led to a pattern that relied on homogeneity as a strategy: continuity of the sidewalks, of the facades, promoting an exclusive type of visitor.

Cidade Tiradentes, in turn, focused on diversification. Its main strategies were a more consistent police presence, diversification of the public services (such as leisure areas and a hospital), the creation of a bus terminal, responsible enhanced mobility and access to the city, in addition to the acknowledged presence of just one criminal faction, which reduced the territorial disputes.

Both models give us elements for two groups of considerations:

From an analytical point of view

- Even though violence has been a city problem, it is not perceived as a problem for the city. The implicit role that the city plays in perpetuating violence is overlooked.

- Presuming that safety is capable of shaping the city, one must recognise that in São Paulo this process involves the uneven distribution of violence and security which in itself can also become a process of promoting inequality and segregation.
- During the urbanisation process of the city of São Paulo, violence always played an essential role in the production and maintenance of these inequalities. In addition to the clear victimisation due to heightened exposure, violence reduces individual freedom, distances the investments, and stigmatises the regions and their residents.
- The maintenance of victimisation patterns shows us that, despite the decrease in homicides, there is still the challenge of transforming São Paulo into a more equalitarian city with regards to its economy of risks.
- In this sense, it is clear why the creation of safe places is not sufficient to create a safe city. In fact, the idea of a safe space reinforces the segregation among groups, fragments the city, and makes the communication and direction channels more fragile – all of the elements that contribute to the production and reproduction of violence.

below

Graffiti as shown below define the streetscape experience of Vila Madalena, São Paulo. While some interpret these appropriations as vandalism, graffiti artists, many of which are young men from the peripheries, use their work to reclaim the streets and exploit walls as spaces of communication instead of separation.

Tuca Vieira



From a security management point of view

- The idea of urban disorder may be useful, but it cannot be mistaken for any social cleaning of any type. The city must be a democratic space with guaranteed circulation for everyone, not one composed of refractory bubbles for certain shares of the population.
  - In the same sense, the idea of urban order, or fighting illegalities, must be extended to all of the activities and spaces and not just to the poor or violent neighbourhoods.
  - In other words, if the irregular street paddlers contribute to the sense of insecurity and are a focus of conflict, the private security companies, whose regulation is questionable, equally contribute to the corrosion of the public and formal structures, which could give way to police corruption and the promotion of more violence.
  - It is not possible to revert the current status quo with policies exclusively addressing security. Cities like Medellín and Bogotá, the example of Cidade Tiradentes, or the recovered squares by the Instituto Sou da Paz, offer solid examples that meaningful investments in infrastructure must come together with some preventive policies.
- From a metropolis point of view, it is necessary to recognise the spatial correlation between crime and access to infrastructure and service networks. In the specific case of São Paulo, there is no map of the criminal occurrences in the territory which can be integrated with data from the municipal map and management. The management territory of a police station does not coincide with the administrative districts of the municipality, therefore impairing (or practically impeding) the cooperation between the police, the administrative sub-districts of the municipalities and other actors who are responsible for urban administration.
  - Finally, in maintaining that the urban intervention policies must contemplate violence prevention, it is also necessary to insist the inverse, that the police become more involved in the urban planning activities.
  - In this sense, the expressions of planning, prevention, outline/design belong to an urbanistic and security repertoire; nevertheless, they have discrete consequences. It is imperative that one creates a new glossary where they all share the same meaning.





# 6 MOBILITY, INTEGRATION AND ACCESSIBILITY

## Transport policies and strategies in the São Paulo Metropolitan Region

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## CHAPTER 6 – MOBILITY, INTEGRATION & ACCESSIBILITY

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## 6.1 INTRODUCTION

The city of São Paulo has approximately 11 million people inside a metropolitan area with more than 17 million inhabitants. Within this megacity area, more than 30% of the daily trips are made by private cars. The subway is only 60 km long and a significant part of the 260 km of commuter rail shares its tracks with cargo transport. The average commuting time by public transport is more than one hour (per each direction) and many commuters spend more than two hours to get back to their home at the end of a work day. Long commutes disproportionately affect the poor, that is, the low income population spends more hours traveling throughout the city than the rich. According to simulations of the Secretariat of Metropolitan Transport (STM), the daily average commuting time of the 20% poorest is four hours. This scenario is a direct consequence of (a) the way the metropolitan transport system is financed, taxed and subsidised; (b) the pattern of city growth; and (c) land use patterns and regulations.

In the São Paulo Metropolitan Area (SPMA), as in most of the Brazilian metropolitan areas, public transport is not heavily subsidised, taxes on petrol are low, and other forms of congestion fees are rare. As observed in many countries, large cities are growing at a slower pace than second tier cities. The SPMA is, at the same time, the largest and the slowest growing metropolitan area in Brazil (1.4% per year). Worldwide, most of the large urban agglomerations face the same critical problems: traffic congestion, densification, lack of basic services, slow job creation, and serious shelter and housing shortages. Traffic congestion is a major problem in the SPMA with instances of more than 150 km of congested roads during peak hours,<sup>1</sup> a low occupancy rate of 1.5, and more than six million cars and motorcycles registered within all municipalities of the metropolitan area (DENATRAN).

Local and state authorities are aware of those problems and are indeed addressing them. The main initiatives are summarised in an intergovernmental plan called the Integrated Urban Transport Plan (PITU 2025). Although the PITU 2025 was led by the Secretariat of Metropolitan Transport (STM), municipalities within the SPMA have participated in the planning process, meaning that, the PITU 2025 incorporates some issues outlined in the

respective municipal comprehensive plans (*Plano Diretor*). In other words, PITU 2025 is supposedly consistent with current proposals from both the local and the state governments. Such an integrated plan represents an important step toward feasible solutions, especially because it significantly increases government spending in transit by twofold. However, we argue that such a plan has greater potential: it should take a more radical approach to the problem of traffic in the SPMA.

As aforementioned, to date, public transport in Brazil is weakly subsidised. Moreover, taxes on petrol are low and revenues are rarely invested back into public transport, which is consequently financed by general taxes. There is no congestion charge (or fees), but the SPMA has adopted a system of license plate control (*rodízio*) where 20% of the vehicles cannot circulate during peak hours (7 to 10am and 5 to 8pm). That is, pricing mechanisms are poorly used in the SPMA. In short, there is a historical lack of investment in public transport – a politically dependent decision that might correspond to a (better) political equilibrium.

However, it is worth mentioning that there is room for a change. The public opinion survey, conducted by the Urban Age in São Paulo in 2008, reveals that transport is certainly a key problem in the SPMA for the majority of the population: 55% of the interviewees suggest that direct investment in public transport should be increased. Moreover, for 35% of the respondents, the expansion of the metro and rail network should be the main priority when addressing the traffic problem in the SPMA. Additionally, 20% prioritise the expansion of bus corridors. The third priority elected by the sample group is indirectly connected to the prioritisation of public transport, 16% choose the imposition of all three measures to improve the provision of public transport: expansion of the network, plate restriction, and congestion tolls (by order of statistical significance).

For the most part, public support of mass transportation services is evident: 73% of the respondents state that they would, in general, support a policy which aims to reduce the usage of passenger vehicles in São Paulo while the use of public transport, walking, and cycling are encouraged. On the other hand, these declared opinions are inconsistent when confronted to the amount of money people would be willing to give

<sup>1</sup> This measure is taken by the CET using a methodology that is mainly visual and collected in the main arterial roads.

up in order to relieve traffic congestion. More than 80% of the respondents would be willing to put aside less than R\$10 per month to alleviate congestion (overwhelming concentration in the 5 to 10 reais range). Only a very few would give more than R\$30 per month. The bottom line: considering the budget constraints of the real world, the public support revealed by this survey may not result in votes if citizens directly carry the financial burden of investments.

In this report, we discuss the current commuting structure in the SPMA. We then analyse the existing investment proposals and suggest a more radical investment strategy. Although official proposals are generally pointing toward the right direction, and in the opinion of some analysts, considered ambitious, we advocate a more conceptual change. The concept behind transport management in the SPMA should be the total prioritisation of public transport, pedestrians, and cyclists. Individual motorised modes must be treated as residuals, but never ignored. We argue that such change is feasible but highly dependent on politicians making bold decisions; however, politicians' risk aversion is almost certainly the cause of resistance to such efforts which revise the status quo.

## 6.2 EXISTING SITUATION

### 6.2.1 Commuting in the São Paulo Metropolitan Area: a Latin American perspective

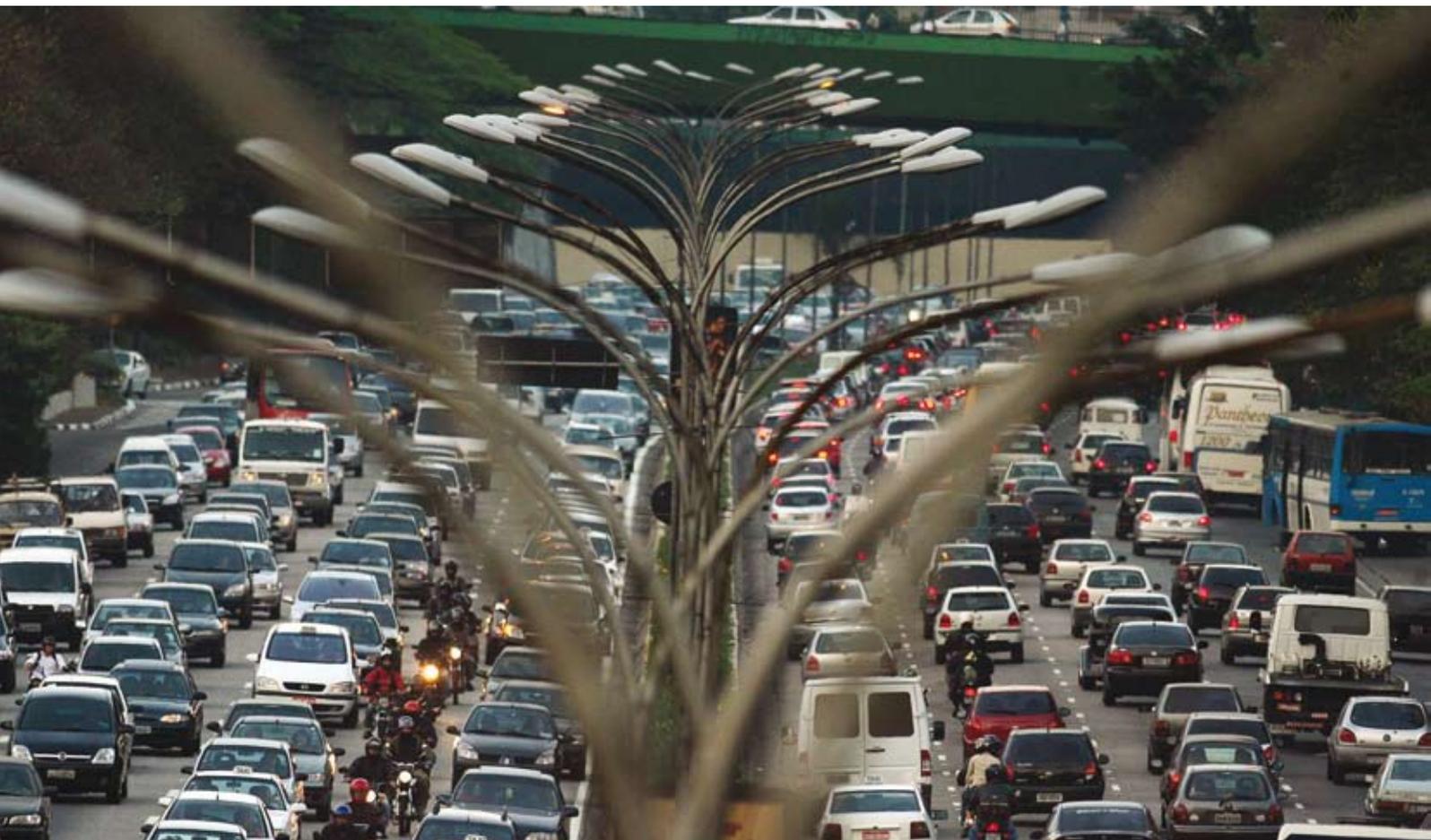
Brazil's urban transport systems are essentially road-based in comparison to European and some North-American counterparts which have extensive urban rail systems. In the metropolitan region of São Paulo, lanes dedicated to mass transport total approximately 560 km (metro, commuter rail, and bus corridors) – more or less evenly split between the rail and bus corridors. Additionally, a significant portion of the rail system shares its tracks with cargo transport.

This is quite low if compared to London, Berlin, New York – cities with more than a thousand kilometres of lanes dedicated to public transport. Even Buenos Aires with a relatively small subway system (less than 50km) has more than 800km of commuter rail. Although all of these metropolises are smaller than SPMA and boast better transport infrastructure, a larger counterpart, Mexico City, which just 40 years ago had no subway infrastructure, has shown that the size is not as much of a deterrent for the provision of transport

below

Traffic congestion on a São Paulo highway. With more than six million cars registered in the metropolitan region, São Paulo is among the most car-dependent cities in the developing world.

Tuca Vieira



**Table 6.1**  
Historical pattern of commuting by mode in the SPMA

top  
**Panel A**  
General Modal Split

below  
**Panel B**  
Modal Split of motorised trips  
Source: CMSP (1998 and 2002); STM (1977 and 2009)  
\* Includes private cars, motorcycles and taxis

Mode	1967	1977	1987	1997	2002	2007
<b>Walking</b>	n/a	25.3	36.2	34.4	36.7	32.9
<b>Public Transport</b>	n/a	45.3	35.0	33.3	29.8	36.9
<b>Motorised Private</b>	n/a	26.0	26.7	31.0	33.5	30.2
<b>Other</b>	n/a	3.3	2.1	0.6	0.0	n/a
<b>Public</b>	63.5	60.7	54.8	50.8	47.0	55.0
<b>Train</b>	4.4	3.2	4.4	3.2	3.3	n/a
<b>Subway</b>	-	3.4	7.6	8.3	7.8	n/a
<b>Bus</b>	59.1	54.1	42.8	39.3	36.1	n/a
<b>Private*</b>	25.9	34.8	41.9	47.3	53.0	45.0
<b>Other</b>	10.6	4.4	3.3	0.9	0.0	n/a

as political will. During the 1980s and 1990s there was consistent investment in the subway (that has currently around 200km in double lanes) plus a light rail system (*tren ligero*) that, combined with an outdated system of trolleybus represents another 448km of (partially) dedicated lanes. The quality of the trolleybus system, that represents a considerable share of dedicated lanes quoted above, is questionable. In any case, assuming that the quality of the service in the trolleybus system is similar to the one observed for São Paulo bus corridors, the supply of mass public transport systems in Mexico City is slightly better than in the SPMA.

These statistics may vary depending on the way you measure the number of kilometres. In our analysis we are talking about linear kilometres. The official reports of Mexico City would claim that the region has 400km of subway due to its double lanes. This is measuring track-kilometres which is not often used, but if one were to use such a measure, New York City's provision of rail infrastructure would be considered extensive with four parallel tracks on many Manhattan routes. Indeed in Mexico City's double lane system, the volume of people transported, i.e. the flow, increases twofold. The subway in Mexico City transports around 5 million passengers per day. Having parallel trains<sup>2</sup> evidently transports more people, and it is feasible with a very large density. In any case, the huge investment in Mexico City's subway does not seem to have paid off. The metropolis still suffers from terrible congestion with current corrective policies limited to a system of license plate control two days per week and more underpasses.

In 2007, of the 38 million trips in the SPMA, about 14 million trips are by public transport and 11 million trips used private transport, while 13 million people commuted by walking or bicycling. Just considering motorised modes, by 2002 the number of trips by private means (cars, taxi

and motorcycles) represented 53% of all daily motorised trips in the SPMA, a considerable increase compared to 1997 when they represented 48% of the trips. However, this trend has reversed recently. Results from the 2007 OD shows that trips by private means declined to 45% (below the 1997 level). If we only consider trips by cars, the decrease is even more pronounced from 47% in 1997 to 41% in 2007. The increase in the proportion of commuting by motorcycle in this period is worth noting, from 0.7% in 1997 to 2.8% in 2007 of total trips. This is certainly a consequence of the commuting time worsening. The public transport system is primarily based on bus service (69% of public transport trips in 1997 and 65% in 2007) given the small size of the subway system and the inefficiency of the commuter rail on some lines. For this reason, the SPMA has probably one of the largest bus stocks operating in the world with over 13,000 buses circulating every day just within the city of São Paulo (ANTP).

It is important to qualify the increase in the share of public transport in the very recent period. In the preliminary release of OD 2007 results, the official document states that this reversal in the trend was connected to the improvement in the urban rail system associated with a cost reduction owing to introduction of the "single ticket" (described below). The urban rail hypothesis is not very easy to accept considering the observed change in commuting pattern between 1997 and 2007. The subway has indeed increased its share in total commuting from 8.3% to 8.8% but the commuter rail is stagnant at 3.2%. Within the public mode, the share of subway and rail has actually decreased (see Table 6.2 – Panel A). Therefore, it is difficult to attribute the increase in subway demand to solely the improvement in efficiency or the indirect reduction in price.

In any case, there is still 3.1% increase in public transport use to be explained. Almost all of that



variation can be explained by the increase in the supply of school buses. This “sub-mode” that represented, in 1997, 2% of all commuting (3.9% of the public transport mode) in 2007 represented 3.5% (9.5%). So, the reversal in the trend towards private transport (observed consistently from 1967 to 2002) is probably more connected to a change in the policy regarding transport for children than to a change in the supply of public transport “strictu sensu”. More evidence of the correlation between the increase in the share of public transport and supply of school buses is that share of education related motorised trips made by collective modes increased from 47% in 1997 to 60% in 2007. Meanwhile, 57.3% of the work related motorised trips were made by collective modes, a figure which remained relatively stable with a negligible increase to 57.6% in 2007 (Metro, 2009).

If we consider just private modes, the total number of trips by taxi has decreased in this period from 103 thousand trips in 1997 to 91 thousand trips in 2007 (Metro, 2009). Moreover, the increase in the share of motorcycles is impressive: from 1.5% in 1997 to 6.3% in 2007. The number of trips by motorcycle has increased almost five times in the period. Part of this increase may be connected to the change in the trips by taxi which reduced its share to 0.8% in 2007 from 1.0% in 1997. Additionally, considering the extensive use of motorcycle services to deliver documents, pay bills and perform other logistic activities in the SPMA (denominated *motoboy*s), the main substitution was certainly from cars to motorcycles.

The reversal in the trend towards private modes revealed by the OD 2007 represented very good news but we are not totally convinced

above

Commuters at Luz train station. Only about 35% of all public transport trips in the São Paulo metropolitan region are by metro or commuter rail. The majority relies on buses.

Tuca Vieira

Mode	1997	2007
<b>Subway</b>	16.2	16.0
<b>Rail</b>	6.2	5.9
<b>Public bus</b>	69.3	65.1
<b>Company bus</b>	4.4	3.6
<b>School bus</b>	3.9	9.5
<b>Car</b>	96.5	91.9
<b>Taxi</b>	1.0	0.8
<b>Motorcycle</b>	1.5	6.3
<b>Other</b>	1.0	1.0

Table 6.2  
Detailed modal share of commuting trips separated by public and private motorised modes

top

Panel A

Modal Split within Public Transport Mode

below

Panel B

Modal Split within Private Motorised Mode

Source: STM (2009)

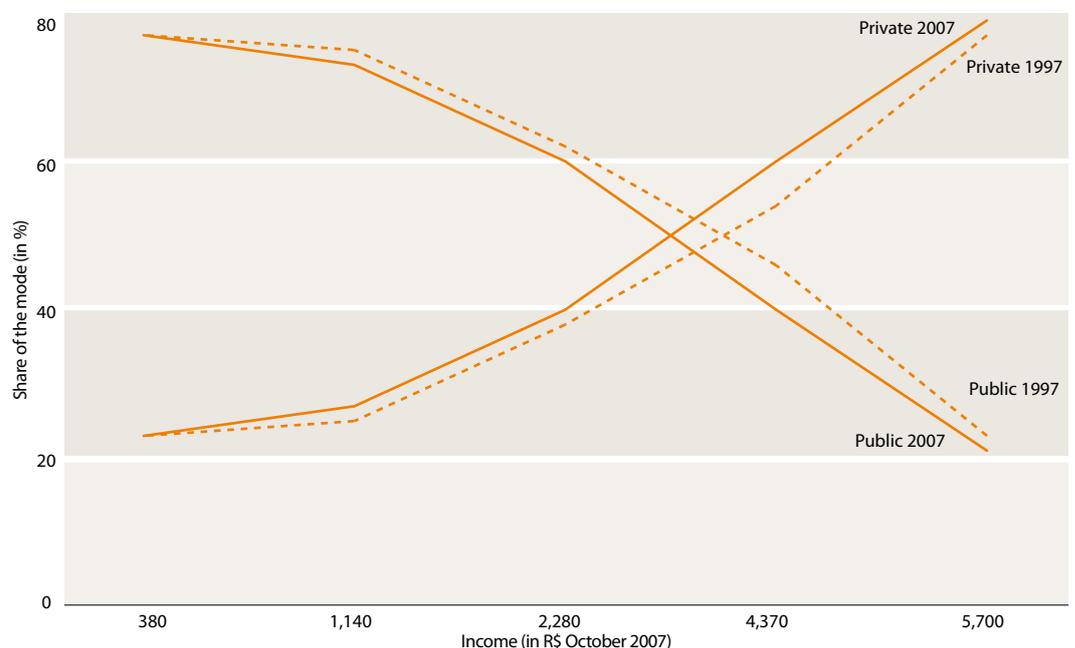


that it is indeed accurate. The subject for further investigation is summarised in Figure 6.1. All income classes except the poorest one (that was stable) have decreased their proportion of commuting by public modes. The only reason why the share of public transport has increased is because the proportion of lower income classes has increased in the OD survey. According to the 1997 OD, 36% of the population in the SPMA were in families with income below R\$1,520 (October 2007 reals). This proportion increased to 44% according to the 2007 OD. If income is growing even if the distribution is not changing, the proportion of poor should decrease. A large deterioration in income distribution would be needed to support such an increase in the lower classes suggested by the 2007 OD preliminary

results. It is difficult to believe these figures because it is not compatible with household surveys such as PNAD. The PNAD survey suggests both an increase in income and an improvement in the income distribution. Just as an illustration, if we use the proportion of each income class from the 1997 OD and the modal share by income class revealed by the 2007 OD, the proportion of motorised trips using public transport would be 48%, below the proportion observed in 1997. In other words, we need to be cautious before jumping into conclusions about the reversal in modal shares in the SPMA.

Currently in the SPMA, passenger transport has to compete with cargo. Goods crossing the country in the south-north direction parallel to the coast must cross the inner ring of the

Figure 6.1  
Distribution of motorised trips  
between private and public in the  
SPMA  
Source: Metrô (2009)

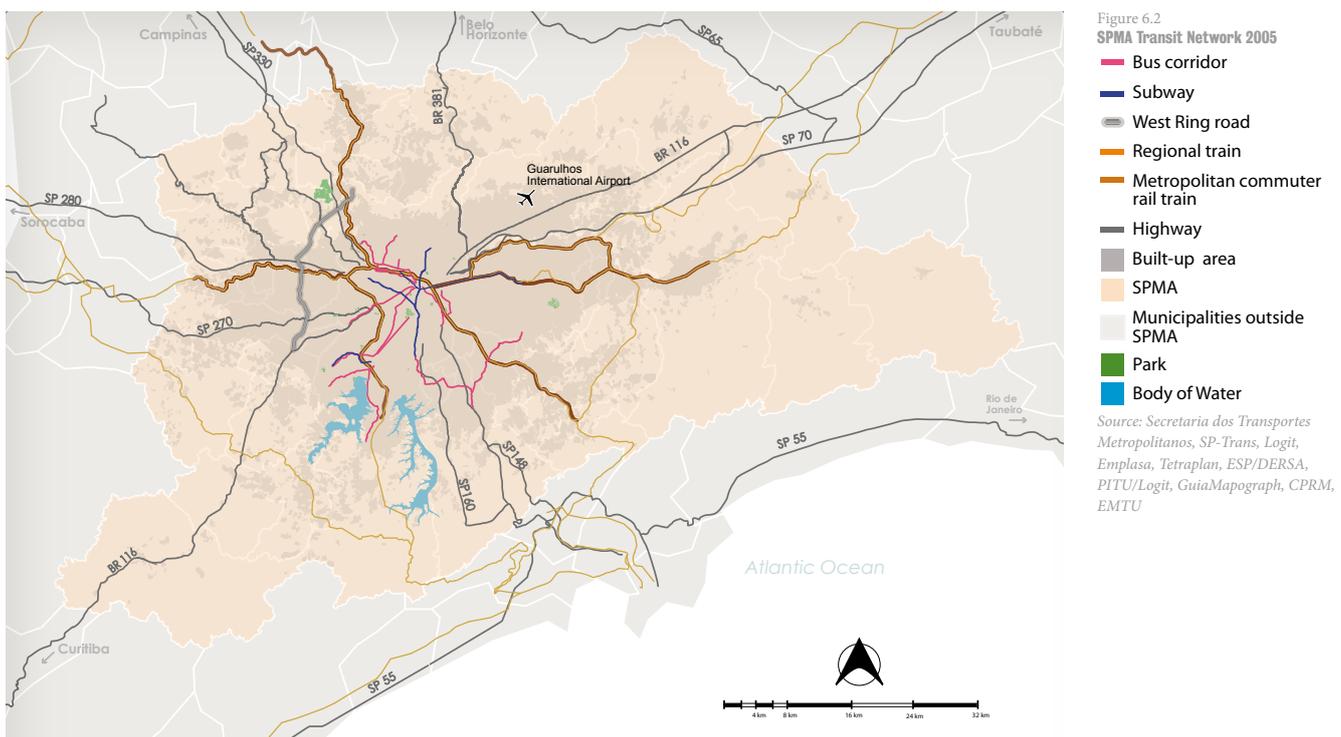


SPMA. Approximately 20% of all daily truck trips either originate from or are destined for the SPMA and around 45% of the trucks circulating in the State of São Paulo (regardless of origin or destination) cross the SPMA (Dersa, 2005). With regards to rail transport, lines A, E and F of the commuter rail are mixed with cargo and currently the average headway is around 10 minutes. Since the late 1990s the State of São Paulo started to implement a plan to segregate cargo from passenger transport in the SPMA. The plan includes the construction of an outer road ring (the Rodoanel) and an outer rail ring (Ferroanel). With the completion of the proposed rail ring, passengers will not have to compete with cargo anymore. Furthermore, it induces a mode change for cargo itself. Although there is still a large concentration on trucks,<sup>3</sup> the modest modernization of the system including the intensification of inter-modal practices, cargo unitization and cargo express alternatives, point out towards an expansion in the rail mode for cargo. Therefore, the Rail Ring in conjunction with the Road Ring serves a dual benefit by separating cargo from passengers and reducing cargo transport by truck that ultimately contributes to the reduction of energy consumption and CO2 emissions among other gases.

With this weak infrastructure in public transport, congestion in São Paulo has been deteriorating over the years. In 1997 the average commuting time in the SPMA using public transport was 59 minutes, it has increased to 63 minutes in 2002 and the last Origin Destination survey (2007) has revealed that commuting by public transport in the SPMA takes, on average, 67 minutes. The commuting time for cars did not change between 1997 and 2002 (27 minutes) even though the proportion of cars increased considerably. In 2007, we can notice already longer commuting times for private modes that is now taking, on average, 31 minutes. It is clear that it would not be feasible to change this situation without the enhancement of public transport. However, the supply of public transport infrastructure per million inhabitants in the SPMA has decreased from 38 km in 1967 to 23 km in 2002.

Apparently the introduction of the *bilhete único* (single ticket) was relevant for the increase in the demand for subway. The single ticket is a mechanism that allows the user of the network to pay a single price that does not change by distance or by the number of connections. Before the single ticket, the user would pay the trip by connection, i.e. the more connections he or she makes, the more he or she pays. So, interconnection between modes was charged. In

<sup>3</sup> According to Castro (1999) 82% of the total cargo was moved by truck.



the case of the bus system, the interconnection was double charged for connections within the same mode (bus). Actually, the “integration ticket” cost more than a single ticket for either the bus or subway, but less than the total of purchasing each one. It is interesting to notice that the integration ticket was crucial in making the first subway line operational.

The single ticket represents an opportunity to increase integration within and between modes. There is, however, a critique: not charging by distance implies not charging the marginal cost. Although the argument does make economic sense, it is debatable if the previous system did charge the marginal cost since it was directly correlated with the number of connections not with the distance commuted. It also raises a question of fairness, a major component for the implementation of the *bilhete único*, since poor individuals commute longer distances and use more transit than rich individuals in the SPMA.<sup>4</sup> It is evident though that families living far from the place of work and commuting by public transport (usually the poor) very frequently need to make connections within or between modes. So, the system is probably benefiting more the poor but also giving incentive to sprawl. It is probably increasing the efficiency of the system from the point of view of the user since the number of trips by bus with no connections decreased from 83.8% to 73.8% from 1997 to 2007 (and it is likely that a user would change the number of connections just if it would save time). In any case, given its popularity, the single ticket seems to be very powerful politically, i.e. the system is likely to survive for many tenures.

Besides the lack of supply, the network is still poorly integrated. Presently, only 10% of trips on the subway are integrated with rail, due to the few points of interchange. Integration between suburban trains and bus services are close to zero. Integration between bus and subway is very high (50% of users made combined trips in 1997 – CMSP, 2000) but the physical connection is rarely integrated in a single terminal (there is no direct connection between a subway station and a bus terminal). Given its characteristics, subway trips very usually require a connection. In 1997 just 22% of the trips that used the subway as the main mode did not make any connection. This number was reduced to 18% in 2007.

Bus supply is spread all over the territory and the physical distribution of lines cover almost

100% of residential areas. But the service quality is very low in most of the lines. The average commuting time by public transport is 63 minutes, much longer than commuting by private modes, as shown above. Buses are usually over crowded in peak hours., Also, there are very few segregated lanes for bus and even partially segregated lanes face congestion in peak hours. The problem is that there are bottlenecks where the lanes are not completely segregated and buses have to compete with cars. For non-segregated lanes, representing the vast majority of the bus network, the situation is evidently more dramatic and buses run at less than 6km per hour during rush hours.

All the bus services in SPMA are operated by private companies. In the municipality of São Paulo the companies have the rights to operate the system for 10 years with an option to renew it for another 5 year term according to the federal law 8.666/93. There is also a complementary mini-bus system, called *Subsistema Local*, which are composed of micro-buses operated by autonomous conductors and organised by cooperatives under contracts to operate for a seven year period renewable for another three year term. The role of the “single ticket” in organising the micro-bus network is noteworthy: any informal system is not viable since the marginal cost of the micro-bus for someone entering the main system is zero.

The low quality of service on the commuter rail in the SPMA combined with the small extension of the subway is indicative of the lack of priority of public transport in the region. However, we should keep in mind that implementing a large metro system in a region as developed as the SPMA is probably unfeasible. Most metropolitan areas that currently have a large metro system implemented it by the end of the 19th century or in the beginning of the 20<sup>th</sup> century when land was much cheaper and the construction was not so complex. Metropolitan areas of that time could afford to exploit the metro system as a tool to expand the city by selling land that was made accessible to pay for its extension; such a scheme is difficult to replicate in a city that is already ‘accessible’ by roads. Developing a vast underground system nowadays clearly has its limitations especially in developing countries with limited funding available. The experience of Mexico City, which added 200km of subway in double lines with no sign of improvement in

<sup>4</sup> This is also debatable since 46% of the trips in collective modes are paid by the employer. So, the fairness of the system will depend upon the incidence of the subsidy, i.e. the split of it between employer and employee.



congestion may be evidence that concentrating the investment just in the subway may be quite risky.

In the early 1970s, Curitiba, a relatively small city at that point in time, located in southern Brazil pioneered a system that was very innovative. The system consisted of segregated lanes for articulated buses with elevated boarding platforms and fare pre-payment reaching average speeds close to rail systems. Curitiba started the system that was later on referred to as “Bus Rapid Transit” (BRT) in 1974. Soon, other Brazilian cities followed suit: Goiania in 1976, Porto Alegre in 1977, São Paulo in 1979, Belo Horizonte in 1981, Recife in 1982 and Campinas in 1985. However, this alternative was not adopted by any other city in Latin America outside Brazil until 1995 when Quito implemented the idea followed by Bogotá which in 2000 introduced a very ambitious system.

The TransMilenio in Bogotá is the highest-volume BRT ever implemented until now. The system was part of a comprehensive city upgrading program attempting to change priorities towards pedestrians and public transport. The TransMilenio was the first<sup>5</sup> BRT to combine feeder-trunk operation; passing lanes at stations; four lanes (2+2) busways for high demand corridors; express bus services; bi-articulated buses (and tri-articulate buses are expected to start operating by 2010); high level bus entry; and fare pre-payment.<sup>6</sup> This combination generated a very efficient system able to compete with a metro system even in terms of passenger volume with more than 40,000 passengers per hour per direction.

The TransMilenio is important for leveraging the standards. The Brazilian cities that followed Curitiba implemented a downgraded system that

consequently was not very efficient although more effective than regular buses. So, in general, this was considered as a “step-solution” to the problem that would be solved just by the premier system, an underground metro system. A key motive behind the highly favoured underground system is its preservation of the status quo, especially since the BRT system disrupts this time-honored automobile bias given that cars have to now compete with buses for road space. As most Latin American cities have followed the US-system of car-centred transport, it seems improper to reallocate space from cars as if this space belongs “naturally” to cars. The BRT and some sidewalk changes in Curitiba challenged this status quo. No other city in Brazil went that far; but Bogotá did go further challenging the car primacy on many levels. It showed the power of this alternative at a cost that is at most one eighth of that of a metro. Furthermore it was financially very successful if we consider that 49% of the investment is being recovered by fares.<sup>7</sup>

Following Bogotá’s success, many cities in Latin America started to develop BRTs. Mexico City, Pereira (Colombia), Guayaquil (Ecuador) and Santiago (Chile) implemented systems similar to the TransMilenio although usually downgraded. For instance, Pereira is the only case where there is a passing lane at stations, although in Guayaquil there are 7 km of segregated corridors (2+2). The worst case is Santiago where the so called “Trans-Santiago” does not have passing lanes at stations, high level entry, or fare pre-payment and the lanes “reserved” for the bus corridors are only partially segregated. Santiago is a very good example of the limits of the system. A real substitute for underground metro in a metropolitan area should increase speed. In Santiago, the assumption that the Trans Santiago would increase speed

above

The TransMilenio Bus Rapid Transit system in Bogotá was implemented following the BRT model of Curitiba. Today, it is considered the world’s most extensive system, offering a capacity comparable to most metro systems of up to 40,000 passengers per hour per direction.

*Edgar Zuniga Jr.*

<sup>5</sup> Although Quito system precedes the TransMilenio, just the newest line (Central-Norte – 2004) has the standards similar to the system implemented in Bogotá.

<sup>6</sup> Menckhoff (2005).

<sup>7</sup> We are not supporting recovering the investment with fares but this is an evidence that the system is quite sustainable.

at the same rate as observed in Bogotá reduced the number of required buses which, in turn, increased the headway and total commuting time. Furthermore, Trans Santiago's launch in association with the advent of the "single ticket" (for subway and buses) led to an influx in demand for which the fixed supply could not meet. As a result, the whole public transport in Santiago became overcrowded and inefficient.

Bogotá's and Santiago's very recent experiences (2000 and 2006) are crucial for understanding the trends that we might expect in Latin American metropolises over the next decade. The "real" BRT seems to be indeed an alternative for mass public transport, but, as seen in Santiago, a poorly implemented solution may worsen the transport system in general. As in the case of Curitiba, the success of Bogotá induced many Colombian cities to follow suit. Besides Pereira, where a system was already in place, Medellín, Cali, Cartagena, Barranquilla and Bucaramanga are planning some sort of BRT. In Lima, Peru, a system very similar to TransMilenio is already under construction. And in São Paulo the system was expanded and upgraded in the first half of this decade.

However, the system in the SPMA is very poor when compared to the TransMilenio standards. It is much less segregated from the general traffic, flowing at less than half the speed, and covering a very small part of the system. Just 112 km of the 4,300 km used by bus are covered by corridors. The small size of the network and its lack of prioritisation make the system very slow. Most corridors run at less than 15km/h in the rush hour while a proper BRT system runs at more than 25km/h. The system is so different that we hesitate to call it "BRT" in this report and prefer calling it a "corridor" as they were initially named in Brazil. Part of the system was upgraded to include passing lanes at stations although the segregation was moderated to allow taxis in the segregated lanes.

Currently the issue of corridor coverage has resurfaced in the debate and there is some sign of re-prioritisation. A first stage of a new line was opened very recently, the *Expresso Tiradentes*, in the southeast of São Paulo City, which is expected to carry 390,000 passengers per day by the end of 2008 and the immediate loading of 50,000 passengers per day when fully implemented. It is the only system that can actually be considered a BRT and currently runs at more than 30km/h in its permanent branch that is completely

segregated. Although very efficient in terms of speed, the system is built on an overpass making its design not very amenable for the urban environment.

One mode that has been consistently increasing its share is bicycling. In 1977, 0.3% of trips were made by bicycle; in 2007 0.8% of the trips used this mode. Although the increase in the share of this mode has been consistent from 1977 to 2007, we can notice a shift from 1997 to 2007 when it has increased from 0.5% to 0.8%. The number of trips by bicycle increased from 162 thousand to 305 thousand, an 88% increase, much lower than its motorised version that has increased 387% in this period, but still much larger than the average growth in trips (22%). This result is surprising if we consider the quality of the supply of infrastructure for bicycles in the area.

The SPMA has only 23.5km of dedicated lanes and just 4.5 km of those lanes are not in public parks. In São Paulo, the two dedicated lanes in avenues (Faria Lima and Sumare) are in bad conditions and not operating in some parts. Thus the incentives for cycling are mainly for leisure not for cycling as a commuting alternative. This numbers are really low if compared to regions that are actually "cycle friendly" such as Bogotá (300km); Paris (379km); New York (482km) or Berlin (625km).<sup>8</sup> Of course there are other cities that do not prioritise this mode like São Paulo.

The Municipal Secretary of Environment has started a working group to discuss and plan the expansion of infrastructure for cycling but, so far (2008) no new lane has been built. 20km of new lanes were forecasted for the second half of 2008, almost doubling the current network which was to be allocated as follows: 1.8km in the south (Parelheiros neighbourhood); 12.2km in the east (Radial Leste Avenue); and 7 km in one of the west (Inajar de Souza Avenue). To the best of our knowledge, the construction of those new dedicated lanes for bicycles did not start until the end of 2008.

Actual investments in bicycle infrastructure have been very timid. Some parking spots for bicycles were added in the commuter rail and subway stations. In the beginning of 2008 there were 12 lots for bicycles in the commuter rail and one parking lot in a subway station comprising just 100 bicycles. Additionally, in 2008 the Subway Company (Metro) started an experiment on the weekends (*Ciclista Cidadão* – Citizen Cyclist) allowing people to carry their bicycles in the

<sup>8</sup> O Estado de São Paulo, July 27th 2008

last car of each train. Also, the Brazilian private insurance company *Porto Seguro S/A* funded a pro bicycles campaign in São Paulo in 2008. Now, clients from the company can enjoy free rental of bicycles which can be retrieved from and returned to a number of lots. The system attempts to emulate the *Vélib* model initiated in Paris on a smaller scale.

The lack of infrastructure for cycling is partially responsible for the low use of this mode for commuting. In Berlin, for instance, 13% of the trips were made by bicycle<sup>9</sup> in 2008. Of course, there is an issue of causality since it is not clear if people do not cycle because there is no infrastructure or if there is no infrastructure because people do not use the mode. The 2007 OD preliminary results however show that 33% of the families in the SPMA have at least one bicycle so the potential for increasing the share of this mode is evident. Considering the potential environmental and urban benefits of cycling, the government might attempt to break this vicious cycle improving the public infrastructure for this mode. There is one caveat however. In 2007 34% of the trips in the SPMA were made by bicycle or walking while 36% of the trips in Berlin were made with non-motorised modes. It is possible that most of the change will be from walking to cycling, with debatable social benefits. In any case, the user is very likely to benefit from the change. It is usually better to commute by bicycle than walking. It is also interesting to notice that the

share of bicycle use is more concentrated in lower classes as one can see in Figure 6.3, although the growth in the richest block was faster.

In brief, looking at the supply of public transport in the SPMA it is clear that it is quite poor from an international perspective. So, it would be expected that the proportion of car commuting would be high. However, this is not the case; in the SPMA 30% commuted by private motorised vehicles in 2007 compared to 32% in Berlin or 40% in London.<sup>10</sup> The relatively low proportion of private commuting in Brazil is certainly not connected to its transport public policy. It is more likely a consequence of income. Paradoxically this represents an opportunity to Latin American metropolises. It might be easier to change the current public policy given that the culture of using public transport is much more spread than, e.g. the US. Alternatives to the upscale metro solution play a key role in this change in policy. The subway may be too slow and too small to profit from the current share of public transport.

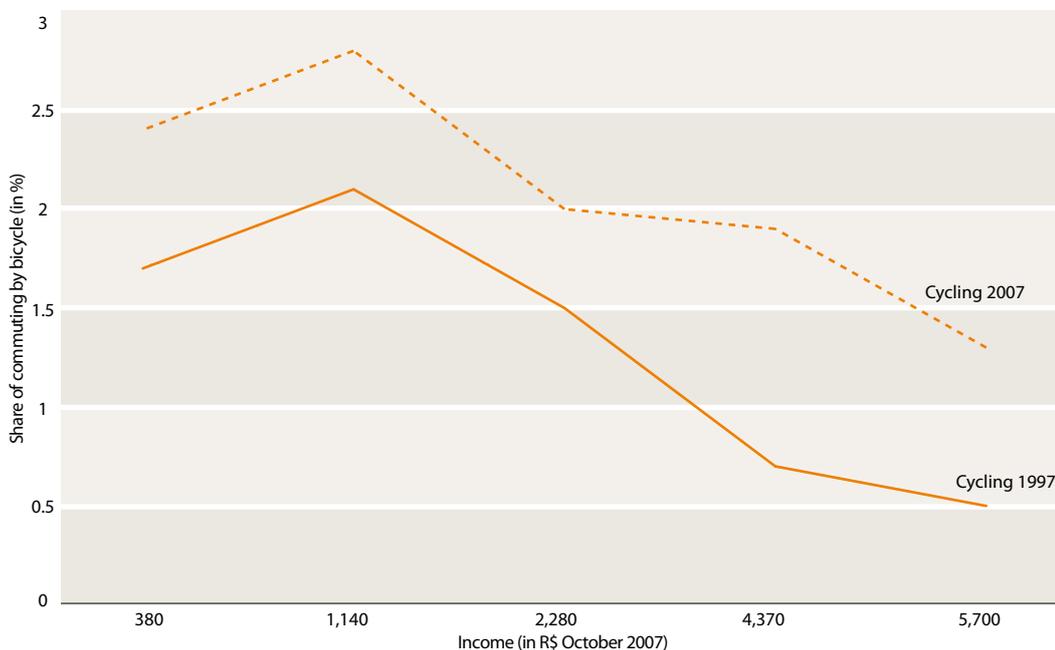
### 6.2.2 Policy and politics in transport

To understand possible solutions to the current crisis, we need to first discuss the current governance conundrum for public transport in the SPMA. In Brazil there is not an official metropolitan level. Municipalities and states have federal status but there is no intermediate level

9 Senate Department of Urban Development

10 Secretaria de Transportes Metropolitanos, São Paulo; Senate Department of Urban Development, Berlin; and Transport for London, London.

Figure 6.3  
Share of trips using bicycle in the SPMA  
Source: Metrô (2009)



such as the county in the Anglo-Saxon tradition. So, the management of public transport involves a large number of institutions at many levels of government. This has proven to be one of the problems of public transport management in the SPMA and in most metropolitan areas in Brazil.

At the state level (State of São Paulo), the departments and agencies responsible for providing public transport services are divided into sectors. Metropolitan transport services are organised by the Secretariat of Metropolitan Transport (STM) that comprises three agencies: Metro Agency (Metrô); Train Company (CPTM); and Urban Metropolitan Transport Company (EMTU) responsible for intercity bus systems. State highways are under the jurisdiction of the São Paulo State Department of Highways (DERSA) which is in charge for the most used highways while the Highway Department (DER), is responsible for other highways and roads within the state. These companies are connected to the Secretariat of Transport (SET). The market is regulated by a special agency (ARTESP). The ARTESP was created after the privatization of some roads and is a consequence of a shift in the public management of highways. Planning functions in general are performed by both STM and SET.

At the municipal level there is usually a transport secretariat and sometimes a bus management and/or regulatory agency. In the case of São Paulo City, within the Municipal Transport Secretariat (SMT), public transport and traffic management are split, between SPTrans for public transport and CET for traffic management. On the federal level there is the Brazilian Ministry of Transport and since 2002, the Ministry of Cities has taken over the DENATRAN, a transport regulation agency, from the Minister of Justice. Furthermore, the federal development bank (BNDES) is by far the main financing institution for most investment in public transport. The large number of government players is one of the challenges in managing the apportioned public transport system in the SPMA.

The key institution in transport at the metropolitan level, STM, is mainly responsible for the metro. Though STM does manage a small bus corridor (ABD), their focus is mainly on the metro. Despite proposals for some extensions and a new line (TEU), a metropolitan system of BRT is not in the long run plan of STM. Most bus corridors proposed (discussed below) were taken

from the São Paulo Municipality Master Plan. The institutional trap is that the local government is probably the best level to manage a BRT system. But the STM would be the only one able to coordinate and fund a large metropolitan scheme of BRTs as the one proposed below. In order to move the focus from a single mode – metro – it is necessary to have a mixed institution with partial funds from the State and BNDES, ideally an agency that would have both state as well as municipal representatives to manage the whole system.

One foreseen complication for this agency is that there are many independent operators of buses that should be coordinated to operate a comprehensive BRT system integrated with all other modes. The system will entail a reduction in the number of bus lines given both the increase in speed and in volume. This will probably mean a lower volume of income for the operators unless they are able to fund part of the BRT project. It is debatable if the system should finance part of the investment through fares. From a very normative point of view, it is probably better to finance the investment with taxes on petrol, congestion charges, etc. However, the compromise where part of the investment is financed by fares may be the best way to deal with operators' reduction in the share of the pie.

Another issue is that electoral politics in São Paulo make it difficult to shift towards public transport and pedestrians. Metros are quite popular despite the large operational loss observed, e.g. in most North American cities. Although the recently re-elected mayor in São Paulo started a policy for updating and expanding sidewalks, he has also announced, during the campaign, R\$1 billion investment in the metro and denied any attempt to charge for congestion. At the same time, plans to dig the line E of the commuter rail are under discussion. Although the general population may not grasp the shared advantages of congestion charge or more road space for public transport, car commuters do comprehend the costs.

The lack of popularity of the congestion tool (as identified by the Urban Age São Paulo survey) is surprising in a city that has a license plate control (*rodízio*). Almost 70% state that they would not support the measure even if one assumes that it helps to reduce congestion significantly. And 73% would not support the fee even if it costs less than R\$5. The disapproval rate is slightly lower when

we assume that the tool will help public transport. Apparently, people do not believe that the tool would reduce car usage, and are not willing to accept even low rates. They may believe, slightly more, that the fee will be used for improving public transport. The disapproval is also slightly lower when the survey assumed that there would be good alternatives for commuting suggesting that it would be politically more feasible to first improve the public transport system and then impose the congestion tool.

A congestion tool is as effective if not better than plate control but it is understandable that it would not be accepted as easily by users due to its obvious cost. The plate control system was established in the City of São Paulo in 1998, as an answer to increasing congestion in the city. According to the plate number, 20% of the cars cannot circulate from 7am to 10am and from 5pm to 8pm during work days. On Monday cars with plates ending in 1 or 2 cannot circulate, on Tuesday plates ending on 3 and 4 and so forth up to 9 and 0 on Friday. The scheme was based on the system implemented in Mexico City and Santiago. The restriction area corresponds to the “expanded centre” (*centro expandido*) delineated by Marginal Pinheiros, Marginal Tietê, Av. dos Bandeirantes, Av. Tancredo Neves, Av. Juntas Provisórias, Av. Luiz Ignácio de Anhaia Melo and Av. Salim Farah Maluf.

The difficulty in changing the status quo in transport policies exists in any metropolitan area. It is a part of a greater habitual problem of democracies attempting to implement policies that will pay off just in the long run. At times, just a myopic view from voters can generate such a distorted political equilibrium. This was the case for the introduction of a car-free downtown in Curitiba which was also followed by many cities in Latin America. The local businesses were totally against the plan, fearing a reduction in sales due to the prohibition. Even construction had to be done at night in order to avoid interruption by the population. In the end, it turns out that the new sidewalk scheme was beneficial to the local businesses that support the plan. A similar story can be told about congestion charging in London. In addition to those usual limitations, the SPMA as any metropolitan area in Brazil has to deal with the institutional overlap of functions that make it even harder to coordinate a consistent plan.

## 6.3 FINDING THE FUTURE: TRANSPORT PLANS FOR THE SÃO PAULO METROPOLITAN AREA

Despite the trap discussed above regarding transport institutions, the transport planning community in São Paulo has devoted a considerable effort in studying and predicting travel demand and has carried out several periodic origin and destination surveys since the late sixties (see Box 1). As a consequence, it has also observed a proliferation of transport and traffic master plans carried out at state, metropolitan and municipal levels. At first, these studies provided vast opportunities for planning software experimentation and testing and a more critical viewpoint toward software application. The most important output from this four decade experience consisted in consolidating methods and sorting out algorithm adequacy for the needs of São Paulo’s emergent economy and its related activity system.

### 6.3.1 The official PITU 2025 proposal

The general plan for public transport in the SPMA was introduced in a document named PITU (Urban Transport Integrated Plan), which was recently updated to include projections up to 2025. The PITU 2025 proposal is considered ambitious by many analysts but we will argue that it could be far more groundbreaking. The plan is quite comprehensive in the sense that it integrates the main proposals that were put forward by the municipalities and the state government to compose an holistic plan that would increase the investment in public transport twice the historical net average<sup>11</sup> (from around US\$700 million a year to US\$1.4 billion). In the following analysis, the proposal was updated to include the actual existing status.<sup>12</sup> Since this is the plan approved by the state government and it is consistent with municipal master plans (*Plano Diretor*) we will call the PITU proposal the “official proposal” interchangeably. The plan analysed three different scenarios for 2025 that were denominated as 1. *Concentrado* (concentrated); 2. *Ampliado* (extended); and 3. *Combinado* (combined). The third scenario is a combination of scenarios 1 and 2 and it is the actual proposal of the state in agreement with the municipalities in the SPMA and that will be considered the official proposal in this paper.

<sup>11</sup> The debt service of the public transport in the SPMA is around US \$300 million per year.

<sup>12</sup> Considering that the plan was based on 2006. Given the update, some statistics presented here are not consistent with the official document.

The concentrated alternative proposes 88km increase in the subway compared to 101km increase in the extended alternative. The difference in the subway extension is compensated in the concentrated scenario by a 24km extension of the ABD corridor that is not included in the second scenario. The combined scenario is closer to the second scenario since it does include the expansion of the ABD corridor and proposes a 108km increase in the subway line. The combined scenario also proposes a new concept in corridors deemed “Urbanistic Corridors”. These corridors will simply be what is commonly referred to as “BRT” but under the pretense of being less aggressive to the urban environment than, let us say, the TransMilenio. Instead of producing 150km of extra bus corridors using the current standard, the combined scenario proposes 75km of extra “standard” bus corridors and 110km of “urbanistic” corridors. In total, the “combined” scenario proposes 308km of corridors while the concentrated scenario proposes 274km of corridors and the extended scenario proposes 250km.

In brief, the change in the commuter rail proposed by PITU (in any scenario) implies very

few extensions but a considerable improvement of the existing system that is connected to policies implemented by highway departments. The STM is proposing complementary strategies to considerably increase the quality and the supply of the commuter rail. The proposal comprises the partial duplication of lines A, B, C and D with new express lines: North, West, South West, and South East, respectively. With the cargo segregation and the new express lines, for most segments, a reduction in the headway to 3 minutes is expected.<sup>13</sup> Currently, the headway is above 10 minutes in most segments. There will be only two extensions outwards: connecting Interlagos to Grajaú in Line C and connecting Calmon Viana to Suzano in Line F. The upgrading of Line F is not adding kilometres to the network but simply connecting line F to line E. The more peripheral segments of the lines will not be duplicated keeping the current headway (up to 22 minutes) or reducing it marginally. Lines A, B, D and E will be extended into downtown in such a way that all those lines will cross Barra Funda and Brás (currently they cross one or the other). There will also be two new lines: one express train to the airport and another line from Brás to Guarulhos.

<sup>13</sup> Except for lines E and F with a expected headway of six and five minutes respectively.

below  
Minhocão, an elevated highway that was built by the military dictatorship penetrating deep into the urban fabric of São Paulo.  
*Tuca Vieira*



Mode	Existing	Concentrated		Extended		Combined	
		Addition <sup>a</sup> (km)	new total	Addition <sup>a</sup> (km)	new total	Addition <sup>a</sup> (km)	new total
<b>Subway</b>	77	88	165	101	178	91	168
<b>Commuter Rail<sup>d</sup></b>	260	112	372	112	372	112	372
<b>Other Rail<sup>e</sup></b>	0	46	46	46	46	46	46
<b>Municipal Bus Corridors</b>	242	250	492	250	492	293	535
<b>Metropolitan Bus Corridors</b>	31	60	91	45	76	60	91

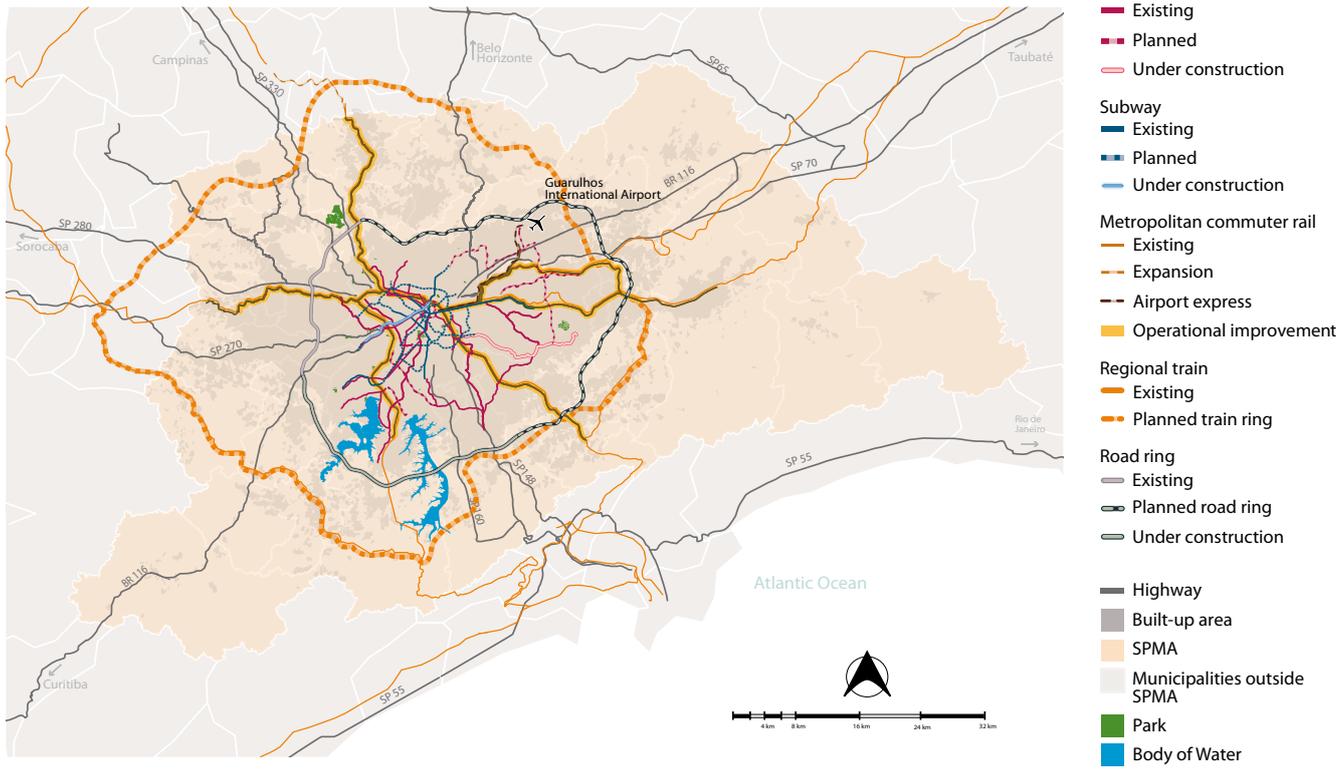
Table 6.3  
**Alternative Proposals proposed by PITU 2025**  
 a. Current plus work in progress;  
 b. Compared to the existing situation; c. includes line 4 (under construction); d. Addition with duplicated lines; e. Guarulhos train and Airport Express.  
 Source: STM

In terms of bus corridors the combined scenario (the “official proposal”) is the most ambitious. Besides the new 353km proposed (i.e. increasing the total supply of corridors more than 4 times), it is the only scenario proposing 110km of “urbanistic corridors”. As discussed above, the partial lane segregation that is currently standard in SPMA is a poor substitute to a BRT. The low speed makes corridors less efficient compared to subways. A BRT system has the potential to match a subway in terms of speed and comfort although it usually cannot provide the same scale. As a rule of thumb, a good BRT system would carry half the passengers that a metro system would carry.

From all the three proposals in the PITU 2025 document, the combined strategy is currently the one that is being considered for further analysis. As shown in figure 2, the three alternatives are not that different. For that reason, we will consider the combined strategy as the

“official proposal” (or, interchangeably, “PITU proposal”). The main changes in that proposal are illustrated geographically in Figure 6.4. In this scenario, by 2025, the SPMA would have 626km of bus corridor, 168km of metro and 372km of commuter rail for a total of more than 1,166 km of mass public transport service. If the system is integrated and the speed of the corridors is comparable to that of the commuter rail, then the network of rapid transit in 2025 would be larger than the current network in New York (although not in terms of flow since there is many more parallel lanes in New York). Of course, it is necessary to integrate the modes and improve corridors efficiency. To integrate the system it is not enough that the lines are able to cross each other. They should have direct physical interconnection at the crossing points.

below  
 Figure 6.4  
**SPMA Planned Network (PITU 2025)**  
 Source: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, CPRM, EMTU (2008)





Tuca Vieira

#### Box 6.1

## TRANSPORT PLANNING AND MODELLING IN THE SPMA – 40 YEARS OF EXPERIENCE

São Paulo Metropolitan Area has a long experience in public transport planning. In 1966 the GEM (Executive Group of Metrô) was created, and was the predecessor of São Paulo Metrô, which has been founded on April 24, 1968. The need for a system for estimating trip generation and attraction was recognised from the very beginning and the first origin-destination survey was taken in the same year (1968). The first attempt in generating an integrated model ends up in the Metropolitan Land Use and Transport Model (MUT for its acronyms in Portuguese). The MUT, as expected, simulated the travel demand in a model that integrated land use. The MUT was developed with a considerable amount of local software development and was applied mainly to test fiscal policies on land taxation.

This early effort was dampened by the poor economic performance of the eighties and the decentralization of transport planning. There was still some modeling inside the Metrô using UTPS software but its applications were relatively marginal. Not surprising, it was also a period with very low investments in public transport. In the early nineties the need to formulate integrated strategies in urban and transport planning for the São Paulo Metropolitan Area had returned along with some investments. At that point the metropolitan transport database included information from three origin and destination surveys (1968, 1977 and 1987).

The catch up of planning and modeling in public transport were attempting to test major assumptions about high capacity systems and urban area expansion with the Integrated Transport Metropolitan Plan (PMTI for its acronyms in Portuguese) that introduced the START model for testing strategic policies. Local development of software was replaced by the purchase of existing software offered in the international market. During this period the Metrô opts for a more aggregate approach with fewer zones and quicker response models that did not deal with land use at the same time. This was compatible with the attempt to give fast solutions to macro problems.

In the mean time the need for a unified approach to land use and transport issues was finally going back to the agenda. However such an integrated model was implemented just on the second phase of PITU 2025, in 2007. In the first phase, initiated in 2003, a discrete choice model not including land use parameters yet was developed using the software TRANUS, a free source platform. This model has been used by the State Government for investment decisions. In the second phase of PITU 2025 a land use module was initiated and was expected to be integrated with the travel model by the end of 2008. In this report we present results using the network and the calibration undertaken in this phase and kindly furnished by STM for that study.

Although direct connection to other lines is the rule inside the metro network, it is not common practice for inter-modal connections. Such connections have been improved in most metropolitan areas in Europe but it is still lacking in the SPMA metro network with limited connection to rail and no direct connection to bus systems. To make a connection, it is always necessary to exit one system and re-enter in the other. In the official proposal for the SPMA, the BRT will represent half of the supply of high speed public transport in 2025. The need for integration is recognised in the PITU 2025 that proposes 15 “key terminals” connecting different modes mostly within the borders of the “expanded centre”. The terminals would start in the underground connecting directly to the buses on the ground floor.

### 6.3.2 BRT extreme strategy proposal

It is clear that the STM proposal represents a big step in raising the standard of public transport in the SPMA. The total of corridors, commuter rail and subway in 2005, constructed since the late 1960s, was around 400km. In the next 20 years, this total, which accumulated over 35 years, would increase almost three times to 1,166 km. Furthermore, the system would be integrated, generating the initial rapid transit network for

the SPMA. However, we believe that the proposal is still timid. We propose increasing the PITU 2025 network by adding 194km of new (mainly metropolitan) BRT lines pushing the BRT system alone to almost 800km. Furthermore we propose upgrading the remaining corridors to BRT standards and adding around 60 terminals to the system.

Figure 6.5 illustrates our proposal for extra BRT lines. In the background, we show the proposed subway and commuter rail to emphasise the network. It is possible to notice that the role of the extra BRT is essentially to close rings that remained open in the official proposal. It has also created a new ring between the subway triangle and the inner ring (*rotula*) proposed by the municipality of São Paulo. Our proposal is basically to add lines that would run along the perimeter in addition to a couple of lines from downtown to the East duplicating some transit routes given the large demand for transport in this area and finally, two new radial alternatives towards the East.

Those who know the SPMA will notice that the northeastern line is technically very complicated since it will have to run through a hilly and an environmental fragile area. This is a problematic link and we believe that the only acceptable route in such an area would be a corridor or

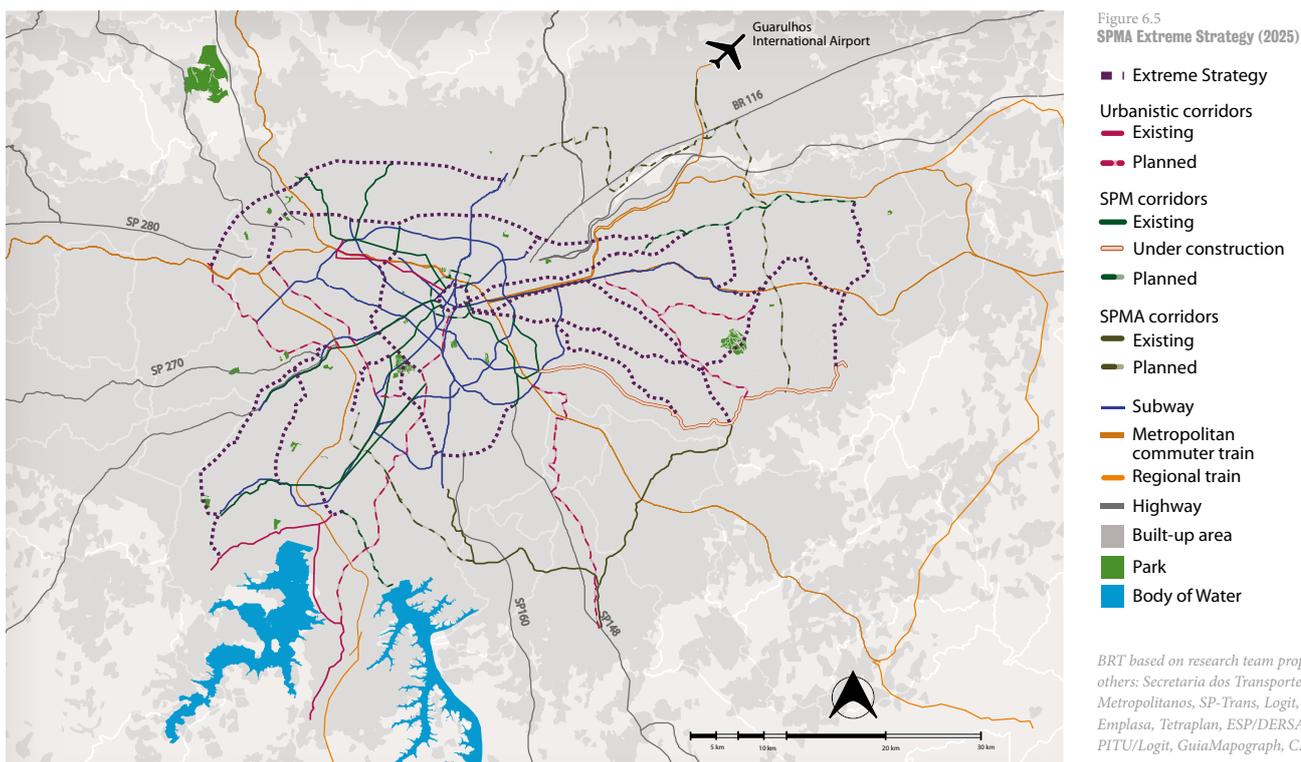


Figure 6.5  
SPMA Extreme Strategy (2025)

- Extreme Strategy
- Urbanistic corridors
  - Existing
  - Planned
- SPM corridors
  - Existing
  - Under construction
  - Planned
- SPMA corridors
  - Existing
  - Planned
- Subway
- Metropolitan commuter train
- Regional train
- Highway
- Built-up area
- Park
- Body of Water

BRT based on research team proposal, others: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, CPRM,

light rail system (not a subway or a road) but we do recognise that it might not be desirable to have any route through this site. The risk of not implementing, let us say, a light rail system in such an area would result in a road that is certainly not desirable. In any case, it shows that the proposal is not really precise. Some lines may move given some technical conditions. It was beyond the scope of this working group to study the exact location of these lines. What we aim to draw attention to is the general idea of closing rings to build a network fully integrated with other modes.

The additional BRT is just part of the proposal. The idea is to shift toward a more integrated system. The “rapid” metropolitan system that includes metro, commuter rail and the BRT should be completely integrated using inter-modal stations. The new lines add to the integration. As discussed, it is also very important to have a multi-level agency which is comprised of at least the Municipality of São Paulo and São Paulo State but ideally all municipalities in the SPMA and also the Federal Government. This agency would manage the BRT system articulated with the two other “rapid” systems. It is recognised that currently there are more buses than needed in the Municipality of São Paulo. The situation is likely to be aggravated by the intensification of corridors, so the agency should rationalise the number of lines and trips.

As discussed before, the Santiago case is a very good example of the weakness of incomplete systems. However one of the problems observed in Santiago is also observed in the TransMilenio and in most BRTs in Latin America: the system is usually over-crowded. The excess of passengers in Santiago is certainly connected to the mistakes in the conception of the system. But the over-crowding in Bogotá is more connected with the funding scheme. Since the operators have to recover operational costs plus 49% of the original investment through fares and fares are controlled by the government, they have an incentive to overcrowd the system.

Although we kept the original proposal for subway untouched it may be feasible to substitute some (proposed) subway lines for BRT or another alternative that does not require digging. The attempts to make an underground system in the last quarter of the 20<sup>th</sup> century showed that this is a very expensive alternative. The budget forecasts in the PITU 2025 show that one km of

subway would cost 10 times the amount for one km of BRT. Looking at the current experiences, it seems that the BRT is the most appropriate technical and financial solution for the growing cities in developing countries. However, there might be a better option. We are not supporting BRTs in general but rather solutions that do not exploit the subway just to appease car users at an extraordinary price. In some cases, light rail, trolleybus, or any other technology that might appear in the coming years may provide a better solution. The experience observed in Mexico City with a massive investment in establishing a metro system which has questionable (to say the least) results in alleviating traffic is also a warning that a solution may not be in just one mode.

### 6.3.3 Stimulating the strategies

To understand the differences in the two strategies (combined and BRT extreme), we will compare average results from simulations considering 3 different scenarios.<sup>14</sup> In the first scenario (minimum), we assume that just works currently in progress would actually happen until 2025. This is a baseline scenario but we have to keep in mind that it is very unlikely that there will be no additional investment in public transport until 2025. The second scenario (PITU) is the official (or combined) alternative discussed above and in the third scenario (BRT) we add 194km of BRT (see Figure 6.6a, b and c). We will compare the scenarios with and without congestion tools.

Table 6.4 presents the results of the simulations for motorised vehicles. Although the system is able to forecast walking trips, the model used for this report is only able to forecast inter-zones commuting. Although this is sufficient for motorised trips, it would discount a large share of walking trips. In both the 1997 and 2007 OD surveys, around 90% of walking commuters state that the short distance was the main reason for choosing this mode. We will simulate using just one land use instrument, a congestion tool that modifies the generalised cost of commuting by car by changing the price gradient in the region. Finally, the simulation for the BRT extreme scenario will use the parameters estimated by the model instead of re-running the simulation. The simulations are simplified but it is possible to have a general result regarding different policy alternatives at large.

As expected, the minimum scenario ends up with a share of trips virtually identical to the share

<sup>14</sup> The simulations were done using the software Transus © and the network produced by the STM and kindly shared with us for this research. We would like to thank particularly Horacio Hirsh from STM. For the “Extreme BRT” strategy, we used the parameters imputed in Transus and substitute them in the new supply not running the whole micro-simulation over again

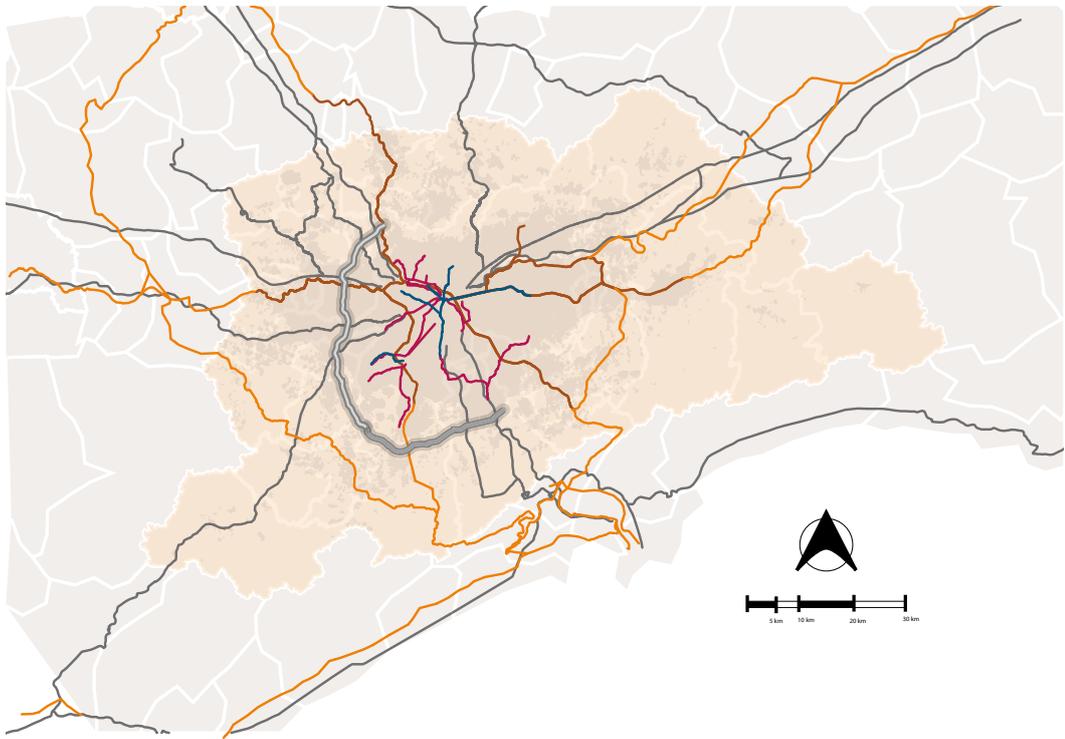


Figure 6.6a  
Minimum strategy scenario

- Bus corridor
- Ring road
- Subway
- Metropolitan commuter train
- Regional train
- Highway
- Built-up area
- SPMA
- Municipalities outside SPMA

Source: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, CPRM, EMTU (2008)

observed in 2007. Without a congestion tool, the current proposal would reduce the share of private motorised trips to 36% what is already a considerable change. The BRT proposal with a congestion tool would reduce the share of private transport in motorised trips even further to 25%. So far we have been looking at the proportion of trips as a main indicator of the modal distribution. That is the way most cities present their travel statistics. In Table 6.4 Panel B, we look at the distribution from a different perspective: the number of passengers multiplied by the number of kilometres traveled. We can forecast this measure just for cars, buses and rail that represented around 90% of the number of trips in

2007. The share of public transport in the number of kilometres traveled is always larger than the proportion of the number of trips. This result was expected since, in the SPMA, the typical distance traveled by car is lower than the typical distance traveled by public transport.<sup>15</sup>

In filling the gaps within the network, the additional BRT is also (marginally) inducing more rail use. While the rail mode is not very sensitive to the congestion tool, the bus mode is quite sensitive. The share of buses in terms of the number of kilometres traveled increases from 30% to 35% in the official proposal and from 33% to 40% in our proposal when we add the congestion tool. This was actually confirmed by

15 In the PITU proposal an average walking trip is 15km long and by auto is 24km long while an average trip by transit is 36km long.

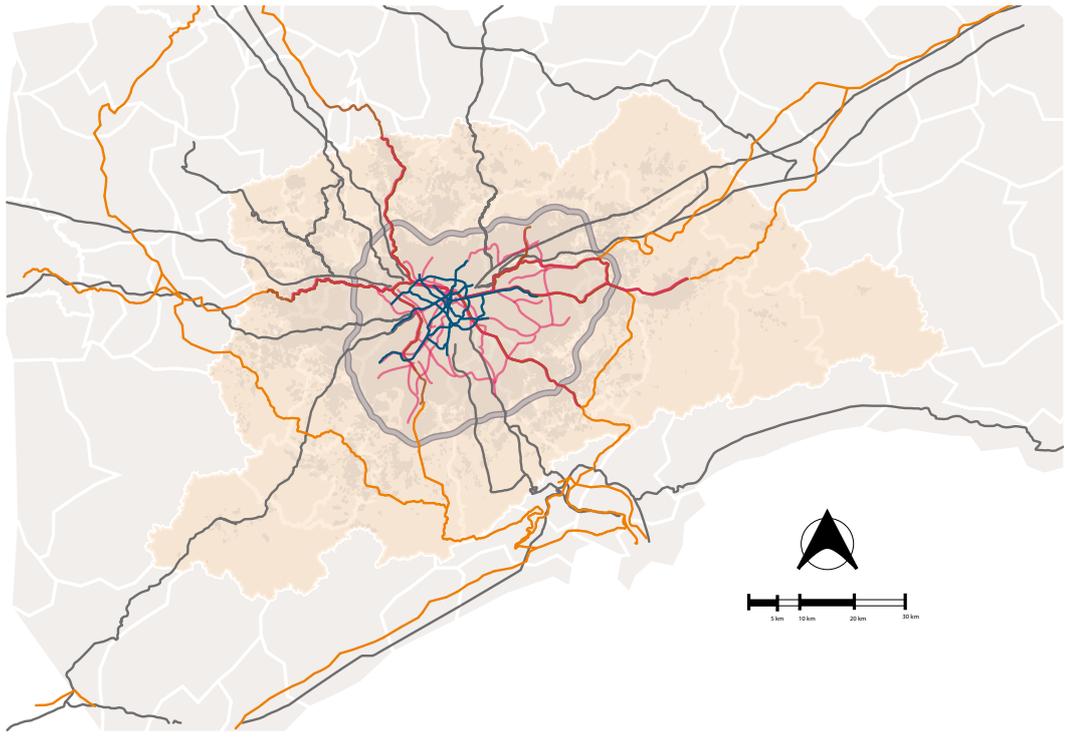


Figure 6.6c  
Combined strategy scenario

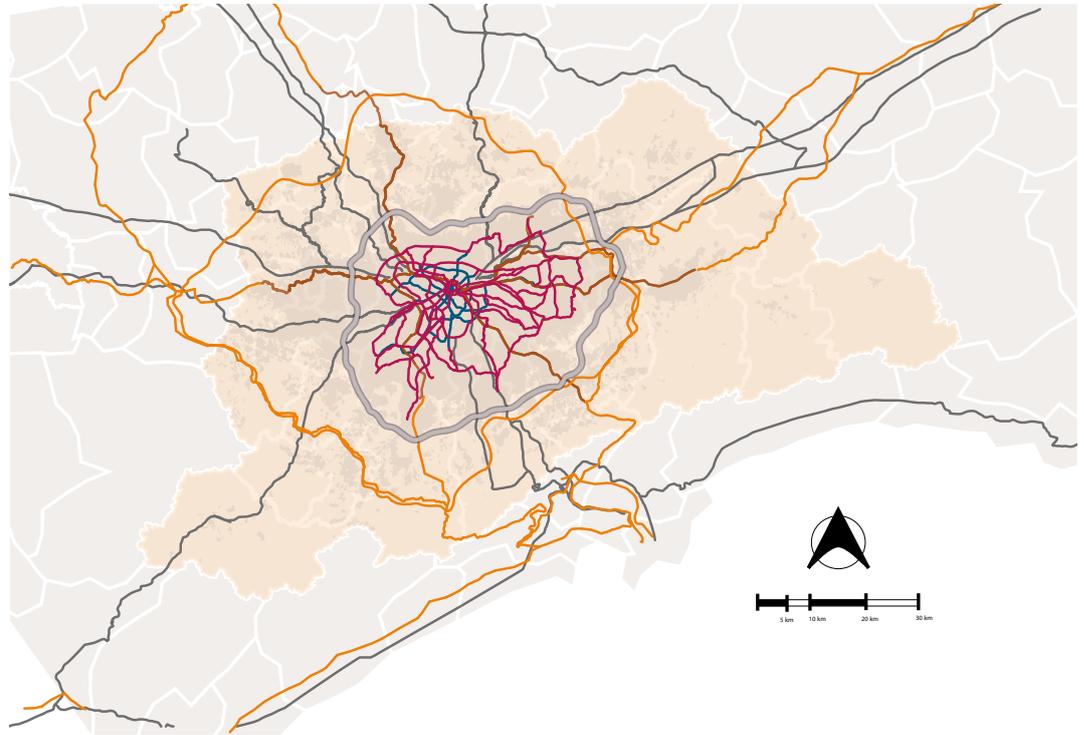
- Bus corridor
- Ring road
- Subway
- Metropolitan commuter train
- Regional train
- Highway
- Built-up area
- SPMA
- Municipalities outside SPMA

Source: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, CPRM, EMTU (2008)

Figure 6.6b  
Extreme strategy scenario

- Bus corridor
- Ring road
- Subway
- Metropolitan commuter train
- Regional train
- Highway
- Built-up area
- SPMA
- Municipalities outside SPMA

Source: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, CPRM, EMTU (2008)



London's congestion charge: the largest number of car users shifted to buses, not rail, in a city with almost 1,200km of rail.<sup>16</sup> In the most "radical" scenario (774km of BRT and 540 km of rail plus with congestion tool), public transport would represent 75% of the trips and 84% of kilometres commuted by all passengers.

We can also notice that the scale of rail is larger than BRT. In the PITU scenario, the share of rail in the total supply of public transport is very close to the share of BRT. However, without congestion tools, the share of rail in the number of kilometres traveled by passengers is 8 points above the share of buses that include additionally 4,300 km of regular buses. Only in the most radical scenario, the share of buses is slightly larger than the share of rail. The scales of each mode are very different showing that substitution between modes is not straightforward.

The increase in the share of public transport is important on many grounds. First, the upgrade in the network benefits more the poor since the use of car is correlated primarily with income. Even when the investment is funded by general taxes

with a constant tax rate (as the current practice), it would be progressive since the benefits accrue more for the poor. Progressive expenditure associated with neutral taxation is progressive.

Second, the number of kilometres traveled by vehicle is radically larger for cars. One regular bus carries on average 30 times more passengers than a car; a bi-articulated bus 60 times more; and a subway train carries 100 times more passengers than a car. Table 6.4 shows that car trips represent at least 96% of the kilometres traveled by all vehicles. This proportion does not change very much as the proportion of car trips is reduced because other modes are marginal in such measure. What is striking is the reduction in the total number of kilometres when we move towards a larger supply of public transport. With a congestion tool and 1,300 kilometres of integrated BRT, commuter rail and subway, the number of kilometres traveled by vehicle is half the number of kilometres traveled by vehicles in the minimum scenario. Even if the emissions from buses and trains were 4 times the emissions from cars (per vehicle), the reduction in emissions would

16 Transport for London, General Statistics. It is summing up around 400km of subway with around of 800km of rail.

Table 6.4  
Modal distribution by scenario in 2025

top  
Panel A  
Proportion of trips

below  
Panel B  
Proportion of passenger kilometres  
Source: simulated by CEPESP using the STM network

Mode	Without congestion tool			With congestion tool	
	Minimum	PITU	BRT	PITU	BRT
<b>Private</b>	45%	36%	32%	31%	25%
<b>Public</b>	55%	64%	68%	69%	75%
<b>Kilometres travelled by cars</b>	36%	27%	24%	21%	16%
<b>Kilometres travelled by buses</b>	32%	32%	35%	37%	43%
<b>Kilometres travelled by rail</b>	32%	41%	41%	41%	41%

be huge when we increase the share of public transport. A back to the envelope calculation<sup>17</sup> would suggest a reduction of 47% in emissions comparing the minimum scenario with the most radical alternative simulated.

It is important to emphasise the role of the BRT Extreme Strategy in closing some rings. One problem with the current transit network is its lack of radial connections. Having radial branches is natural in any transport system; the real problem continues to exist when not completing the ring. Going just in one direction sheds light on the pendulum characteristic of commuting that leaves part of the network hidden in one of the peaks. In a complete ring the radial branch could be used as part of the ring. Actually one of the problems with the current network is exactly its geography. Looking at Figure 6.6a we can see that the existing transit network had no closed ring. There were two open rings one with commuter rail lines C and D connecting around the river margin; and another mixing the subway with the ABD bus corridor. The official proposal closes those two open rings; and creates two new internal rings, one just based on metro and another very central. Our proposal closes four extra rings that were opened by the new proposal and creates a new small ring in downtown in addition to improving the capillarity of the system in the east.

It is expected that increasing the quality and quantity of the supply of public transport would induce a substitution from individual to public modes. The BRT in particular has the characteristic of competing for space with cars. So the modal shift is over emphasised by the induced reduction in the supply of streets and avenues available for cars. Unfortunately, we were not able to assess the effect reduced space would have on car use due to the proposed network. Obviously, there is a cost associated with any investment. The “Urbanistic Corridors” are estimated by the PITU to cost around R\$50 million per linear km. Adding 200km of BRT would mean a R\$10 billion increase in the total budget for public transport in

the SPMA. The required budget for scenario two is estimated to be R\$50 billion. So, adding 200km of BRT increases the budget by 20%. Upgrading the remaining lines and constructing the terminals following the standards discussed above would add another R\$10 billion to the budget.

The PITU proposes the use of general state taxes as the main fiscal resource for implementing the plan. 43% of the resources would come from this source. This is interesting considering just 4% of the funding would come from the tax on petrol (CIDE). The CIDE is a federal tax with a lump-sum value representing around 30% of the petrol price.<sup>18</sup> This is considerable when compared to other countries. In 2007, the consumer price for a gallon of petrol in São Paulo was \$4.89, much higher than its Latin-American counterparts (\$3.79 in Santiago; \$2.34 in Mexico City; \$2.32 in Buenos Aires) as well as comparable North American cities (\$3.32 in San Francisco; \$2.76 in New York; \$2.69 in Chicago). However, it was much lower than European main cities (\$6.65 in London; \$6.52 in Paris; \$6.42 in Berlin).<sup>19</sup>

The CIDE was approved in 2001 (Law #10.336) and it applies to the import and trade of oil as well as its derivatives; to natural gas and its derivatives; and to ethanol fuel. The goals of the tax are: subsidising fuel transportation; funding environmental projects for the oil industry; and funding transport infrastructure projects (for all kind of modes). In spite of being extended to encompass natural gas and ethanol fuel, an amendment to the Law defines varying lump sum values according to the energy source (Law #5.060/2004). Diesel, natural gas derivatives, and ethanol fuel pay much lower fees than gasoline. The revenues from this tax have been stagnant around R\$7 billion despite the increase in car ownership because ethanol pays less than 3% on CIDE and most new cars in Brazil are now flexible (they can be fueled by gasoline or ethanol).

In any case, the SPMA should receive around 15% of the revenues from CIDE representing more than R\$1 billion per year. The cost of the PITU plan is around R\$2.5 billion per year and

17 Multiplying by 4 the number of kilometres traveled by transit and summing it up with the number of kilometres traveled by car.

18 R\$860.00 per cubic metre

19 “Atlas: Where to Gas Up Around the Globe (Or Take the Bus)”. *Wired Magazine* 15.06, June, 2007.

Mode	Without congestion tool			With congestion tool	
	Minimum	PITU	BRT	PITU	BRT
<b>Vehicle kilometres by car [millions]</b>	16.60	13.43	11.87	10.67	8.11
<b>Vehicle kilometres by public transport [millions]</b>	0.29	0.29	0.31	0.29	0.33
<b>Total</b>	16.89	13.72	12.18	10.96	8.44

Table 6.5  
Millions of vehicle km traveled by mode of the morning peak  
Source: simulated by Cepesp using the STM network.

when its funding is broken down, the plan only receives R\$100 million per year from CIDE. Adding our proposal would increase the budget to R\$3.5 billion per year that would be feasible if the federal government actually distributed the CIDE to the municipalities<sup>20</sup> and in turn, all municipalities in the SPMA agreed to use 100% of the resources on public transport. Although this agreement is politically complicated, São Paulo City, the ABCD cities, Guarulhos and Barueri would represent 80-90% of the revenue. It is certainly not easy to get to this level of coordination (even with just seven cities) but it is still possible to fund the “radical” proposal with resources that are already in place.

<sup>20</sup> During 2004, the total revenue from CIDE had not been spent but instead was used to reduce the public deficit.

below  
Car-dependent mobility leads to vast quantities of vehicles and represents comparably little movement of people. Given usual occupancy rates, all cars on the elevated highway below could be replaced by one articulated bus.  
*Tuca Vieira*

## 6.4 IMPLEMENTING A NEW PARADIGM IN TRANSPORT POLICY: THE MINHOÇÃO CASE

The argument put forth in this report to increase the supply of BRT is only a temporal solution in a greater aim to effect a watershed in transport planning in São Paulo. To date, the system of BRT is the best technical option for a mass public transport system which is still relatively light in Brazil. Above all, the goal is to look for affordable alternatives to an underground system which would primarily benefit car users. Cars should be relegated to the lowest priority of transport modes. To better illustrate our point, changing priorities in transport policies, we have sketched a proposal to transform a small branch of an iconic overpass in downtown, called Minhocão, into a BRT corridor.

Since the 1950s, motorised trips have been favoured by transport planning policies in the



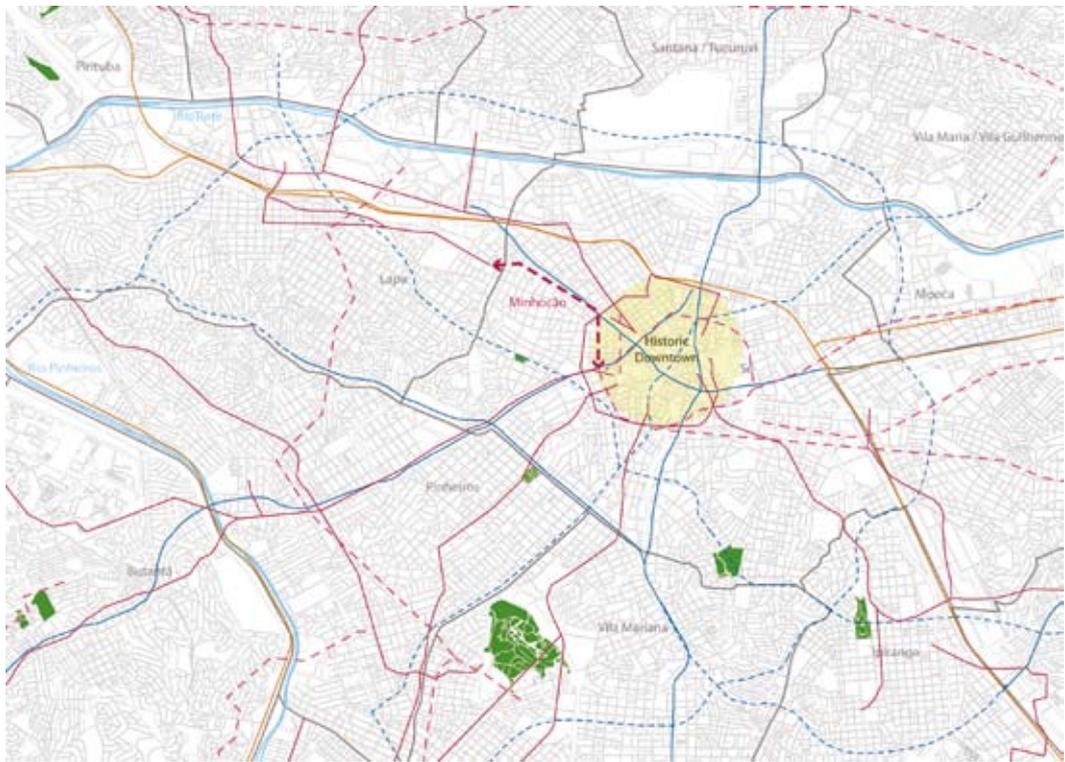


Figure 6.7  
**Minhocão and Downtown Transportation Network**  
 ↔ Minhocão  
 — Metropolitan train  
 — Subway  
 — Subway under  
 - - - Planned  
 — Bus corridor  
 - - - Proposed corridor  
 Source: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, CPRM, EMTU (2008)

SPMA as a whole while walking and biking have been disregarded as viable and feasible modes of transport. In São Paulo, an elevated concrete expressway, named *Elevado Costa e Silva*, is an iconic symbol of this popular policy strategy during the 1960s. Its conceptual approach was centred around the idea that moving passenger vehicles above ground would free up space on the street level. This strategy, however, ignores the fact that the number of cars is a direct consequence of “free space” – that is, additional cars rapidly take over newly created spaces, and the demand for new roads cyclically increases. Economists have attempted to explain such a relationship since the seminal paper of Vickrey (1973). However, it is still unclear whether this inherent characteristic has been understood properly when considering

urban strategies which substitute tunnels for overpasses (e.g. the Big Dig in Boston).  
 The *Elevado Costa e Silva*, nicknamed “Minhocão” (The Big Worm), was inaugurated in 1971 and incurred costs of more than R\$104 million (in 2006 R\$) to the local municipality. It covers an area of 3.4 km at 5.5 metres above ground and its width varies between 15.5 and 23 metres.<sup>21</sup> The overpass was inaugurated during the Paulo Maluf’s term – a mayor appointed by the dictatorship regime who promoted transport policies in subsequent terms which exclusively focused on automobiles like expressways and tunnels costing about R\$3 billion (in 1996).  
 In short, this is an out-of-scale overwhelming concrete structure sitting cheek by jowl with the adjacent buildings (some buildings are

21 According to the City Planning Department document entitled “Prêmio Prestes Maia de Urbanismo/2006”.



The Minhocão is closed to traffic on Sundays and has become an attractive destination for Sunday walks, cycle rides and running.  
 Luciana Varanda

within a distance less than 4 metres). Above all, this expressway artery can be considered a symbol of the sentiment in the 60s and 70s which favoured elevated (buried) expressway systems over improvements on commuter rail and subway networks.<sup>22</sup> This system has shaped chaotic transport in the metropolitan area of São Paulo and the Minhocão has accelerated land and building depreciation within the city's old downtown area especially at adjacent blocks.<sup>23</sup>

The Minhocão is mostly located within the downtown sub-municipality called Sé (a small portion of the elevated expressway belongs to the Lapa sub-municipality) and goes from the Franklin Roosevelt Square up to the Largo Péricles (Francisco Matarazzo Avenue) serving as the main road link between the central area and the city's western region. The Sé sub-municipality is the historic downtown area of São Paulo and the main hub of public transport inside the SPMA with easy access to the subway, buses, and metropolitan train lines (see Figure 6.7).

This is a socially diversified area characterised by a highly mixed land use pattern and existing infrastructure. Despite its dynamic composition, the downtown area has continuously lost population since the mid 1980s. According to the Census 2000 (IBGE), the population growth rate has ranged between -3.95% and -0.5% per year in these two sub-municipalities (Lapa and Sé) between 1991 and 2000. The population density in 2000 in Lapa sub-municipality was 67.5 inhabitants/ha but in Sé submunicipality was 142.72.<sup>24</sup>

Building depreciation and urban degradation in this area was so extensive after the construction of the Elevado Costa e Silva that in 1976 the city ruled to close the Minhocão at night due to high rates of car accidents and unbearable noise pollution.<sup>25</sup> Today, the road is also closed to motor vehicle traffic every Sunday when cars lanes are taken over by non-motorised users and it is transformed into a linear urban park. Currently, no bus line runs on top of the Minhocão and the daily traffic is around 80 thousand motorised vehicles (São Paulo City, 2006). During peak hours, the elevated expressway is frequently congested while traffic flows a little bit better on the avenues underneath it (General Olímpio da Silveira and Amaral Gurgel).

In 2003, a bus corridor system was implemented below the overpass connecting the bus system to the subway network through Marechal Deodoro and Santa Cecilia subway stations (the corridor, however, is not physically connected to the subway system, it is just nearby). The area is also linked to the downtown area through the nearby República subway station. Another subway station, currently under construction (Higienópolis/Mackenzie), will link the area to the financial district located on Paulista Avenue and the city's southeast region.

Our objective is to simulate the development of an urban plan along the Minhocão, which will be transformed into a BRT corridor as proposed in the first part of this report. As aforementioned, the Elevado Costa e Silva is the basis of this

22 As mentioned in the previous section, this strategy has also encouraged the displacement of the main economic activities and higher income residents to the southeastern downtown region.

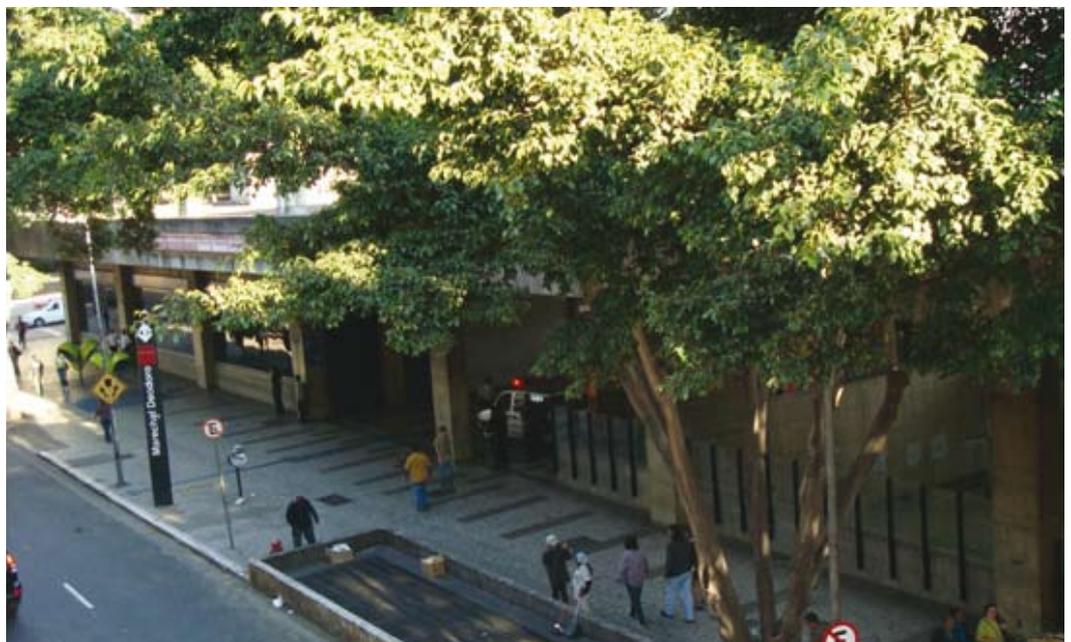
23 Since its inauguration, the Minhocão has been the target of many critiques from experts, urban planners, urbanists, and the local population that seek to discuss solution for the problems caused by this expressway artery. In 2006, the city has launched a municipal award to find feasible solution ([http://www.vitruvius.com.br/institucional/inst142/inst142\\_01.asp](http://www.vitruvius.com.br/institucional/inst142/inst142_01.asp)) Accessed on May 8th, 2008.

24 Demographic data is available at the SEMPLA website: <http://sempla.prefeitura.sp.gov.br/infocidade/index.php?cat=3&titulo=Território>.

25 According to PSIU (Programa de Silêncio Urbano - Urban Silence Program) the noise level underneath the Minhocão ranges between 87 and 92 dB, far above the allowed level defined by existing zoning (mixed land use areas ranges between 55 and 65dB during the day and 45 and 55 dB during the night).

Groundfloor use underneath Minhocão is characterised by a more typical urban street design with mix use buildings, public transport and sidewalks.

Angélica Benatti Alvim



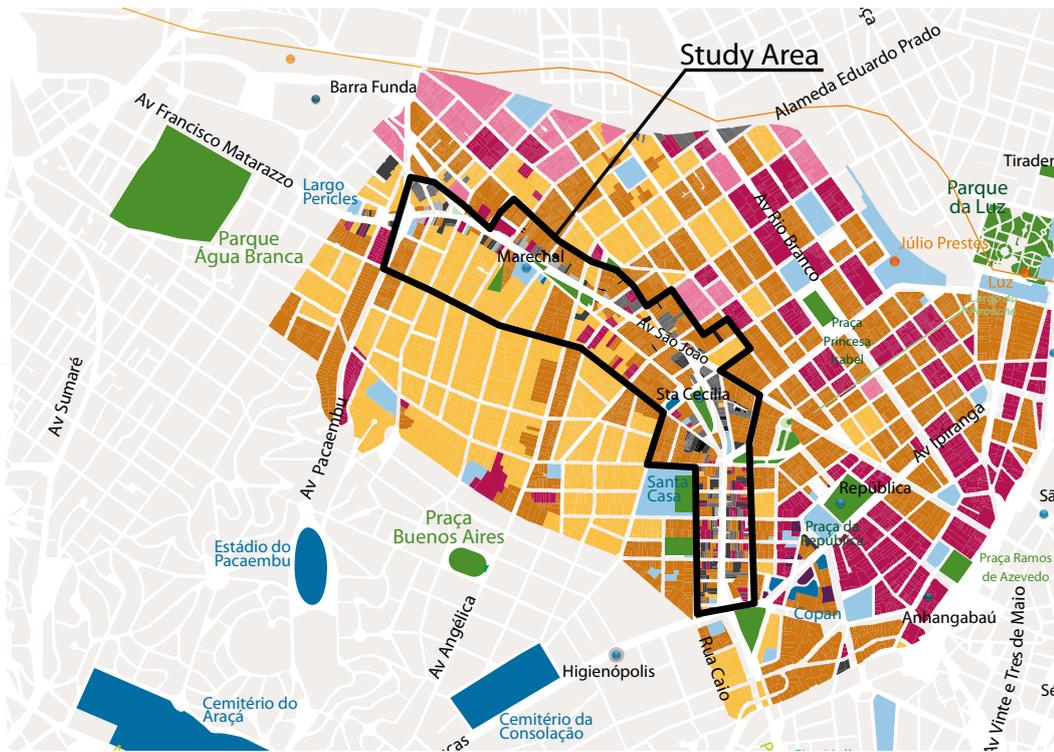


Figure 6.8  
Existing Land Use

- Underutilised > 2 stores
- Underutilised < 2 stores
- Gas station, parking lots
- Tenement
- Empty lots
- Mixed
- Residential
- Commercial services
- Architectural value
- Preserved buildings
- Industrial
- Squares and parks
- Institutional
- Landmarks
- Subway stations
- Train line

Based on: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, Cadastro Territorial e Predial, de conservação e Limpeza - TPCL/RI (2004)

exercise and blocks adjacent to the Minhocão set the limits of the study area in which three subareas could be identified. These subareas were determined based on a visual assessment carried out by this Working Group early in the planning process (see Figure 13). The visual assessment sought to identify blighted areas and to classify building and structures according to their noticeable physical maintenance (i.e. painting, windows, etc.), types of use (i.e. commercial or residential) and intensity of use (i.e. underutilised lots) (see Figure 6.8).

Based on existing conditions and the visual assessment, we propose to move the ground level bus corridor to the upper level of the concrete structure. The top of the Minhocão would exclusively be dedicated to buses, passengers, pedestrians, cyclists and greenery while underneath several social and commercial activities connected to a pedestrian and bike network would take place. The goal is to transform the Minhocão into a destination area rather than a passageway axis taking advantage of existing opportunities and urban structures while simultaneously prioritising the local population and promoting social inclusion.

The use of automobile is still encouraged and is currently a trend in Brazil.<sup>26</sup> We question such trends and value the traditional form of the downtown as a hub for public transport and pedestrian pathways at the city level. Within this proposal, cars are the last priority when it comes to modes of transport. Currently, four car lanes occupy the upper level of Minhocão, and underneath it two lanes are allocated exclusively to buses and four lanes to cars.

Moving the bus corridor to the upper level

of Minhocão, while reconfiguring the newly created space underneath, frees up four lanes that would be transformed into pedestrian and public transport pathways based on adept urban design principles (i.e. wider sidewalks, bike paths, pedestrian crossings, etc.). The idea is to constrain as much as possible the use of automobile by increasing and diversifying environmentally-friendly modes of transport. We expect in offering feasible alternatives with the enhanced capacity of public transport that people's travel habits will change, especially in view of the likely increase in congestion in the city as a whole (limited space for automobiles). We do recognise though that people react to changes in relative costs terms, that is, the impact of such an increase on the city's average commuting time might be negligible as transit increases its share in trips within the metropolitan area.

This intervention would probably change the land value of surrounding areas, creating a challenge and an opportunity at the same time. City ordinances, property tax, innovative design principles, and feasible management mechanisms should be used to incorporate the BRT system efficiently into the urban environment and to exploit it as an upgrading instrument in blighted areas such as the Minhocão. Additionally, the implementation of a comprehensive BRT system can serve wealth redistributive purposes given that it will probably induce income creation (or perhaps destruction) by impacting land prices which can be promoted up to a certain point through regulations.

26 Take for instance an award granted by the city in 2006 for the Minhocão. The majority of the candidates proposed to keep the circulation of automobile within this area by either demolishing the Minhocão or by digging tunnels. Furthermore, the big winner is a proposal that encapsulates the existing car lanes on top of the Minhocão and the construction of an urban linear park on top of it - the status quo is maintained and left unquestioned. The proposals can be seen at <http://portal.prefeitura.sp.gov.br/noticias/sec/planejamento/2006/03/0001> (accessed on May 8th 2008).

left

Figure 6.9  
**Subarea 1**

Minhocão looking towards  
Roosevelt Square on Sunday closure.  
*Angélica Benatti Alvim*

right

Figure 6.10  
**Subarea 3**

Minhocão Gas Stations next to  
mixed use buildings – in the  
back Santa Cecília, a residential  
neighbourhood  
*Luciana Varanda*



## Box 6.2

# DEFINITIONS OF THE SUBAREAS OF STUDY

### Subarea 1

Defined by the Cardoso de Almeida Street in the north and the Marechal Deodoro subway station to the south, subarea 1 is neighbourhood of great contrasts with abandoned warehouses which once served the metropolitan trains in the northwestern region adjacent to older and low rise properties in the southeastern region (the majority of which has been transformed into commerce/services). There is an air of change as the southeastern portion has undergone a process of verticalisation of middle and high income housing. In addition, the real estate market is flourishing in this area mainly due to the well maintained buildings of 3 or more floors which have been retrofitted for mixed use (usually commercial at the ground floor and residential above ground) (see Figure 6.9 above).

### Subarea 2

Between two subway stations, Marechal and Santa Cecília, subarea 2 is predominantly a commercial area, especially the portion adjacent to the Minhocão (properties in the interior are mainly high class residential buildings). The quality and popularity of existing small parks and public green areas make a strong case for greater investment in green space in the areas adjacent to the Minhocão (most are located next to the Marechal Deodoro subway station). Of the chosen areas, this subarea has the largest average distance between the buildings and the concrete structure, which is significant as there is a clear relationship between the distance and the maintenance of buildings, the closer the buildings to the overpass, the more degraded they are) (see Figures 6.11 and 6.12 below).

### Subarea 3

With strong connections to the historic downtown and shared boundaries with a high income class neighbourhood (Higienópolis), this is the most deteriorated section of our study area. This subarea accommodates empty warehouses, parking lots, gas stations, low buildings with a few high rise buildings (greater than 3 floors) containing both commercial and residential properties. The commerce in the area mostly involves the red-light district, liquor stores and tires shop. Additionally, most of buildings also are very close to the Minhocão's concrete rail which contributes further to the deterioration of this subarea (see Figure 6.10 above).

left

Figure 6.11  
**Subarea 2**

Mixed use well preserved buildings  
representative of the Paulista  
Modern Architecture.  
*Angélica Benatti Alvim*

right

Figure 6.12  
**Subarea 2**

Mixed use buildings of low-income  
residences.  
*Angélica Benatti Alvim*

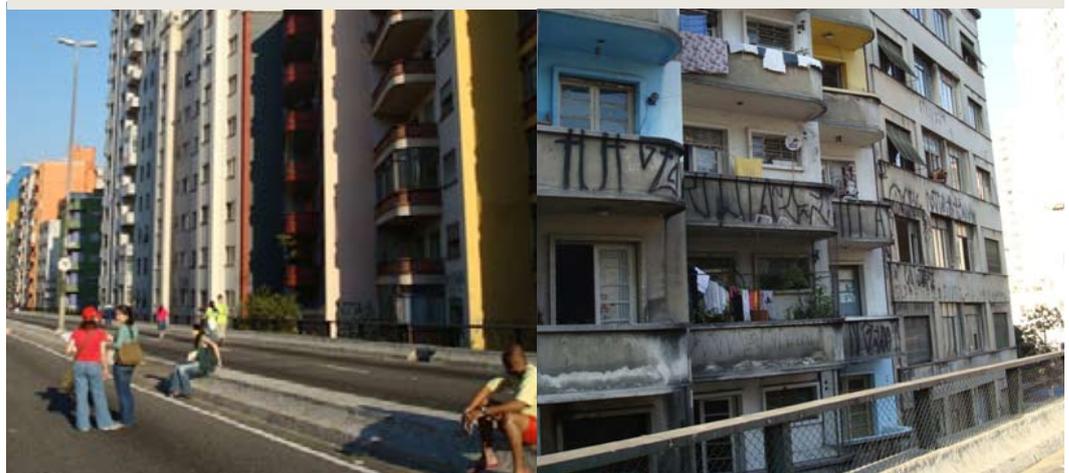


Figure 6.13  
**Minhocão and the Study Area Context**  
 Paulo José Tripoloni

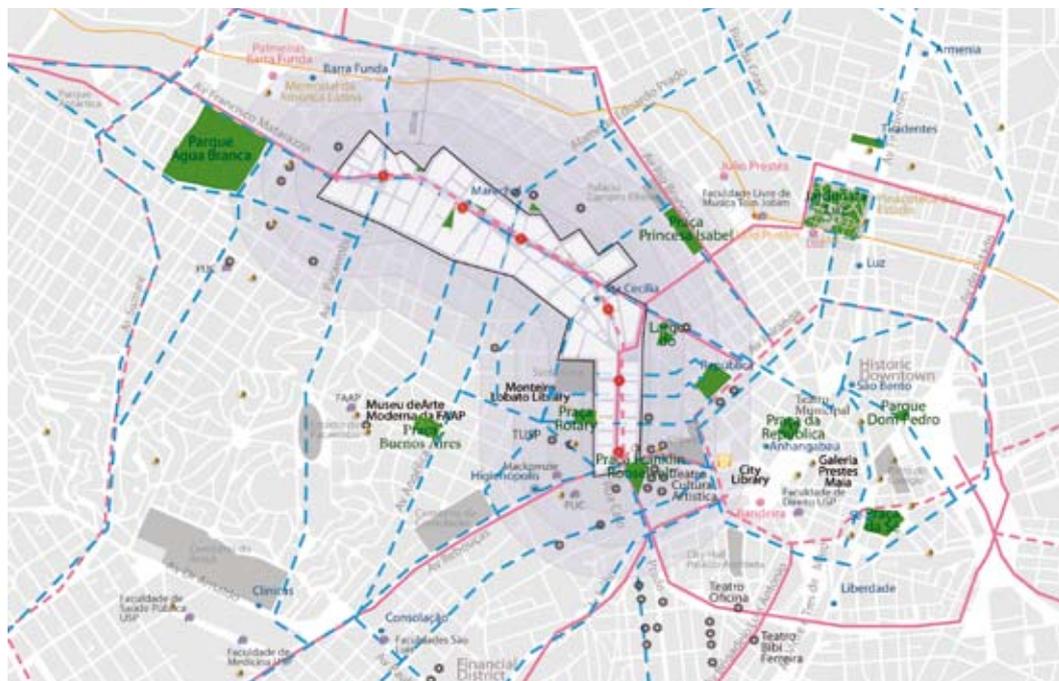


### 6.4.1 The Minhocão intervention: guidelines and policy tools

We see the Minhocão as an opportunity for upgrading the surrounding area not only in terms of real estate dynamics but also for pedestrians and residents who should be the highest priority in planning transit corridors. Simply moving the bus corridor from the lower to the upper level will not alone promote sustainable or equitable means of urban development (in terms of social, economic, and environmental developments). A set of actions that seek to re-qualify public spaces in conjunction with an urban intervention project (legal, financial and social aspects) can modify the current land use pattern in the Minhocão's context (see Figure 19).

Minhocão is a notable urban reference in downtown, located between the famous Avenida Paulista (southeast) and the Marginal Tietê (northwest riverside expressway) – this surrounding area is filled with historic landmarks of the city which are within walkable distances in addition to numerous schools, universities, museums, theaters, hospitals, markets, etc. Among the most important landmarks are the Memorial da America Latina (by Oscar Niemeyer), MASP (São Paulo Art Museum projected by Lina Bo Bardi), the historic Julio Prestes Train Station, Sala São Paulo (São Paulo State Symphony Hall), São Paulo State Pinacoteca (restored by Paulo Mendes da Rocha), the historic Luz Train Station, the Luz Park, and the Portuguese Language Museum.

Figure 6.14  
**Minhocão and Urban Integration**



- Area of urban intervention
- Proposed bike and pedestrian routes
- Proposed bus corridors
- Proposed BRT stop
- Metropolitan train station
- Bus terminal
- Subway
- Subway station under construction
- Museum
- Theatre
- University
- Landmark

Based on: Secretaria dos Transportes Metropolitanos, SP-Trans, Logit, Emplasa, Tetraplan, ESP/DERSA, PITU/Logit, GuiaMapograph, Cadastro Territorial e Predial, de conservação e Limpeza – TPCL/RI (2004)

General Policy Recommendations	Policy Objectives
<ul style="list-style-type: none"> <li>• Define bus stops according to other modes of transit (intermodal stations/subways, bike and pedestrian routes) and according to significant references (universities, hospitals, etc.) (see Figures 2.22 and 2.23).</li> <li>• Implement a BRT corridor connected to existing and proposed corridors, and other modes of transport.</li> <li>• Design a pleasant transit corridor based on good design principles and urban landscaping (see Figure 2.24 for sketch).</li> <li>• Promote the commercial, institutional, and cultural uses at kiosks constructed under the Minhocão such as <i>Acessa São Paulo</i>, <i>Poupa Tempo</i>, street theater, ticket kiosks, public restrooms, public library, small wealth centres, bookstores, art galleries, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase sidewalk widths.</li> <li>• Construction of disabled access ramps.</li> <li>• Enlargement of sidewalks under the Minhocão and next to buildings.</li> <li>• Establishment of bike lanes and pedestrian pathways, from and to the Minhocão, within the downtown area defined by the standardised streetscape.</li> <li>• Implementation of a rental bike system (following Velib's model in Paris) at strategic points connected to the other modes of transport.</li> <li>• Standardise pavement material and light poles.</li> <li>• Standardise benches at public spaces.</li> <li>• Ban curb-side parking.</li> </ul>

The goal, at this inter-zone level of planning, is to connect the Minhocão axis to these and other significant urban equipments (cultural, social and educational) through transit and/or walking and biking routes while simultaneously promoting greater mobility within public spaces and greater connectivity (permeability) within this influential area (see Figure 6.14).

At the zone level, the goal is to transform the Minhocão into a linear urban park and into the main hub for public transport, walking and biking in the city's central area. We propose the implementation of a BRT corridor on the upper level of the Minhocão in addition to bike and pedestrian routes described above. The BRT corridor is designed to accommodate five stops strategically located along the elevated corridor to facilitate efficient connections. Three of these stops are intermodal nodes, that is, subway, buses, pedestrian, and bikes are interconnected at these points.<sup>27,28</sup> Underneath the Minhocão, we propose the implementation of bikeways and kiosks which would host social and retail activities (e.g. *Acessa São Paulo*, *Poupa Tempo*,<sup>29</sup> newsstands, small public libraries, etc.).

This transport axis study area should have legal devices tailored to its specific characteristics and articulated to goals, for such an Urban Intervention Area (AIU for its acronyms in

Portuguese) is a good instrument to be used. As determined by the constitution and defined by the art.146 VI of the São Paulo Master Plan (SPMP), the AIU grants the governing body the authority to implement land use policies through regulation in several situations, specially transit corridors and nodes (art. 30 caput Municipal Ordinance 13.885 2004 and art. 221, VI, do SPMP).

Aiming to increase density through the vertical development of some lots (i.e., underutilised, gas stations, parking lots, and low buildings), this proposal seeks to take advantage of existing infrastructure in the central area. As such, FAR should range between 4.0 and 6.0 (at nearby intermodal stations). Development rights should be commercialised through public actions aiming to maximise the resulting improvements (e.g. increased land value) and to promote equity in terms of distributive justice.

One important tool is art. 7 of City Statute and art. 145, para. 1, items I and II from the National Constitution that allows for progressive property tax over time. By applying this scheme, we aim to put pressure on owners of underutilised or empty lots. In parallel, a discretionary charge for building rights would foster the preservation of historical buildings currently underutilised. Through this legal mechanism, owners of historic buildings or landmarks would have construction

<sup>27</sup> The intermodal station "Consolação/Higienópolis is not connected to the Subway.

<sup>28</sup> The design of buses lines and pedestrian crossing and pathways vary according to the Minhocão's width.

<sup>29</sup> *Acessa São Paulo* is a state program which provides free internet access to the population and *Poupa Tempo* is a centre of public services also promoted by the State government.

### Box 6.3

## URBAN INTERVENTION AREAS (AIU)

According to the SPMP, AIUs are urban areas of special interest for the city to leverage and systematise growth. Within these areas, land tenure, low income housing, establishment of tenure reserves, ordering and management of urban growth, urban equipments, community centres, public and leisure spaces, green areas, preservation districts, and environmental protection areas are regulated and managed. According to specialists from the Municipal Planning Secretary, AIUs were originally created as a mean for planning transit corridors which sought to encourage urban requalification and the maximization of positive effects derived from increased accessibility. Up to this moment, however, AIUs have never been implemented.



Figure 6.15  
Subarea 3

- left  
Current land use
- Underutilised > 2 storeys
  - Underutilised < 2 storeys
  - Gas station, parking lots
  - Tenement
  - Empty lots
  - Mixed
  - Residential
  - Commercial services
  - Architectural value
  - Preserved buildings
  - Industrial
  - Squares and parks
  - Institutional
  - Landmarks
  - Subway stations
  - Train line
- right  
Potential transformation
- ZEIs
  - Redevelopment
  - Revitalisation
  - Squares and parks
  - No change
  - Landmarks
  - Subway stations
  - BRT stop
  - Train line

Source: Transportation, Mobility and Access Working Group – CEPESP/ FGV and FAU/Mackenzie

rights to use in other areas of the city in exchange for maintaining the site.

As discussed above, the social impacts of such an intervention should be taken into consideration. Gentrification is expected if this intervention is successful. The Special Zones of Social Interest (ZEIS) are an important legal mechanism to promote social diversity and inclusion by protecting the low income classes that reside in the existing degraded buildings (slums and tenements). We suggest defining part of the area as a type 3 ZEIS.<sup>30</sup> At the same time, the city should prioritise the commercial acquisition of properties that are of public interest for the creation and expansion of public spaces such as parks, squares, and green areas (preemption rights). Within the study area, this right should identify idle properties at strategic nodes, especially those lots nearby stations and bus stops.

At the block level, we identify opportunities for urban intervention in public and private spaces. In a real world planning practice, public participation is crucial for the identification of opportunities, threats, weakness, and strengths. In this report we identify opportunities just

based on the visual assessment carried out by the Working Group early in the study process. For the discussion of planning at the block level, we analyse the most degraded area, Subarea 3, and simulate how goals and objectives would be translated and projected onto the current urban situation. We aim to develop a pilot project to illustrate possible interventions that could eventually be applied to the entire proposed AIU.

Figure 6.15 displays the visual assessment of Subarea 3 at the parcel level. A quick scan of the left-side map shows that several lots have characteristics which render them likely to be transformed. That is, gas stations, underutilised buildings, warehouses, empty lots, and blighted building are potential areas of transformation and for the application of the AIU's policy tools discussed at the zone level. Based on the recognised potential areas, the right side map displays possible outcomes through the application of the AIU's policy tools. We indicate buildings to be renovated (not necessarily changing the current use), to be maintained (currently under proper maintenance and adequate use), to be revitalised (restoration and change of use) and finally, to be classified

30 According to the SPMP (art. 171, item III), four typologies are applicable to ZEIs. Type 3 is the most adequate to areas with existing infrastructure such as the downtown area.

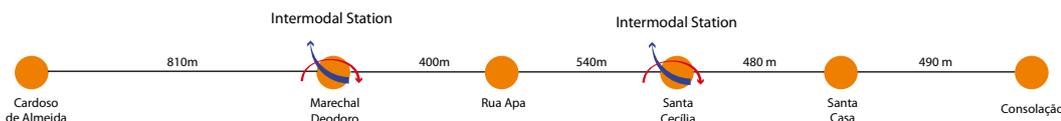


Figure 6.16  
Bus stop and Intermodal Stations

Source: Transportation, Mobility and Access Working Group – CEPESP/ FGV and FAU/Mackenzie



Figure 6.17  
Sketch of BRT bus stop

Source: Transportation, Mobility and Access Working Group – CEPESP/ FGV and FAU/Mackenzie

Figure 6.18  
**Permeable Blocks**  
Paulo José Tripoloni



as a ZEIS to protect tenants and low income population.

Using legislation and urban policies to concurrently promote social inclusion and re-qualify public space remains a major challenge in Brazil and even more so in the context of a broader proposal aiming to re-think public transport in a mega-city such as São Paulo. It requires not only effectively applying existing rules but also articulating statutes and regulations designed to implement housing policies with transport and mobility goals in a way that social inclusion is boosted and efficiency is not jeopardised.

Besides the Brazilian constitution, several federal and state legislation provide for a

wide range of progressive legal tools designed to promote social inclusion and implement distributive goals through housing policies (e.g. the principle of property's social function). To the best of our knowledge, such tools have not been explored or actively put into practice in a urban re-qualification plan which is part of a transport and mobility proposal. We believe that the proposal above, although generic, is a thorough attempt to do just that. In particular, the combination of ZEIS, AIU, (discretionary) trade of building rights, etc. (see above for details) can be used to foster social inclusion in the Minhocão area. We believe that these instruments, as well as public funds and tax incentives, can be articulated to foster social change and inclusion.

Figure 6.19  
**Proposed Minhocao BRT Cross Section**  
Paulo José Tripoloni



## Legal Framework

- Development of a Specific Urban Plan (PUE) for the study area articulated to urban design guiding principles.
- Development of an urban law framework adapted to the specificities of the area and based upon the PDE.
- Specific zoning ordinance should promote higher density by establishing a basic Floor Area Ratio (FAR)<sup>26</sup> equals to 1.0 in order to discourage idle buildings/lots – basic FAR lesser than 1.0 will not be allowed (i.e., the minimum should be equal to the basic).
- Use the “Trade of Building Rights” (*Outorga Onerosa do Direito de Construir* /arts. 28 to 31 of City Statute).
- Use Progressive Property Tax over time (*Imposto Territorial Progressivo ao longo do Tempo- IPTU Progressivo no Tempo*)
- Use the “Transfer of Building Potential” (*Transferência do Potencial Construtivo*/art. 35 of the City Statute).
- Establishment of Zones of Special Social Interest (*Zonas de Interesse Especial/Sel*).
- Use of Preemption Rights (*Direito de Preempção*/ arts. 25 and 27 of the City Statute).

### 6.4.2 Implementation

Each one of the policy tools discussed in the previous section can be applied with discretion to the specific areas within the proposed AIU. Above all, they should be articulated to meet the corresponding goal. The applicability of those policy tools, however, has to be coordinated by a legally consistent PUE.<sup>31</sup> In other words, the AIU will only happen as expected (or at least part of it) if its goals and objectives are legally binding when implemented. Below, we discuss some of the major issues regarding the implementation of an AIU in the context of transit corridors.

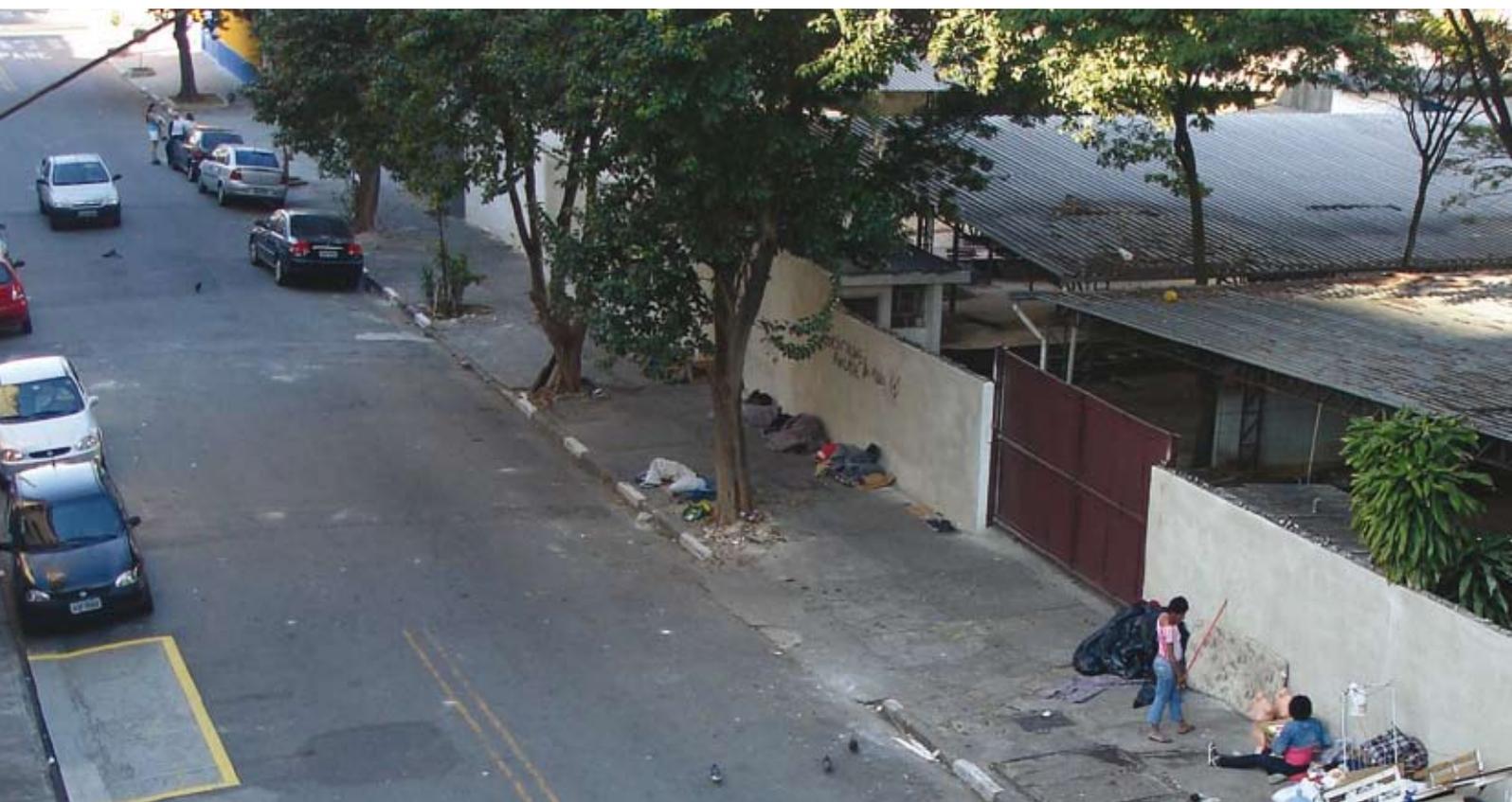
Although the existing zoning of this area (Municipal Law 13,885/2004) specifies high and medium density mixed use, this transport axis should have specific zoning (and policies) capable of transforming its reality. As granted by the City Statute (Federal Law 10,257) private initiatives can moderately take advantage of the benefits resulting from the implementation of the proposed AIU. However, gentrification has to be addressed and affordable housing secured

through zoning and policies that seek to promote a diversified urban housing environment.

The current deterioration of the downtown district, where the Minhocão is located, has caused the depreciation of properties values (and rents) not only for adjacent blocks but within a significant buffer around the elevated expressway. We expect that the implementation of an AIU along this transport axis will boost the real estate dynamics and, as a side consequence, rents and housing prices will increase. If mechanisms of Betterment Fees (*Contribuição de Melhorias*) were employed through a progressive property tax (urban improvements charge), then the municipality would be able to capture part of the capital gains. On the other side, we expect that rents will increase anyway depending on how the tax incidence falls on owners and tenants and that low income tenants will face rents that are no longer affordable. To address gentrification, we propose to develop a social housing program which seeks to protect current tenants (who should be identified before the AIU implementation) and to ensure a diversified

<sup>31</sup> Although a Specific Urban Project (PUE) is not required for an AIU, we consider an PUE necessary for this kind of proposals, specifically, a PUE deeply articulated to existing regulations and legal tools.

below  
Homeless living within the study area  
Luciana Varanda



housing development in the area (i.e., developers will be required to offer a mix of housing from a range of sizes).

One should note that the issue of gentrification cannot be addressed by freezing the property tax – this would just transfer the capital gains to owners. However, low income owners would incorporate a larger portion of the capital gains (probably by cashing it in) through the progressive property tax. Depending on the incidence, the result might be a truly distributional public policy. Current city legislation guarantees property tax exemption for properties below a certain size as long as the owner does not have other property under exemption status. This will probably reduce the incidence of the extra tax on poor families.<sup>32</sup> Assuring that priority is given to low income tenants to buy or rent social housing or affordable housing inside new developments will protect lower income groups from eviction.

According to the city's Master Plan, currently 20% of the urban territory is designated as "Urban Operation."<sup>33</sup> In practice, Urban Operations (UO) have been frequently confused with Trade of Building Rights (*Outorga Onerosa do Direito de Construir*). It has also been argued that the original objective of Urban Operations is now distorted due to the lobbying of developers and market pressure which resulted in inefficiency

and unequal policies.<sup>34</sup> As such, we believe that through an AIU, articulated via an applicable legal framework, is the best option to create an attainable specific urban project (PUE) with clear and concise goals.

Part of our study area is under the limits of the Downtown Urban Operation,<sup>35</sup> (*Operação Urbana Centro* – Law 12,349/1997). This Urban Operation does not seem to have had any significant effect on the city's central area, especially along the border line<sup>36</sup> separating the historic downtown and our study area. The implementation of an AIU annuls current zoning and implements policies according to the goals stated above and summarised above right. We consider the AIU a more efficient tool for redeveloping this transit corridor area based on an inclusionary approach.

The proposed AIU should strive for public-private partnerships (which includes all range of stakeholders) created according to city regulation (art. 221, para. 1 SPMP) and structured according to a Specific Urban Project (PUE – art. 30 caput Municipal Law 13,885). The PUE must meet at least the requisites stated in the art. 30, para. 1, item I to VII of the Municipal Law 13,885/2004 (the policy tools discussed in the previous section should also be included and specified by the PUE).

Within the proposed AIU, it will be necessary to remodel funding mechanisms aiming to

32 Although rich owners with just two apartments may benefit from the exemption.

33 Urban Operations are legal tools which can overrule zoning defined by the Master Plan because of local interests.

34 Trade of Building Rights (*Outorga Onerosa do Direito de Construir*) is the main policy tool used within public-private partnerships but it is heavily criticised for favouring the interests of real estate speculation. See inter-alia Castro (2006) or Rolnik (2003).

35 The Downtown Urban Operation is an Urban Operation in Consortium as defined by the City Statute.

36 The limits of the Downtown Urban Operation is Amaral Gurgel Street between the Largo do Arouche and the Roosevelt Square (next to Consolação Avenue).

below  
The great proximity between the elevated roadbed and adjacent housing  
Angélica Benatti Alvim



## Guidelines for the PUE in Minhocão

- **Diversified Land Use**

to increase the number of mixed use buildings (preferably commercial at the ground level and residential in the floors above it), art and education buildings, retail galleries, etc.

- **Integrated and Permeable Blocks**

the block should be treated as the main urban identity seeking to develop an urban blueprint that takes into account the relationship between building height and street width (enclosure degree) and the relationship between public, semi-public, and private spaces. New buildings should respect the downtown identity in terms of setbacks at the same time as permeability is encouraged through a system of public spaces (see Figure 6.18).

- **Parks and Squares**

strategic locations close to BRT bus stops, ramps, or public elevators should be integrated by way of a system of interconnected parks, squares, and green spaces – new buildings with elevated paths should be directly connected to the Minhocão.

- **Building Height Limits**

although we propose to increase density within the study area, maximum height of buildings adjacent to the Minhocão should be carefully defined based on a deeper analysis which takes into consideration existing structures and a balanced relationship among built, open, and the Minhocão areas – the goal is to find an appropriate degree of enclosure for this specific scenario.

reinvest the resources obtained through the instruments discussed above (i.e., Trade of Building Rights, Transfer of Building Potential, etc.) in the area itself similarly to what is done in an Urban Operation. Resources should be used to improve, maintain, and upgrade infrastructure such as mass transport, public spaces, bike lanes, restoration of historic buildings, and implementation of ZEIS. After covering the costs of the initial investments proposed for the AIU, resources can be directed to other areas of the city through the municipal fund of urbanisation (FUNDURB – *Fundo Municipal de Urbanização*) – efficiently serving redistributive goals in a flexible manner.

In brief, the complex issue of planning along transport corridors is far from solved and requires further analysis. Our analysis was mainly exploratory and quite normative. Moreover, the applicability of this model of urban intervention along other transport corridors is restricted due to the specificities of the study area chosen for this analysis. Nevertheless, some of the proposed guidelines can be generalised to other transport corridors. Stations should be treated as converging urban nodes, infill development should be encouraged for greater density, and pedestrian accessible activities should be fostered. The designation of corridors as AIUs and the implementation of feasible policy tools and urban norms should be applicable to and articulated across the urban environment as a whole (private and public) associated with a system of public spaces seeking to increase the quality of the urban environment.

## 6.5 FINAL NOTES: WHERE ARE WE GOING?

Since the 1950s transport policies in the SPMA, as in the majority of the Brazilian metropolitan areas, have not prioritised public transport, pedestrians, or cyclists. The result is a chaotic and inefficient system and lengthier commuting times especially for the poor. The obvious way to correct this scenario is to improve the supply of public transport. However, just improving supply is not enough. We advocate in this chapter for the need for changing the paradigm. Cars, buses, pedestrians with health problems or not, cyclists, motorcyclists, street sellers, etc. all compete over the public space in streets, avenues and sidewalks. The government has the power to regulate the use of those spaces and through a combination of instruments, the responsibility to decide the share of those resources.

Increasing the space for public transport is a way to distribute resources progressively since the poor use more public transport than the rich. In 2007, 76% of the motorised trips made by people with income below R\$760 used public transport compared to just 21% for the group with income above R\$5,700. Similarly 51% of the lowest income group commuted by walking in 2007 compared to 13% for the richest group. Finally, 1.2% of the lowest class commuted by bike compared to 0.2% in the highest stratum. Furthermore increasing the space for pedestrians and bicycles will increase the supply of public non motorised space. Since the poor have less access to private spaces for non motorised uses, they use more public spaces for those ends. So, transferring space from cars to pedestrian and bicycles is also a way to distribute resources.

The PITU 2025 proposal intends to fund its investments with R\$1 billion per year from the state government (general taxes); R\$750 million per year from the revenue of the operation (private); R\$250 million from urban concessions such as the selling of building rights; R\$300 million, after 2013, from congestion tool; and some smaller sources including R\$100 million



above  
Expanding São Paulo's metro  
comes at great costs and does not  
seriously challenge the status quo of  
urban transport. BRT offers a more  
equitable and cost-effective solution.  
*Tuca Vieira*

from energy tax (CIDE). It is not clear why the energy tax has been marginally used to fund public transport and why the official plan relies so little on this instrument. Just using the expected gas tax share of the SPMA would increase the budget to R\$3.5 billion a year which is enough to implement our alternative proposal.

One possible critique of this argument is that it might be inflationary. We believe, however, that this is an invalid question. Avoiding the macroeconomic debate on the ideal size of the deficit, let us assume that we want to keep the current deficit untouched. In this case, we could reserve from each tax type a fix rate according to the desired primary surplus. So, part of the energy tax, let us say 5%, would be reserved for keeping the current surplus. That is, there is no reason to make the surplus exclusively from this source of revenue except that it is a “contribution” not a tax. This difference, in Brazil, means that the central government has much more discretion in its use. In any case, not using the energy tax for its primary purpose is a political decision with no consequences on the macroeconomic problem.

It is important to reflect however on the energy tax (CIDE) since it is already in place and does not need to go through all the difficulties in approving a new tax, etc. The energy tax has mainly an environmental goal. In theory, this would be an ideal tax since charging externality increases (social) efficiency. Using the resources to fund public transport would leverage its impact on emissions. However, we have to keep in mind that CIDE is not the correct fiscal instrument to avoid traffic congestion since it charges energy use regardless of spatial concerns. A car running on gasoline would pay the same amount travelling in a very dense urban area or in a remote rural area.

The correct instrument to avoid congestion is evidently a congestion tool. Singapore was the pioneer in the adoption of congestion tolls in 1975 restricting commuting in the centre of the city. Although traffic congestion had indeed reduced inside the designated zone, it has increased in

the surrounding area providing some lessons for future attempts. The design and implementation in London in recent years was far more successful and has been considered as an example of ‘best practice’ worldwide. Our simulations show that a congestion tool would be quite significant in changing the modal distribution in the SPMA. However, we have to be cautious since, according to the opinion survey conducted by the Urban Age, the approval of this mechanism is very low.

The main concept in this chapter is the prioritisation of commuting modes that have been generally disregarded. The concept does not rely on creating new taxes. The policy should divert investment from individual modes to collective modes. If it is not possible to maintain the streets and the sidewalk every year, maintain the streets every other year but maintaining the sidewalks as well. Program the traffic lights with consideration for the pedestrians first. Reduce lanes for cars and give them to buses, pedestrians and bicycles as we propose for the *Minhocão*. There are many other ways to keep the concept independent on total resources.

Of course the size of the budget is not irrelevant. The concept could work under any budget since the idea is changing priorities in the investment schedule. The total size however is relevant since there are many structural problems as described before. One cannot program the traffic lights if they are not connected to a central system. So, it is a question of the share of transport in the aggregate budget. Our initial assessment shows that this amount is totally compatible with the current budget except that the CIDE has not been used as it should. If we consider that the demand is for commuting, i.e. for moving from one point to another, the mode should not matter i.e. the modal share should not affect the total welfare of the population. So, changing the share towards public transport is a rare opportunity of improving the environment and distributing income with no efficiency loss. Let us not waste this opportunity in the SPMA.

## ANNEX – MANAGING CAR USE IN CITIES<sup>37</sup>

In the most advanced cities today ‘transport policy’ really means finding ways of achieving lower levels of car use and higher shares for public transport, cycling and walking in overall mobility. In cities in developing countries ‘transport policy’ still largely means the opposite: how to accommodate more car use.

Enrique Peñalosa, former mayor of Bogotá

This annex introduces the most common practices worldwide aiming to reduce or manage personal car use in cities.

### Road Pricing

In recent years, road pricing schemes have become increasingly popular as an effective monetary instrument to manage car use in cities not least following London’s success of reducing car use with an 16 USD charge in its central area by more than 80.000 private cars per day. The basic logic of road user charges is one of traffic demand management. By internalising the real cost of driving in cities (considering the enormous space it requires per person as well as cost in relation to pollution, noise and accidents that are usually not paid by car drivers) it also reduces traffic levels to the available road capacity and eases congestion. For long, experts have urged to adopt pricing mechanisms as the most promising solution to improving urban transport. Besides London, successful examples of road pricing include Singapore, Stockholm, Rome and Milan. In most cases, these schemes have been implemented by city governments requiring the generated income to be spent on public transport, walking and cycling. London has seen a significant increase of bus users and almost doubled the number of cyclists entering the charging zone since its opening.

### Fuel Tax

Fuel tax is a common national sales tax on transport related fuel use in most countries. While often a general revenue for public finance, it is commonly used as indirect user fee for transport related cost (mainly transport infrastructure). In many European countries with high fuel tax (making fuel with a price of about 3 USD per litre about 3 times as expensive compared to the Americas), it is increasingly

used for traffic demand management and aims to reduce motorisation and the dependence on fossil fuels. In Germany, an additional eco tax on fuel is a further step towards internalising the enormous environmental damage caused by motorisation. Increasing the level of taxes on fuels (or put differently, decreasing the degree of indirect subsidies for car use) is amongst the most critical steps towards more sustainable urban development allowing cities to re-negotiate their territorial structure towards greater compactness and their internal use of public space.

### Road Space Reduction

The amount of road space given to cars is the most reliable predictor for the level of motorisation. Past experience has shown, the more road space is created for cars the more cars will fill it up (cities like Los Angeles, Houston and Atlanta with more than 40% of surface area dedicated to car use being the most extreme cases). This has also been the case when congestion was tackled by increasing road capacity only to find that at least the same congestion levels returned after a short period of adjustment. But, these elasticities work in both direction. Given that alternatives to driving are provided (public transport, cycling and walking), the reduction of capacity for motorists (widening of sidewalks, public space, priority bus lanes, configuration of urban layouts to keep road space to less than 20% of the surface area) have led to a decline of car use in many city centres. These dynamics are particularly pronounced, if the reduction of traffic capacity is linked to increasing the capacity of public transport along the same streets. The introduction of surface public transport systems, such as trams and bus rapid transit are the most prominent examples.

### High Occupancy Lanes (HOL)

Road transport’s excessive demand for urban space combined with low vehicle occupancy rates has challenged policy makers to provide various kinds of incentives to utilise cars more efficiently and to tackle congestion. High Occupancy Lanes (HOL) are exclusively reserved lanes for cars with at least two occupants allowing to bypass congested sections of a motorway. In theory an HOL will allow fewer cars to move more people at a higher speed. Low vehicle occupancy rates in a highly congested network combined with the technical ability to separate lanes and ensure

<sup>37</sup> This annex was prepared by the Urban Age team in collaboration with Peter Schwinger and Elena Georgiou.

a certain level of enforcement are the main requirements of HOLs. From the policy maker's perspective non-toll related demand management measures such as HOLs are perceived as less unfair by road users and have been found to induce less adverse public opinion. From a design point of view however, it will be difficult to implement the system in non-highway larger urban road networks. A clear disadvantage of HOLs is the necessity to constantly manage and monitor road space utilisation and change road space allocated to high occupancy vehicle users in order to guarantee reasonable journey time advantages.

#### High Occupancy Toll Lanes (HOT)

Against the background of low utilisation levels of High Occupancy Toll lanes (HOT) were introduced in the mid 1990s. They work on the same basis as High Occupancy Lanes running alongside an existing toll-free highway, but they are open for single occupancy drivers willing to pay a toll to use the lane. HOT Lanes are kept congestion free by varying the toll every few minutes or based on a pre-published tariff schedule. Drivers are informed on the expected level of congestion and the current toll before entering the lane or using the parallel highway. Though HOT Lanes are supposed to increase user benefits and guarantee high journey time reliability, they do not reduce the total number of cars on the road. HOT Lanes have seen a great success in the US, but their acceptability is assumed to be lower in other countries dependent on people's general attitude towards the fairness of such a charge.

#### License Plate Restrictions

Most transport demand management tools require an upfront investment and certain degree of physical intervention in urban road space, often combined with high operating costs on both, vehicle and the infrastructure side. For many cities such expenditures are not feasible. Road space rationing by license plate restrictions is a very cheap and effective measure to manage demand, often applied in Latin-American and Asian Cities suffering from heavy pollution. Interestingly, number plate restrictions seem to avoid inequality issues and evoke less adverse public opinion. The tool seems to follow a fairly intuitive and archetypal approach of 'sharing resources' which are agreed to be scarce.

Restrictions based on the two digit restrictions lead to reductions in vehicle mileage of 15-20%, however the clear downside of number plate restrictions is that it increases car ownership levels, particularly in high-income households.

#### Parking Fees

Taking the 6.8 million cars currently licensed in the metropolitan area of São Paulo multiplied by the 10 square meters of space a parking car occupies leads to an astonishing 68 square kilometres of space – an area larger than Manhattan – that needs to be provided simply to accommodate parking cars. Parking fees allocate these scarcity costs of Urban Space directly to the car user rather than sharing it with others through taxes and higher rents. Parking fees – particularly in residential parking – have been found to have a significant impact on modal choice decisions, particularly if it changes car-ownership levels. Unfortunately parking fees are most difficult to implement in areas where they would have the biggest impact in residential areas.

#### Zero-emission Zones

European cities are increasingly resorting to low emission zones (LEZs) in order to improve local air quality, spurred on by the impetus of EU targets and the prospect of fines. The zones define areas through which the passage of vehicles is restricted, by means of a fine or ban, based on their level of emissions. The largest scheme covers Greater London and is being rolled out in phases over four years, beginning in 2008. The London LEZ relies on automatic number plate recognition. Its set up costs have been estimated at £50m, with operating costs at £80m for the first 7 years and an estimated annual revenue of £5-7m. Like the London Lorry Control Scheme, which imposes weekend and night-time restrictions on heavy goods vehicles, the LEZ enjoys the support of residents but is opposed by the freight industry as a costly burden. Modal shift is not expected, as the scheme is not complemented by the promotion of alternative modes for freight.

#### Parking Space Reduction

Vauban, at 1/2km<sup>2</sup>, is the home of Europe's largest car-free development. It costs £12,500 (plus a monthly management fee) for a parking space on its fringes. The neighbourhood is within Freiburg, a Green stronghold in Germany, and a city that has successfully reduced car mode share by about

5% in the past 20 years or so, through policies of parking reduction, investment in public transport and cycling facilities, land use planning and pedestrianisation. In 1962, Copenhagen was the first city to pedestrianise a main arterial route. At 2km, Strøget is still Europe's longest pedestrian street and is now the centre of a larger pedestrian area. The policy has been complemented by an incremental reduction of parking every year. Car traffic has been constant for the past 30 years and cycling has become the dominant mode at 36%. The move towards supporting walking and cycling was justified by the mass public opposition to plans for a new freeway system; the increase in trade eventually justified this in the eyes of shopkeepers as well.

#### Road Space Redistribution

London has achieved a modal shift of 5% in favour of public transport, since 2000. This is matched by a 91% rise in the numbers of people of cycling. Since the implementation of road user charging in 2003, London has invested heavily in buses, cycling infrastructure and promotion, and pedestrian facilities. The additional road capacity that has been the result of less traffic in the congestion charge zone has been absorbed by bus priority measures and improved traffic signal timings for the benefit of pedestrians, as well as flagship public realm improvement schemes, such as the removal of one traffic lane at Trafalgar Square. The package of measures was championed by former Mayor Ken Livingstone but the public reaction has been mixed. The strategy to encourage mode shift away from the car was explicit but the apparent reordering of the traditional road hierarchy was not – unlike in Amsterdam, where a 1992 referendum called for a halving of traffic and parking availability in the city centre, in favour of other modes.

#### Car-free Days

Car-free days differ in their ways of implementation and indeed their effectiveness but their common aim is to give people the opportunity to experience a day without cars and reflect upon it. Though it was embraced by the European Commission in 2000, its effect within Europe has been limited by the fact that the day amounts to little more than a plea for people to avoid using their car. In stark contrast, in 2001, spearheaded by Mayor Enrique Peñalosa, Bogotá held the largest car-free day ever by area and

population, prohibiting cars from circulation. The event was covered extensively by the Colombian media – aerial pictures were broadcast to show the effect on the city. The day has been established by referendum as a yearly event. Bogotá's weekly *Ciclovía* is also largely car-free, opening up the streets to cyclists, pedestrians, skaters, dancers and others in a celebratory atmosphere which seeks to promote active travel. Mayor Michael Bloomberg promised to establish a similar tradition if New York's version of 'Summer Streets' held three times last August, proved successful.

#### Physical Driving Restrictions

Speed limits and driving restrictions, have long been used to improve safety on the roads but they are equally important in attempting to reduce cars' dominance of residential neighbourhoods. A package of traffic calming measures amounting to a 'woonerf' or 'home zone' was developed in the Netherlands in the 1960's to this effect. The approach of blurring the boundaries between cars and pedestrians has been increasingly adopted in Europe, with great variation but with the common aim of rendering streets more inviting for pedestrians, especially children and the elderly, by reducing vehicle speeds and traffic. In fact, the most notable effect in such areas has been a reduction in crime through increased natural surveillance. In Bogotá driving restrictions have been introduced in a more stringent manner and with the explicit aim of inducing modal shift; 40% of private vehicles may not enter the city centre during peak hours (depending on their number plate). A referendum has endorsed the eventual elimination of all private vehicles from the city centre starting in 2015.

right  
Pedestrians struggling to overcome the traffic barrier of cars and buses at zebra-crossing. Like in most cities, walking accounts for the majority of all trips in São Paulo.  
*Tuca Vieira*





# 7 STEERING REGENERATION IN CITIES

## Partnerships for change

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Described by its creator as 'microcity', *Shopping Cidade Jardim* serves as both a luxury shopping center and exclusive condominium development. With its location along the Pinheiros River, the property provides a scenic view in addition to a supermarket, gym, language schools, among other amenities. But with no access to public transport, the complex serves a select clientele.

Tuca Vieira

## CHAPTER 7 – STEERING REGENERATION IN CITIES

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## 7.1 SÃO PAULO: “GLOCAL” CITY, METROPOLIS IN MUTATION

Today’s São Paulo is a paradigm of a local metropolis in the global world. It is at once a world city linked to global networks, and a local city, where public spaces manifest social inequality and urban dereliction. According to Sassen (1998) São Paulo is one of ten “world cities,” integrated into the network of global cities. In truth, the city presents opposing realities in a paradoxical manner; on one side, spaces are defined by new financial capital and linked to new information technologies, which are in turn, tied to the global economy. On the other, so-called “public spaces” appear in the fragmented territory exposing local deficiencies. We are dealing with a “glocal” metropolis, the repository of an urban area that faithfully portrays contemporary society, with all the contradictions of our time.

In this way, São Paulo enhances its potential as a territory able to encompass all contemporary mutations. We live in an era of accelerated transformation; territorial dynamics have never been so dramatically perceived in the history of cities. Architecture is inserted into this context as a field suffering transformation in all dimensions; the metropolis materialises itself in fragmented points of rupture and a lack of city consciousness. The consequences of these rapid shifts in the post-industrial metropolis are varied and heterogeneous. Complex, redundant spaces emerge, residues of older productive areas: vacant lots and urban dysfunctions. The changes taking place in architecture are thus present in the territorial environment and vice-versa.

The urban realm is undergoing a period of spatial transformation which is highly complex and rich, distinctly unlike other epochs, which resulted in the imposition of renovation (e.g. modernist *tabula rasa* projects) or the revitalisation of historic centres (e.g. postmodern projects typical of the 1970s and 1980s).

Functions, uses and spaces are being transformed in a dynamic, unprecedented way; consecrated spaces are recycled, the perennial gives way to the transitory, and historically-shaped environments lose their function. Historical centres are emptied, industrial spaces suddenly become redundant and entire neighbourhoods are the object of speculation regarding regeneration.

Forgotten spaces are the object of property development’s desire. Luxury residential areas emerge on old, devalued land at the edges of the city like islands, amidst a complete lack of city services. Walled cities – “anti-cities” – appear in the middle of metropolitan territory. Environmentally protected lands are occupied and re-urbanised: the illegal city imposes itself on the legal city. Yet urban legislation is obliged to run after illegal reality; urban mutations emerge everywhere (Rolnik, 2000; Caldeira, 2001).

Society enters the twenty-first century with parallel concerns: a strong inclination toward environmental preservation and recycling existing resources. Agenda 21<sup>1</sup> places new demands on the territorial realm that architecture, with its corollary of principles, can no longer avoid.

The reshaping of environments – on an architectural and territorial scale – is set within this new demand for sustainable development. Like other resources, existing environments cannot continue without recycling and modification; it is more intelligent to transform existing, under-utilised spaces than to negate or substitute them.

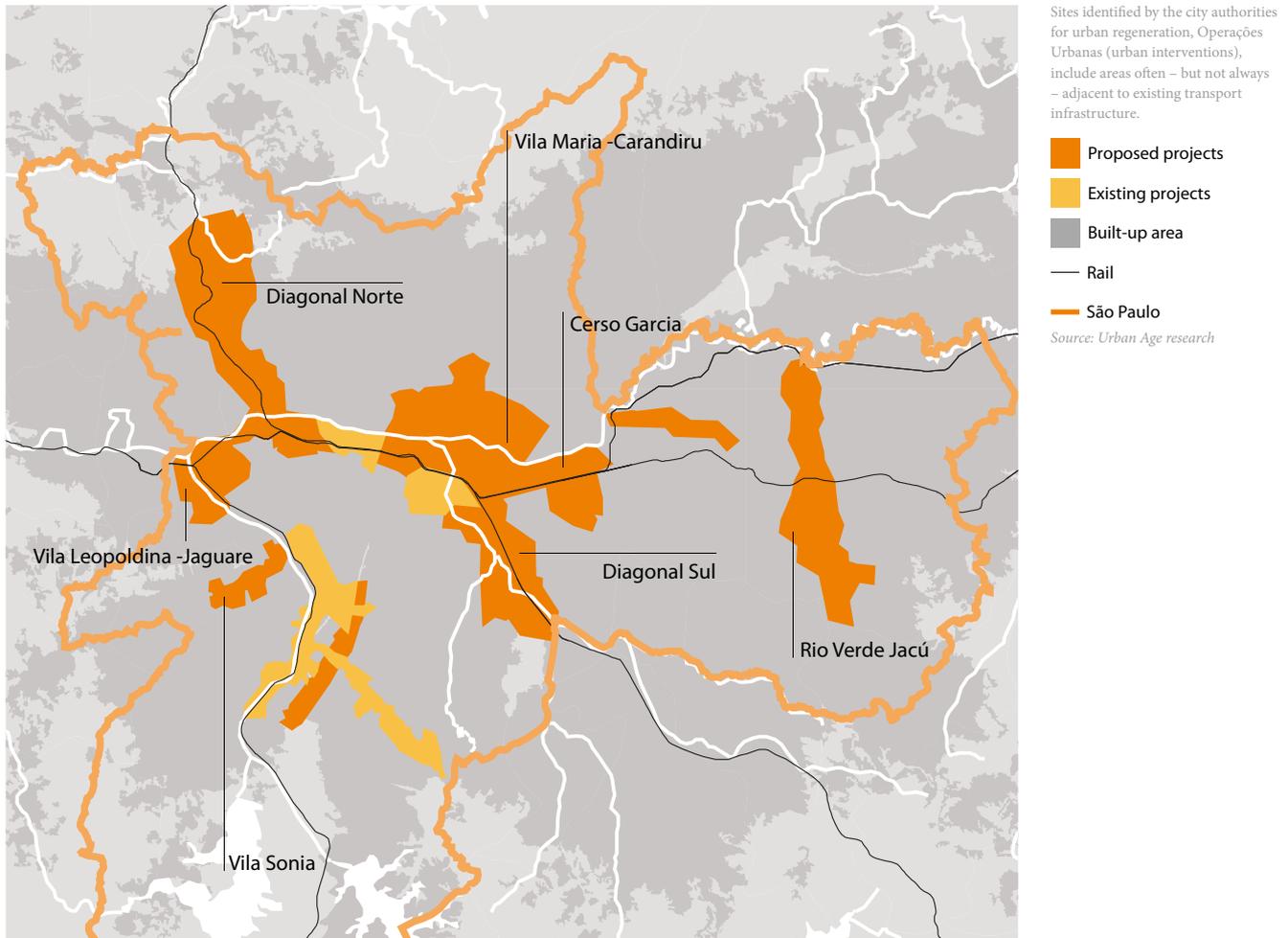
Today, São Paulo reflects such conditions in its more than 1.5 thousand km<sup>2</sup>, and it cannot abstain from the global debate in the face of urgent local needs. The city, which has ruled itself for almost 500 years by a painful process of historical negation, a territorial palimpsest,<sup>2</sup> has always built on top of what already exists, making the city mutable and polynucleated, and now confronting the challenge of restoration.

Within this extremely complex situation, architecture continues to be the preferred mode to transform territory: an essential instrument of spatial intervention. The challenge contemporary architecture faces lies within its confrontation with the existing city, beginning with infrastructure, and how to build without negating what exists.

Current theoretical and conceptual analyses found in discussions on the local-regional and international levels should nourish a methodological debate in the area of urban interventions and integrate the myriad of modest local actions. However, while many cities around the world have promoted the large-scale redesign of downtown areas, it was rejected in São Paulo until recently, when the city turned to urban regeneration processes in its centre. In spite of the delay, and perhaps taking advantage of it, the

<sup>1</sup> Agenda 21 is a comprehensive plan of action to ensure that global, national, and local governments, organisations, UN Bodies, and other major groups adhere to a sustainable development agenda. The plan was signed and adopted by 178 governments at the 1992 UN Conference on the Environment and Development.

<sup>2</sup> The term “palimpsest” was very properly used by Benedito Lima de Toledo (1983) to characterise the urban evolution of São Paulo, when he described it as a city that built itself one layer on top of the other, in the same space



regeneration process in São Paulo has taken place in a more coherent manner in comparison to other contemporary realities around the world, avoiding the errors of earlier processes.

Finally, it seems clear that a complete urban design process is an impossible task to undertake in a metropolis of this size—it is on an immeasurable scale. Nevertheless, governments do have the potential in urban design to stitch together territorial logistics and regenerate disconnected public spaces. The ambition is twofold: to design everyday space, promote the best use of public space, whilst also creating urban connections and linking fragmented metropolitan areas. This ensures that empty spaces realise their potential in promoting links that both articulate the territory and effect a restorative urban planning process.

Can the metropolitan territory undergoing accelerated transformation be confronted by local actions? Can urban design still subsidise the rescue process of immensely historical but degraded areas, without creating scenic simulacra? Can large urban projects work as an instrument for the rearticulation of fragmented territory, on an immeasurable scale? Should planning be managed as a tool to render

viable the illegal, actual city (urbanisation in environmentally protected areas)? Finally, how can an urban project manage the voids -confront wastelands and “terrains vagues” –without constituting itself as an totalising device?

According to Milton Santos (2002: 15): “There is a worsening conflict between local space, a space lived in by all our neighbours, and a global space, inhabited by a rationalised process and an ideological content from far away, which arrive at each place with objects and norms to serve them... For this very reason the great contradictions of our time pass through the use of territory.”

The challenge of the contemporary sustainable metropolis is of creating a compact territory within an integrated urban net: a dense and socially diverse metropolis where economic, cultural and social activities are overlaid and community is fostered at the neighbourhood and district levels.

The areas under redevelopment represent fundamental opportunities to optimise integrated sustainability – environmental, economic, social, cultural, political and technological – of the metropolis, since they represent the redevelopment of vacant sites in the centre of the city. These areas oppose the tendency for

urban sprawl, which in a metropolis such as São Paulo is represented either by illegal occupations inserted in regions of environmental preservation or enclosed, autarkic communities such as Alphaville.

The new dimensions that lie in this territory – the fragmentation, the commerce, the de-articulation (the unarticulated territory), the wastelands, the fluidity and the network of flows – are all present in the territory of São Paulo's industrialisation, mostly along the railroad axis – which now defines the Diagonal Sul Urban Operation.

With the dearth of industrial occupation, the railroad loses its function. The lack of incentives to integrate the railroad into an efficient public transport system, and connected to the metro, decisively affirms its perceived lack of importance.

The decay of industrial areas in recent decades also represents the spatial disintegration of its borders, generating a fragmented territory deprived of character. The structures that once defined its occupation and consolidation, today represent its obsolescence; the wastelands, deposits, abandoned buildings of the inner city and dormant rail yards; brownfields and *terrains vagues*.

However, new forms of local development are appearing with the advent of the IT Economy which offers new and rich subsidies as possible answers to the problems of the urban landscape. Local production systems have emerged in some cities of the globalised world and have utilised technologically pioneering techniques to create innovative environments – *millieux innovateurs* – as part of local development strategies.

The case studies where such techniques have been employed serve as intriguing reference points for critical analysis, as the inherent problems observed within each city are comparable. What is most revealing are the processes of deliberation and diagnosis and the subsequent regeneration strategies, not the mere import of urban design models. It is clear that the simple transposition of “international success models” is not enough for us. We always have to remember the huge obstacles for local development in peripheral countries, with urban areas of low income and high risk of exclusion. An understanding of the conditions shaping the local reality is a precondition for a correct and critical reading of the territory.

Nonetheless, some considerations can be taken from the international experience with urban redevelopment projects in large idle industrial areas within a metropolis.

Innovation and technology are key, as transport, accessibility and infrastructure are prerequisites to attract new enterprises. Each cutting edge project has a strong presence of (a) good urban infrastructure and (b) accessibility of transport and traffic. These conditions were demonstrated in the new territorial reorganisations of San Francisco's Mission Bay, Barcelona's 22@ and Montreal's Multimedia City. However, in Brazil, there is a great problem concerning the consistency of the public funds earmarked for specific projects due to the variability of partisan politics and the absence of a public dimension.

Innovation and human capital are also paramount. The cases show, without exception, that a strong presence of specialised human capital, “of talent” – universities and institutions of rigorous research – are generative elements; the more an area has of them, the better.

Taking these aspects into consideration, São Paulo could be regarded as a favourable place for a major regeneration project since it accommodates Brazil's major universities and research laboratories. The only problem is that we lack the necessary understanding of the importance of the city's human capital needed to harness this strategic, catalytic element.

Innovative environments, productive restructuring and urban regeneration. Who benefits in this new territory? Some questions that emerge immediately:

- Economic development: new companies equals more jobs, but this development may favour highly specialised and skilled labour and activities which may not trickle down and create jobs for the rest of the labour force.
- Local development: normally the revitalisation of the bordering territory is demonstrated. Benefit: revival of urban activities. Risk: radical reconstruction of the historic urban fabric due to the substantial increase of the price of the land;
- Gentrification of the territory? Almost inevitable;
- “Elitisation” of the innovative environment: the presence of only the specialised human capital – “of talent” – predominates in the new territory;



*Baueri Holanda*

Box 7.1

## ALPHAVILLE

Urban sprawl in São Paulo has also been fostered by the desire of wealthier residents to move away from the centre in order to escape real or imagined urban problems – crime, traffic congestion, informality, etc. Gated residential communities in the periphery of the city are the favoured destination because they offer peace and security in an idyllic and less urbanised environment. Alphaville is one of these communities. Developed and managed by a building company who purchased empty rural areas on the outskirts of the city in the 1970s, it rapidly grew into an independent and autarkic development following the enhancement of its connection to the city via the Castelo Branco Highway, which provided fast easy access to downtown São Paulo. It now comprises of 33 gated areas, with more than 20,000 residences, 2,300 businesses, 11 schools and 5 hospitals. Its attractiveness for São Paulo residents stems from the opportunity it offers to trade the stresses of inner city living for the tranquillity of country life, albeit with state of the art infrastructure and services – most of the development have sport clubs, golf courses and cultural facilities. The problems that such a pattern of urban development pose for the overall health of a city are clear: the break-off and isolation in privately managed enclaves of the wealthiest section of the city's population will have serious consequences in terms of the loss of tax receipts, the intensification of the feelings of relative deprivation from the excluded, the increased dependence on cars and helicopters as well as the dispersion of the city into the surrounding countryside.

*Baueri Holanda*



- Image of the place: re-configuration of districts to bring in new technology could have a disruptive impact. However, if the territory has always had a productive, industrial vocation, it is only about creating a “new image” for the existing urban fabric;

Some studies have already suggested emphatically that, in contrast to popularly held beliefs, the informational environment’s communication and interaction depend on traditional physical interaction. In successful clusters of innovation, the interaction between human capital has enormous value. Innumerable clusters have only had success by account of the rich and unique exchange of information enabled by the close proximity of common activities.

Therefore, the distinctive role of the metropolis in the new worldwide net of flows and innovative processes seems evident. The potential of a central, regenerated territory that has been reorganised productively, is immense in the new economy – if it is strategically planned.

As a beacon of sustainable urban development, a return to growth within the metropolis, without concomitant expansion, is another exceptional feature observed in these cases: to recycle the territory is more intelligent than to substitute it. The productive reorganisation of space is possible

and desirable in metropolitan strategic planning.

In other words: productive regeneration of existing metropolitan territories must occur in tandem with new processes of economic and technological innovation.

Finally, despite the enormous potential existing in Brazilian metropolises such as São Paulo, we must still remember our inherent difficulties as a country in the process of development. Here, we cannot simply demand the installation of infrastructure and accessibility, for example, without tackling first the challenges of funding abilities and of fostering sufficient community interest and involvement that stimulates and sustains local development.

If our metropolis can generate efficiency, diversity and innovation, it will be from proper models, which includes a process of cross-critical learning from international and pioneering cases. A city like São Paulo must urgently define its role in 21<sup>st</sup> Century. After all, the future is not something that simply happens, but is a reality created by us.

below

Protection of the Guarapiranga-Billings reservoir in the South of São Paulo is a persistent challenge despite initiatives aimed at containing the development of informal settlements encroaching on its edges.  
*Nelson Kon*



## 7.2 THE SOCIAL CONSTRUCTION OF THE URBAN PROJECT

Two decades of large urban renewal projects have dominated the field of strategic planning, exposing the limits of this model with regard to some of the crucial issues that originally motivated the use of new urban approaches. Strategic projects tend to neglect recurrent problems such as housing shortages, infrastructure and social services in metropolitan areas, particularly in the Developing world as well as act as a double-edged sword with regard to matters of economic integration, unemployment and social exclusion.

Assuming the approach of potential investors and taking big financial capital or property as the principal agent able to leverage the initiatives, the projects tend to incorporate and play into the dominant economic logic. Insofar that the recovery of property valuation (by means of autonomous entities that implement the projects) finance urban improvements, infrastructure and attractiveness in the intervention area, such qualities have been enjoyed primarily by investors themselves and their customers. Generally, only a part of that recovery can be used by local authorities to fund future comprehensive works of infrastructure, housing and equipment.

Areas of leisure and free spaces can be made available to the general population, democratising access to an urban environment of quality—perhaps the biggest potential gain offered by such projects.

The main limitations of this model are to be found within the economic sphere.

Advantages and profits embedded in international financial flows do not necessarily benefit the local area. Gains Tax, which could potentially benefit municipalities in the long term, is often subject to waiver as part of the strategy to attract investment. Without sufficient revenue, the municipality is left to bear the burden of supporting the non-qualified workforce whose services are necessary to the activities available in the new tertiary centres.

These distinctive renovated central areas epitomise the global centre-periphery paradigm.

So, we can say that the major urban renewal projects end up exacerbating current trends in contemporary urbanisation, given that the principles which characterise the production of private space—real estate recovery, adaptability,

flexibility, adjusting to the demands of the market—serve as guidelines in the design of urban interventions.

In peripheral countries, where such principles usually prevail in the processing and construction of the city, it becomes increasingly difficult to channel these forces towards a specific project. Since the entire city is a field of action, nothing impels the capital to face the challenge of investing in a deteriorated area. For this to happen, incentives such as tax relief and deregulation need to be in place, as well as public investment in infrastructure, all of which leads to much higher costs for the city.

However, the crucial question regarding such ventures remains unanswered: how to generate the sustainable recovery of employment, activity and revenue in cities and industrial regions suffering the effects of economic restructuring. If the model behind the great strategic urban projects is showing signs of exhaustion, what is the alternative? Among the many paths under discussion, it is possible to identify, over the last decade, the emergence of less ambitious urban renewal initiatives, geared towards the interests and prospects of each locality—neighbourhood urban development.

Even if they are sometimes less attractive enterprises than a city-wide masterplan or a real estate mega-project, such approaches seem to be more effective in solving the problems suffered by cities traditionally dependent on the secondary sector. With the increased participation of various community actors in such ventures, local perspectives permeate and enrich innovative solutions which also profit from generic knowledge of techniques in macroeconomic planning to recover the productive potential of urban regions.

In Brazil, urban projects are perceived to be a set of actions that involve major works of urban infrastructure or “Operações Urbanas Consorciadas”, which generate the finances for public works by selling the right to build. These projects typically involve the restoration or regeneration of old industrial areas, waterfronts, rail yards, historical centres or central nodes linked to a production system or transportation hubs which are to be upgraded. Urban projects in central countries involve large sums of public resources—in Brazil it is the private sector that invests, due to the low capacity of public investment.



Dante Busquets

## Box 7.2

# REMODELLING URBAN SPACE IN SÃO PAULO

## Cortiço Rua Solón, São Paulo

934 Rua Solón is a partially completed concrete-frame multi-storey structure located close to São Paulo's central district. Constructed in the 1970s, the building remained unfinished due to the death of the developer, and was subsequently taken over by squatter families in the 1980s. As with many other 'invaded buildings', the early residents established a precarious system of electrical and water supply, and a very basic form of waste and garbage disposal. Overcrowding became severe with 73 families crammed into the building, using all available spaces including the incomplete elevator shafts. Following a project with students from São Paulo's Faculty of Architecture (FAU) efforts to improve the site began.

Through varied partnerships, including local government, the university, public institutions, human rights groups and private enterprise, over 30 families were re-housed, and the remaining residents focused on raising the living standards for the entire community. With resources secured, the architecture students decided to live in the building with the residents for one week.

The action resulted in three immediately visible results. First, the *multirões* or collective initiatives between the students and the residents organised to clean the site, beginning with the common areas and with the often-blocked access to the building. Second, the installation of a collective power grid enabled each family to have a reliable measure of their electricity bills, and thus provided improved economic stability as well as removing the fire risks of the previous design. Third, they improved the facade of the building, security gates, and added letters with the name of the building, *Edifício União*.

The physical improvements to the "look" of the building and its common areas led many of the residents to make improvements inside their own apartments. Internal walls have been rendered and painted, new kitchens and bathrooms have been installed. Openings have been introduced into dark corridors and stairwells to improve the environment and reduce electricity consumption. The project has established the possibility of partnership between the social and the physical, between the built and the lived, right at the heart of the city next to jobs, schools and social amenities.



A new planning methodology understands that the process is composed of three parts that interact in complementary ways: the plan, the design and the strategy. Facilitating links between the different levels of intervention, this new methodology arises from the inadequacy of the traditional urban plans as appropriate regulatory tools for land occupancy (Morandi & Pucci, 1998). Therefore, the new role of the intervention programs not only modifies the operational strategies of urban projects, but also assesses the operations needing institutional and financial assistance. The new role of the intervention programs becomes particularly important in territorial reshaping, because in facing the dynamics of the recently liberalised market, there has been a loss of traditional instruments of land use, due to limitations in the capacity to forecast and undertake effective regulation.

Another relevant factor in the upgrading of obsolete areas is the set of legal norms and urban tools that allow private actions alongside public regulation. In other words, we must establish a law enabling urban management to define and control interventions in private, obsolete industrial areas, usually objects of urban projects. It is also essential to consider strategies for local development as a key component for new work and income opportunities and for the development of big business in the region.

In the interest of continuity across the Urban Projects implemented, it is necessary that they consolidate urban management and integrate an expanded public roundtable, which would involve civil society, to go beyond the traditional role of the state as the sole party responsible in transforming the urban territory. Today, in most major national and international urban projects, it is possible to detect a vision of government administration that presents a fragmented position – purely business – and that excludes

people, breaking the desirable social dialogue.

The urban intervention partnerships (*Operações Urbanas Consorciadas*) in Brazil were derived from certain principles within the existing system which were capable of accelerating transformation in prioritised City Masterplans, whether by means of facilitation or by obtaining resources. The period of crisis in urban planning, based on the modernist/functionalist matrix, highlighted the shortcomings of comprehensive large-scale City Masterplans, which purported to have the solutions to all urban problems. In this sense, the *Operações Urbanas Consorciadas* can be understood as an instrument for the structural transformation of a portion of the city, promoted mainly through the partnership between the public and private investments. An added advantage in decreasing the scale of urban interventions is the increased participation of landowners, investors, residents and the greater civil society. These operations delineate certain areas within the city to promote an urban intervention in accordance with specific objectives outlined in the City Masterplan and municipal urban policy. This intervention requires management measures for the medium and long term, such as the redesign of land structure, interventions in public space, definition of the real estate potential, rules of use and occupancy of the land within the composition of the urban blocks design.

The social construction of an urban project surpasses the mere “urban acupuncture” that acts in an ad hoc and fragmented manner. The social construction of an urban project must involve the various stakeholders in the city’s commitment to building a social fabric that values the needs of citizens. This assumes a democratic approach from the state as well as the building of a consensus to achieve the greater goal of encompassing the different conflicting visions.

above

Sprouting from the low rise urban fabric surrounding it, these high rise tower blocks above demonstrate how the Brazilian private sector has historically taken the lead in urban regeneration.

Tuca Vieira

When it comes to the urban project as a process of social construction, its success will be measured on its the capacity to improve the lives of people as a whole. This is to opposed to the conventional practice of destroying entire historical blocks and replacing them with major anchors – big projects—which result in the expulsion of the poor and street residents.

Support must be given to the local development and generation of resources for the low-income population in management processes administered by public and private agents. It is also crucial to adopt effective tools for social inclusion, i.e. the necessary provision of subsidised housing in cities with large inequalities, as commonly found in the developing world. The effectiveness of local development is shown not only in economic and financial results, but also in the discovery of specific local solutions, which seek coherence between development, transformation, renewal and improvement of the existing.

In situations of extreme poverty and social inequalities, as is the case in most Brazilian cities, the plans serve to define global priorities, establish an order of intervention and list the rehabilitation projects most necessary and strategic for the city and its population as a whole.

The architecture and urban planning projects should result from a collective effort and a broad participation guided by an overriding concern for local development and social inclusion.

The social construction of the urban project must be an effective measure, as opposed to an authoritarian posture that is fragmentary, with a purely corporate vision and which denies the poorest citizens the right to the city.

The plans and projects should be conceptualised and designed with everyone, of all classes. The role of Public Power, especially the municipal executives, is crucial to the extent that it can break with its historical tendency to favour only the dominating interests. The role of the State should be understood as an articulator of the special agents that produce the city. The action of the State may thus be synthesised as the acquisition of resources and the formulation of rules, laws and investment plans. The standards put in place must be able to resolve old as well as new problems, and plans and projects should be developed in honour of the old and new. Therefore, it is necessary to create opportunities and strategies for continued management, with plans and instruments of

control and regulation that go beyond the lifespan of a specific administration.

But in order for this to take place, regulation and planning should not be thought only by technicians, constituting themselves into a cluster of techniques, but in an agreement with the whole society. In this way, their ideas can be guided as they recognise and incorporate into the preparation of the plans and regulation all of the disputes and conflicts that exist in a given place.

Only through a broad and long participatory process, not subject to election day political agendas, can the Masterplan express all of the forces that effectively build the city. If the entire population—including the poor—understand the meaning of the plan, approve it and monitor its implementation, it will become an opportunity for the city to better understand their territory and legitimate its spaces. Thus, the Masterplan and the urban instruments of the Statute of the City can be important tools in this process, even though they are, alone, no guarantee of change.

For this new concept of the social construction of the urban project to be a success, it is important that it fit into the broader aim of forming a new model of local management, more democratic and participatory than today's, with dynamic partnerships that increase the amount of social control over the changes to be made to the city. Participatory management cannot mean only an increase in public hearings or discussions forums with various sectors of civil society.

An urban project has to be seen as a social construction, made possible by the mobilisation of civil society.

It is therefore necessary to create an agency that coordinates the public and private sectors, allowing space for participation and fostering responsible urban management. The scarce public resources should leverage, in a synergistic way, the private resources and expand employment, work and income options. A positive social impact must be achieved, reducing the enormous inequalities that exist in cities, assessing who wins and who loses, from urban projects.

For urban projects in the contemporary city to be effective, they must incorporate not only the instruments of the Statute of the City, but most importantly, they must depend on participatory urban management that allows the collective construction of urban space through the mobilisation of the city's social and economic agents.

### 7.3 A POSSIBLE MODEL FOR SÃO PAULO

When it comes to the realisation of major urban interventions, São Paulo is lagging behind other world cities. Buenos Aires, our closest neighbour, has succeeded with Puerto Madero in creating a high-end development on brownfield industrial land that attracts businesses and visitors, despite its lack of integration with the rest of the city. Positive lessons can be drawn from recent urban interventions in Paris, Milan, Madrid, New York and London.

But who wins and who loses in these projects? How are these projects delivered? What institutional arrangements impact on design quality and the creation of sustainable environments? How many jobs are created? And, for whom? These are the questions that São Paulo's political, design and development communities need to address to formulate a new urban policy and to deliver a strategy to implement high quality urban design that works within the grain of the city.

Many of the international success stories in the regeneration of large-scale sites – such as redundant ports, railways, manufacturing and transportation areas – suggest that considerable levels of public investment and management are necessary to make them work. In Brazil the private sector has historically taken the lead due to the lack of public funding or involvement in urban regeneration. A long-term perspective is a prerequisite of sustainable planning as opposed to the short-term returns on investment required by any commercial operator. In Washington DC, for example, the Corporation for the Development of Pennsylvania Avenue developed a 25-year vision for the regeneration of the area. The establishment of a delivery vehicle – an administrative structure with strong public as well as private sector representation – which manages and implements the project from inception to realisation is critical to its success in promoting economic development and generating new activities.

The compact city model that promotes the intensification of well-connected inner-city sites and reduces the energy footprint, has become the central objective of many European cities. Urban containment, smart growth and sustainable development within a defined urban footprint are central components of a new urban vision. It is this vision that not only drives the identification of individual sites – often highly contaminated

areas near the centre – but also shapes policies that promote sustainable living such as the introduction of Congestion Charge in London or the Velib public bicycle in Paris. This approach has driven the development of a new urban hub at Paris Rive Gauche on the eastern edge of the city-coordinated by SEMAPA (*Société d'Économie Mixte de Paris*) – which has attracted 60,000 jobs, counterbalancing Paris' better-known financial centre at La Défense in the West.

Paris has developed its urban interventions within a clear regional and metropolitan economic restructuring perspective that prioritises the international service sector, while London has focused some of its spatial policies on the creative industries through the actions of the Mayor's London Development Agency. Bilbao, instead, developed plans at various regional and metropolitan scales before empowering the RIA2000 agency with the strategic implementation of the plan that gave rise to Frank Gehry's Guggenheim Museum, Norman Foster's underground stations and Santiago Calatrava's bridge. These interventions were instrumental elements of a successful marketing strategy that has promoted the city as a tourist destination, placing it in competition with the world's capitals.

The wide-scale adoption of neo-liberal ideologies and their impacts on social exclusion has led to what Neil Smith has identified as the new 'global strategy for gentrification'. In Paris traditional, old-style policies – enshrined in the ZAC (*Zones d'Aménagement Concerté*) – still constitute the legal starting point for urban and social housing projects, as they do across the whole of France. Exceptions to this rule are the implementation structures applied to the redevelopment of Paris Rive Gauche, Parc Citroën, Bercy and the former Renault car-works area. In most cases, outside Paris, this level of land speculation has promoted an inevitable cycle of gentrification. In the case of Paris Rive Gauche, however, a direct confrontation with the local community resulted in the provision of an appropriate number of affordable housing units.

The evidence from these projects points to the development of new management tools and the involvement of a wider range of social agents that better define the ingredients of successful urban regeneration. A key element is public transport, as a critical component of sustainable urban development. Canary Wharf, the massive office and commercial complex in the East of London,

only really took off after the completion of the Jubilee Line extension that connected it to the city's main underground transport network. The success of the King's Cross development and the London 2012 Olympics quarter in the Lower Lea Valley are highly dependent on their location next to major rail-based transport infrastructure hubs that will create higher density clusters of a polycentric nature. In Milan, the viable redevelopment of ex-industrial sites at La Bovisa and La Bicocca into major office and residential neighbourhoods were predicated on their proximity to the city's extensive public transport network.

By analysing international case studies of urban development projects, it becomes clear that the state has played a key role in their implementation, despite the high level of private sector investment. Even in the United States, where the private sector dominates, there is

evidence of substantial public investment – at federal, state and city level – to include transport and other infrastructure, public spaces and cultural institutions in major urban projects. Another lesson is that solutions to urban problems depend on the involvement of local actors, civil society and the active participation of government at many levels of management. On balance it can be observed that highly centralised traditional planning tools which regulate land use and urban development – as they are currently implemented in Brazil – have become obsolete. They fail to integrate with the dynamics of the urban economy and do not optimise the development potential of urban sites.

São Paulo's strategic plan – the *Plano Diretor Estratégico* – is a case in point. The PDE 2000 determined that 20 per cent of its built-up area should become sites for *Operações Urbanas* (urban interventions). To date these interventions

below

The accessibility and prosperity of the Canary Wharf development was greatly dependent on the advent of a metro and light rail connection to the city.

Philipp Rode



have been the subject of repeated criticism because of their piecemeal results and lack of a comprehensive vision of urban design. There is no sustainable urban vision with clear environmental objectives nor has there been any level of public participation or debate about public space and the need to rebalance the roles of public transport and the private car in the city's future.

The crisis of contemporary Brazilian urbanism reflects the weakness of large-scale "strategic masterplan" systems, which wrongly assume that all urban problems can be solved by one single instrument. The successful strategy for city-level "urban interventions" considers them as an instrument of structural transformation, built on a partnership between the public and private sectors. It is a process that requires the participation of landowners, investors, residents and representatives of civil society and which identifies particular urban areas for transformation as part of a wider metropolitan strategy. To be implemented successfully, such a strategy requires a series of medium and long-term measures, including land tenure reform,

evaluation of real estate potential, strict land use regulations and public space interventions.

The São Paulo experience has since the 1990s failed to deliver an effective and democratic urban vision for the city. The major reason for this failure is, in our view, the absence of a proper delivery or management vehicle responsible for the effective implementation of urban development projects within an overall vision that takes into account the full social and economic costs and benefits of projects of this scale and complexity. To maximise its social benefits, any intervention of this sort must embrace the various actors and agents involved in the production of city space, constructing a communal fabric that values the individual citizen. Yet, this approach assumes a level of public engagement and consensus-building by the civic authorities to achieve a shared objective. The demolition of entire pieces of the city and their replacement by 'model' projects will do little to improve the lives of the city's existing urban dwellers, and simply cause displacement and erosion of its existing social and urban fabric.

below

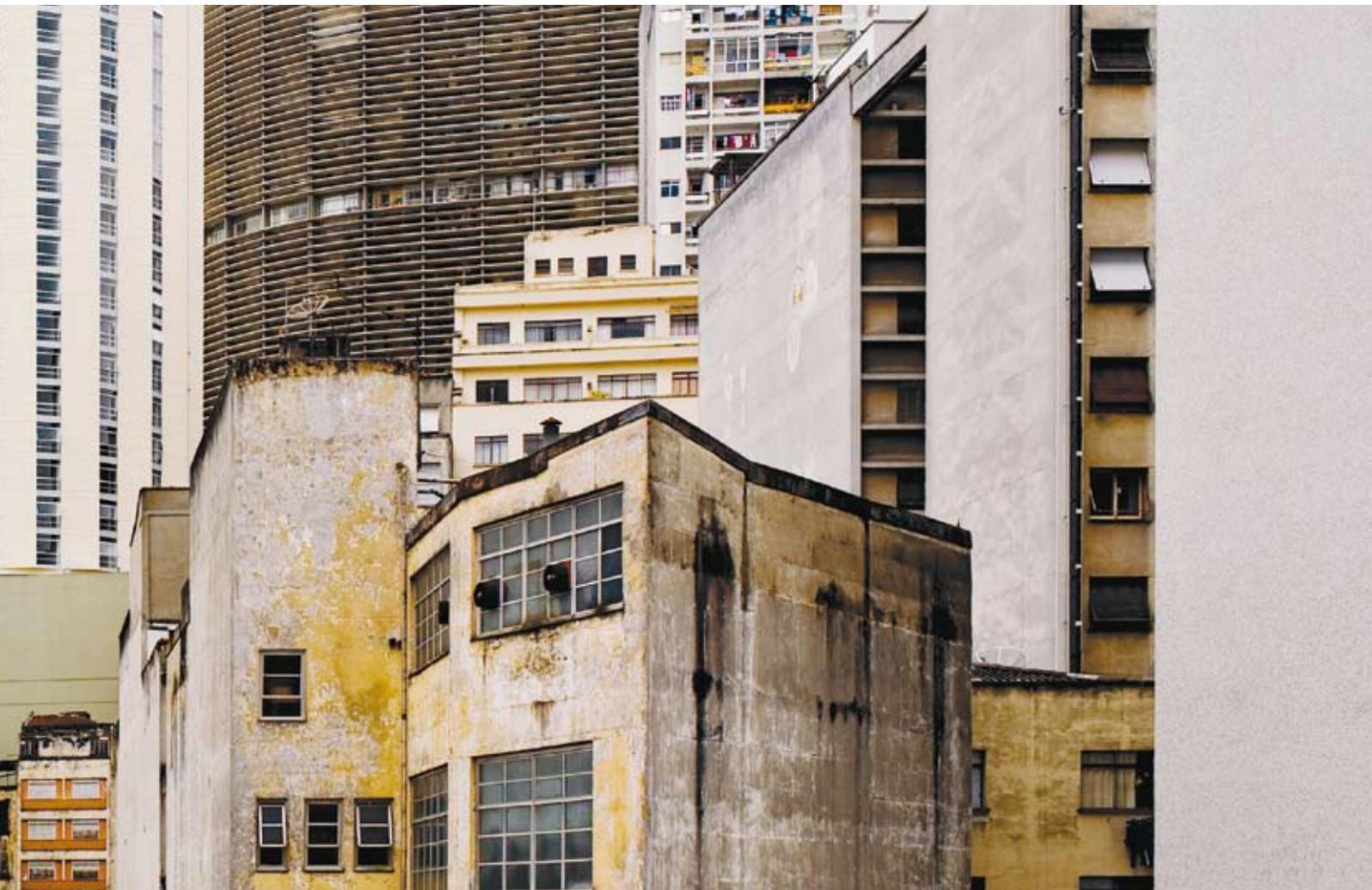
The business services which make São Paulo the leading financial centre of South America have yet to occupy the modernist structures in the city centre. These commercial buildings, the result of feverish building activity accompanying industrialisation, encapsulate the city's entrepreneurial spirit yet remain largely vacant.

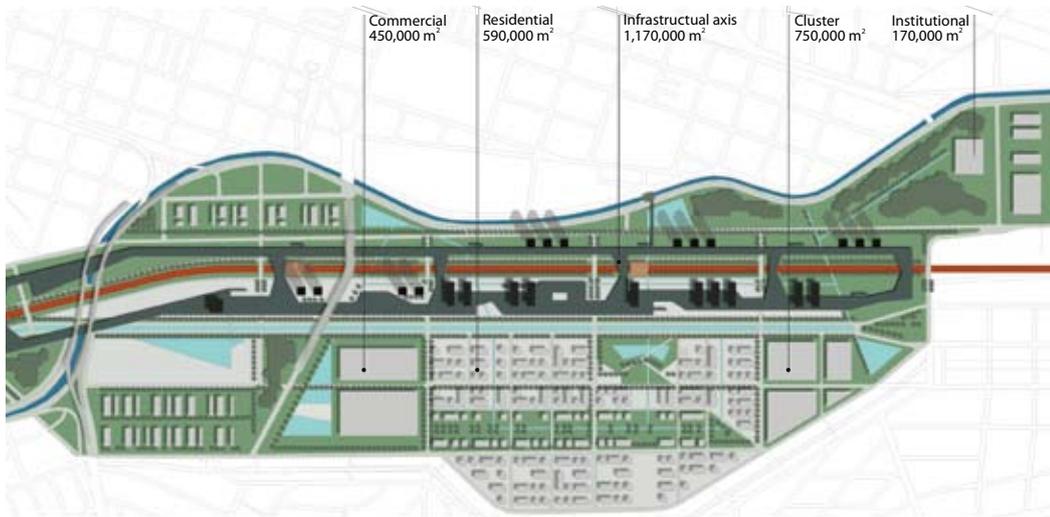
*Dante Busquets*



Given the extreme levels of social inequality found in most Brazilian cities we would argue that a more subtle and sophisticated approach to urban regeneration is necessary: one that is based on collective effort and broad participation and that aims to promote local development and social inclusion. To this end we would suggest that São Paulo adopts a new system for the implementation of its urban interventions founded on the following principles:

1. require a clear political commitment to implementation, innovation and inclusion through a metropolitan masterplan that integrates the development potential of urban sites with public transport provision
2. establish a legal framework that promotes social inclusion and public participation (by creating a Participatory Management Forum for individual urban projects)
3. establish an independent local development agency to implement specific urban projects that includes all key stakeholders and is responsible for project management and delivery, inward investment, funding and project financing
4. develop an integrated mobility plan that optimises public transport use incorporating metro, bus, bicycle and pedestrian movements and minimises private car dependency
5. establish a metropolitan-wide development fund that can capture value of future return on investments
6. promote a sustainable environmental approach that integrates the remediation of water and river systems with the redevelopment of brownfield land
7. propose mixed-use centres that provide housing and employment that support the “new economy”
8. identify special conservation areas across the city that take into account the historic value and architectural merit of buildings and spaces.





## ANNEX 7.1 – DIAGONAL SUL URBAN OPERATION INTERVENTION STRATEGY MODEL<sup>3,4</sup>

In line with the concepts developed in the previous section, the following discusses how to create a model for urban intervention in a locale earmarked for transformation. The case study focuses on the area within the Diagonal Sul Urban Operation in the city of São Paulo.

This section synthetically presents our Intervention Strategy Masterplan for an area of 9 km<sup>2</sup> on the south of Diagonal Sul (Mooca-Tamanduathey) as a development proposal based on a preparatory process of urban regeneration: a strategy which seeks to contemplate both the spatial/design aspects of the question as well as the process/delivery mechanisms.

It is a model. An example of how territorial transformation can be achieved, connecting the different stakeholders, utilising the city as a key-actor and creating uses and spaces for all. It's a cry to interested actors to discuss it around the same table.

The problem is typical of contemporary megacities: a huge area dotted with centrality and infrastructure becomes obsolete due to recent transformations; an industrial process that could still be reconverted through an urban intervention. The population of the central district has declined steadily since the 1970s; despite ambitious revitalisation plans, wealthy residents and businesses still move out. The population is growing most in peripheral areas with the poorest infrastructure.

### Thesis

The reuse of central city vacant sites instead of a process of peripheral sprawl. A compact city is a sustainable city—socially, economically and ecologically.

### What to do?

- operate in the wastelands and use the potential of the vacant sites;
- the existing infrastructure should support the development of the new metropolitan territory;
- the fragments of the territory could articulate a new “city-inside-the-city”;
- contemporary urban projects should operate dynamically, with flexibility and strategically: a dynamic urbanism;
- the challenge of contemporary architecture is to work on the existing city, instead of its substitution/negation: to restore the existing city.

### How to do it?

- create a local development agency;
- set up a private-public partnership which allows for the continuity of the urban revitalisation project along the Diagonal Sul Urban Operation (railroad linear axis);
- encourage investments from real estate industry for the development of a new sustainable neighbourhood as a catalyst element inside the area.

### The idea

The territorial discontinuities of the Diagonal Sul territory offer an opportunity for a new urban project: to develop a metropolitan territory, a compact city inside the city, a “sustainable neighbourhood”, with:

Well-balanced integrated urban dimensions:

This new city model could be developed by focusing on the best delivery mechanisms to create high quality urban environments. The new territory is a unique opportunity – both from the perspective of the public sector as well as the private sector – to pioneer a strategy of urban intervention inside the Diagonal Sul

<sup>3</sup> The Masterplan Strategic Proposal Team is: Bernd Rieger (Rieger Reurbanização), Carlos Leite (Mackenzie U) and Eduardo Della Manna (Secovi-SP), authors, and a consultancy group of: Claudio Bernardes and João Crestana (Secovi-SP), Joerg Spangenberg (Bauhaus/FAU-USP), Lourenço Gimenez (FGMF), Thiago Duarte and João Paulo Daolio (Obra).

<sup>4</sup> This is a strategic proposal, not a formal, professional urban project. The intention is to complement the first and main conceptual part of the work with the possibility of occupation of the area based on those concepts. We have referenced previous proposals for this territory developed by Sempla/PMSP (*Operação Urbana Diagonal Sul*) and UNA Arquitetos (*Reurbanização Mooca-Ipiranga*).



which contemplates the spatial/design aspects of the question as well as the process/delivery mechanisms of an urban project in São Paulo.

#### Urban Compactness:

Urban containment planning looks to promote compact, contiguous, and accessible development with efficient public services, as well as to preserve open space and environmentally sensitive areas that are not currently suitable for development. Urban containment as smart growth urban policy, has to work within more defined limits: urban territory occupation should be rational, careful and sustainable.

It implies intensification, high density – which is very welcome—and mixed uses as opposed to low density, single use and urban sprawl. The compact city development model has the potential to achieve much higher sustainability.

#### Optimised infrastructural networks

Optimised urban networked infrastructure design strategies are essential in metropolitan territories under regeneration. The reuse of existing infrastructure is more sustainable than the creation of new areas. Encouraging shorter commuting, decreasing the necessity for mobility and prioritising the use of public and collective transport systems is also essential in this new city model inside the metropolitan old industrial territories.

#### Socio-spatial Diversity

Inner city urban renewal should contemplate land use diversity. Urban space should have many faces, be composed of a superposition of functions promoting an intense, diverse and liveable urban environment. Specific tax incentives mechanisms could be designed to arrest the decline of the physical fabric of old industrial urban areas, encouraging new developments and including a wide mix of land uses, in balance with its surroundings.

### General objectives

- Create quality in old and new public spaces;
- Propose joint ventures between public powers and the private sector to stimulate the clean-up of contaminated areas;
- Promote public equipments of symbolic significance to the region and of intense social use;
- Enhance public investments (municipal, State and Federal);
- Attract and articulate public, private and institutional investments;
- Ensure integrated sustainability of all actions (organisational and financial);
- Generate global and inclusive patterns of urban regeneration;
- Improve the two main urban elements to rearticulate the territory (river/water system and train line/mobility system);
- Propose new use configurations for the area;
- Encourage the mix of uses to stimulate urban dynamics;
- Request the creation of new solutions for the generation of jobs and income;
- Inject new life into the area's urban assets;
- Rearticulate both borders along the rail line;
- Improve the circulation of people and the distribution of goods and services;
- Recreate the region's territorial identity;
- Create generic occupation rules; and
- Generate judicial security.

### The strategy

The compact sustainable mixed-use neighbourhood inside the territory of Diagonal, focusing on social inclusion and brought about through public and private sector funding, could happen through the operation of a local development agency which would allow the function of three complementary phases.



### Phase 1: the linear hub

[Diagonal Sul Area: 21.30 km<sup>2</sup>]

- The Diagonal Sul local development agency's definition of urban structures
- the river reborn (reintegration of water-city relation)
- the linear park (green gradient)
- train upgrading (modernisation of CPTM line)
- the contaminated land remediation rules
- protected social housing rules (ZEIS)

### Phase 2: a new city inside the city

[Ipiranga-Tamandua they intervention area: 9 km<sup>2</sup>]

- integration of public transport: CPTM rail line, Expresso Tiradentes and new metro line
- two renowned stations: mobility hubs
- a new urban frontier: linear park (green and water)
- housing complex/new urban blocks: an open city model

### Phase 3: model-area [1.5 km<sup>2</sup>]

- the new neighbourhood: a sustainable model totally developed by the private sector

## Masterplan: strategic elements

The new dimensions that lie in this territory – the fragmentation, the commerce, the de-articulation (the unarticulated territory), the wastelands, the fluidity and the network of flows – are all present in the territory of São Paulo's industrialisation, mostly along the railroad axis.

With the dearth of industrial occupation, the railroad loses its function. The lack of incentives to integrate the railroad into an efficient public transport system, and connected to the metro, decisively affirms its perceived lack of importance.

Its decay in recent decades also represents the spatial disintegration of its borders, generating a

fragmented territory deprived of character. The structures that once defined its occupation and consolidation, today represent its obsolescence; the wastelands.

The architecture of the contemporary metropolis must have the plasticity that allows it to absorb the net of flows, the wastelands, and the new dynamics present in this disarticulated territory.

The urban discontinuities and territorial fragments offer a new kind of urban project, the construction of a new metropolitan territoriality. The metropolitan residual areas should contain new urban projects and should articulate the new territorial spaces. The void spaces operate as a potential instrument for the construction of the new public space.

The main elements of this strategic Masterplan are:

#### Infrastructural Elements

- Mobility hub, horizontal events and vertical services.

#### Green Network

- Linear park, central park and green streets.

#### Water Network

- Linear park and channels network.

#### Activities

- Housing and services;
- Commerce and leisure;
- Technology Cluster.

## The model-area development for the Diagonal Sul

This model-area private sector development model is based on three basic concepts.

The current trend of the real estate industry to seek land outside the municipality is detrimental to the city's sustainable development, due to the additional costs of supplying infrastructure in

## City's gains additional yearly tax revenue

<ul style="list-style-type: none"> <li>• IPTU (property tax): R\$ 75 million per annum</li> <li>• New jobs and new population (I.R. and others): R\$ 120 million per annum</li> <li>• ISS (service tax): R\$ 140 million per annum</li> <li>• Increasing productivity of transferred industry: R\$ 75 million per annum</li> <li>• TOTAL <b>R\$ 410 million per annum</b></li> </ul>	<ul style="list-style-type: none"> <li>• Tax revenue during construction time: R\$ 150 million</li> <li>• Sales of CEPACs (municipal certification to increase construction area): R\$ 500 million</li> <li>• TOTAL <b>R\$ 650 million</b></li> </ul>
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the medium / long-term and the loss of revenues from taxes.

Large, underused and derelict central areas, with existing infrastructure, can be transformed into attractive new neighbourhoods to live and work in, with an excellent quality of life.

The adoption of this kind of “product” – reutilisation of ex-industrial central areas and their transformation into new private sector development opportunities – is a potential opportunity for São Paulo’s real estate industry in the near future.

There are clear business opportunities for private sector development, based on favourable economic factors. Industrial areas could be renewed, with benefits for their activities, and the intervention area could be regenerated through the renovation of existing infrastructure and increases in land values in surrounding areas; total private sector management of the financial operations with predictions of positive financial results; a land property transfer operation model; negotiation between key-actors; a planning, projects and approvals timetable.

### The Discussion

- Private initiative – the city – academic community;
- Suitability for long term urban planning;
- Incentive for private investments;
- Sustainable communities, quality of life;
- Optimise use of existing infrastructure, eliminate pollution;
- Generate wealth, increase tax revenues.

### The Objectives

- Homes, jobs, services, healthcare, education, public transport, entertainment;
- No ghettos, social inclusion, mixed use (all close by), quality of life;
- low carbon / high energy efficiency;
- A negotiation proposal.

### The Tools

- Urban interventions in the City of São Paulo follow the *Plano Diretor Estratégico* 2002 – 2012. This law integrates alternative tools to

implement *Operações Urbanas Consorciadas*. Specific laws are created for each *Operação Urbana Consorciada*. Operational procedures and conditions can thus be defined according to each specific requirement.

- The federal law *Estatuto da Cidade* (No 10.257, 10th of July 2001) is providing directives and tools for the proposed urban intervention. The most essential tool is the *concessão urbanística*. Here, the city can delegate the activities necessary to approve and execute the urban intervention to the private sector.

### The Proposal

- Discussion and negotiation with the City and the academic sector will integrate with metropolitan planning;
- Line up with present and future mobility requirements;
- Reduction of carbon emissions, eliminate pollution;
- Foster social inclusion;
- Create local economic growth potential (more jobs);
- Provide public services, culture and entertainment.

### Mechanisms for success – the potentially successful mechanisms

- The use of realistic and technically sound information;
- The use of the existing legislation, the choice of successful examples;
- The use of the world’s best urban design professionals;
- High-level negotiations to allow for fast decisions;
- Enthusiasm for transforming an area without life into an exciting city.

The most helpful support the City can give to deliver Diagonal Sul

- Reduction of bureaucracy;
- Quick decision-making.

## ANNEX 7.2 – PARTNERSHIPS AND POLITICS: URBAN DEVELOPMENT PARTNERSHIPS IN THE UK<sup>5</sup>

### Introduction

Over the past 30 years, the UK has seen huge changes in urban policy, and in the way that urban projects are undertaken. Following increasing polarisation between public and private sectors during the 1970s, the 1980s saw a retreat from public sector involvement in urban regeneration. Since the 1990s, the tide has again turned, and public authorities have developed new ways of working with private developers, creating a legal, fiscal and institutional infrastructure that falls between a laissez-faire reluctance to ‘interfere’ with market forces, and the insistence that public goods can and must only be specified and delivered by public authorities.

This paper has been drafted to provide background information to the Mackenzie Presbyterian University/SECOVI-SP team, during the Urban Age 2008 investigation into South American cities. It presents an overview of the UK planning and development process, a brief overview of developments during the last 30 years, then focuses on the ever-expanding range of development and partnership models now in place, before making some concluding remarks.

### Context

In common with countries across the world, the UK’s cities are marked by the transition from an industrialised to a more mixed economy. This has left large areas of previously-developed ‘brownfield’ land within or near to city centres. In many cases these sites are well-positioned in relation to heavy transport infrastructure (particularly rivers and railways), but not easily accessible by public transport or local roads. In addition many brownfield sites are heavily contaminated, and ownership is often fragmented, giving sites a negligible or negative development value without public investment. Nonetheless, as the UK’s population has grown and the need to contain urban sprawl has assumed ever-greater importance, the efficient re-use of brownfield sites is crucial to the future of UK cities.

The paragraphs below give a brief overview of the UK planning system, then review how public private partnerships have evolved to bring brownfield sites into active and productive use,

while seeking (with varying levels of success) to realise public benefits from the development process.

### Development and planning in the UK

Since the Second World War, the UK has had a hierarchical land use planning system. Its generic features are as follows:

- Central government sets overall planning policy, agreeing standards and policies in relation to a range of issues including environmental protection, regional housing targets, preservation of town centres, and transport and development links. It also sets regional spatial strategies for areas outside London,
- Elected local authorities prepare land use plans. These define permitted land uses in different locations (eg, housing, office, industrial, retail, mixed), set out protection policies for public amenities (eg, parkland), define the quantum and densities of development permitted, set requirements in terms of affordable housing (ie, subsidised for sale or rent), car parking and environmental standards, and – on occasion – set design guidelines. Before adoption, plans are subject to public consultation and must be in accordance with national guidance and regional spatial strategies.
- Local authorities also make planning decisions, responding to proposals by individual householders (eg, for an extension) and by commercial developers. Major decisions are taken by committees of elected councillors meeting in public, with formal public consultation and a right of appeal. Major applications are sometimes ‘called in’ for decision by central government, usually following a quasi-judicial public enquiry.

In London, the Mayor of London is an intermediate authority, setting a spatial development strategy (‘The London Plan’) for the capital. The Mayor also has the power to take decisions himself for applications above certain thresholds.

### Market-driven regeneration – the 1980s

As Britain’s manufacturing industry declined in the 1970s and 1980s, brownfield sites became the subject of intense political debate, with many elected local authorities intent on a strategy of

### Box 7.3

## LONDON DOCKLANDS DEVELOPMENT CORPORATION

By the early 1970s, the traditional function of east London's docks was being undermined by industrial change and in particular by the rise of containerised shipping. By 1981, the scale of the problem was becoming clear: since 1967, Docklands had lost 150,000 jobs and around 30 per cent of its population, and 50 per cent of land was now derelict.<sup>6</sup>

LDDC took over land from a variety of owners, and, using government grants, cleaned up contamination and installed road and light rail transport infrastructure, including new trunk roads and tunnels. Assisted by tax breaks, sites were then marketed to the private sector for development (and receipts returned to government), but LDDC and its government sponsors resisted preparing detailed masterplans for the sites under its control – the market would decide what was built.

The impact of LDDC on east London was huge: the inner docks were converted to housing, the central Isle of Dogs became the site of Canary Wharf (London's second central business district), and the outer docks now house a short-haul airport and an international exhibition centre. But controversy persists. While most LDDC developments have been successes on their own terms (Canary Wharf is the most obvious example, though its first developer went bankrupt), they have been criticised for their failure to integrate into east London's urban fabric, or to deliver significant economic or social benefit to the persistently poor populations that live around them.

re-industrialisation, to create jobs that would suit people who had previously found employment in manufacturing, or of building public housing to serve those communities. The Conservative government elected in 1979 took a different view. Viewing local authority recidivism as unreasonable if not subversive, Mrs Thatcher's Government established a new type of delivery mechanism, the urban development corporation (UDC).

Urban development corporations (13 were established in the 1980s, and three more in recent years) were intended to bring private sector expertise and focus to bear in areas where local authorities, the traditional promoters of regeneration, were not capable or willing to promote development. To this end, private sector-led boards were appointed directly by central government, and given specific powers that would normally reside with local government:

- taking planning decisions;
- channelling government funds into 'regenerating' land (cleaning up pollution and building infrastructure); and
- compulsory purchase (ie, compensated requisition of privately held land ('eminent domain' in the USA)).

The UDCs were extremely controversial in their early years, reflecting the intense polarisation between the Thatcher government and the left-wing councils that controlled most urban areas, but gradually began to work more closely with local authorities as well as with private sector development partners. The best-known UDC was the London Docklands Development Corporation (see Box 7.3).

### Re-discovering partnership – the 1990s

In the early 1990s, as the UDCs began to wind up their activities, relationships between central and local government – and between local government and the private sector – began to improve, and 'partnership' became the dominant model.

Government began to offer funding, through the Single Regeneration Budget, on a competitive basis to partnerships (sometimes set up as companies, sometimes less formally established) that were expected to include both private sector and community interest. Most of the partnerships that applied for funding were public sector-led, but most also allowed some role for private developers. Where projects had a significant physical development aspect, this new approach to partnership also succeeded in levering private sector investment into economically marginalised areas of the UK, where market failure had previously dominated.<sup>7</sup>

At the same time, legislation introduced in 1990 formalised a method ('Section 106 agreements') through which local planning authorities could require developers to provide public amenities (for example, new roads, schools and public spaces) or to provide payments to enable the public sector to do so. During the 1990s, these powers were frequently used to require developers to provide social housing (ie, with subsidised rents), filling the vacuum that had been left following local authorities' government-enforced retreat from house-building during the previous decade.

<sup>6</sup> Peter Turlik, *Initiating Urban Change*, LDDC Monograph, 1997, on [www.lddc-history.org.uk](http://www.lddc-history.org.uk)

<sup>7</sup> DETR, *Lessons and evaluation evidence from ten Single Regeneration Budget case studies*, 2002, on [www.communities.gov.uk](http://www.communities.gov.uk)

## REGULATING AND PROMOTING DESIGN QUALITY

The Commission for Architecture and the Built Environment (CABE) was established to encourage policy makers to create places that are safe, beautiful and efficient to run. Their work includes:

- advising clients, contractors, architects and planners
- helping public agencies with good design
- supporting public agencies in boosting their in-house design expertise
- promoting better education, skills and careers for the built environment
- conducting research and running campaigns on architecture, design and public spaces.

Beyond their research and campaigning activity, CABE has two main programmes: enabling, which involves appointing architects and urban designers to work with public authorities to commission masterplans and building designs, and design review, which involves a process of expert review of designs as they enter the planning process, with (non-binding but influential) advice passed to developers and local authorities.

In London, Richard Rogers who led the Urban Task Force was appointed by Mayor Ken Livingstone to set up a team which the author of this report managed for a period, now known as Design for London (DfL). DfL takes a more proactive approach to its work within the capital, working closely with local authorities and mayoral agencies to brief, procure and manage architects and urban designers, in order to prepare masterplans, planning guidance and development proposals. DfL also acts as the Mayor's design advisor on schemes commissioned or funded by the mayoral agencies (Transport for London and London Development Agency).

### Current modes of practice

Residual suspicion remains and recent experience shows failure as well as success, but a much more open attitude towards public-private partnership in relation to urban development is now visible, and has been accompanied by a much more sophisticated range of tools and negotiation techniques.

Most public authorities and private sector developers now recognise that each has something to contribute: private sector developers can access finance, and expertise in design, building and marketing places that is rarely to be found within the public sector; the public sector for its part has certain regulatory functions, as well as the ability to contribute public sector funding and public sector assets.

The paragraphs that follow give a brief overview of different models of joint working, classified according to the contribution of the public sector: whether its role is solely regulatory, or whether it also contributes funding and/or assets to the development process.

### Regulatory models

For major developments, particularly developments involving the re-use of brownfield sites, the formal submission of a planning application is likely to mark the end of a process that can take five years or more.

Major development proposals within the UK are usually based on a spatial masterplan,

which will set out land uses, design guidelines, development quantum, public amenity provision and phasing proposals. These masterplans may be commissioned entirely by a private developer in control of the land, though are frequently prepared in close consultation with the public sector. In other cases, masterplans are commissioned by the public sector, forming the basis for the preparation of detailed planning guidance or (if the public sector partner has land interests) of development briefs.

England's Urban Task Force (UTF), appointed by the incoming Labour government in 1997 to advise on ways of delivering more housing as efficiently as possible, identified a systemic failure on the part of English projects to achieve the quality of architectural and urban design visible in the best continental and international schemes, and argued that this was condemning English cities to decline. The UTF's report, 'Towards an Urban Renaissance',<sup>8</sup> argued both for more focus on integrated masterplanning, and also for new institutions to promote design quality. The Commission for Architecture and the Built Environment and Design for London are responses to this recommendation (see Box 4).

Negotiations on design quality (which may include joint appointment of consultants) are accompanied by negotiations on a wide range of other matters. These are generally expressed through a Section 106 agreement<sup>9</sup> (see Box 5), often negotiated through an open book approach,

<sup>8</sup> Urban Task Force, *Towards an Urban Renaissance*, 1999

<sup>9</sup> Barking Riverside, *S.106 agreement signed 7 August 2007 – summary of main planning obligations*, 2007 (available on [www.lbbd.gov.uk](http://www.lbbd.gov.uk))

which allows the public authorities to have sight of private sector profit projections, in order to assess what level of demand is reasonable.

Section 106 has been criticised by developers for creating a de facto ‘development tax’, adding delay to the development process, and allowing local authorities local authorities to ‘hold developers to ransom’,<sup>10</sup> and government has been developing proposals for different approaches.

One of these, used in Milton Keynes (a new town a short distance north of London), is known as a ‘tariff’ or ‘roof tax’ approach. The tariff is based on a development framework that sets out a menu of infrastructure requirements: developers are required to make set contributions (currently £18,000 per house and £67 per square metre of commercial space) to a central fund, from which these improvements are financed.<sup>11</sup> This approach recognises that, when several development projects are running concurrently, it can be hard to deliver major infrastructure (like a motorway intersection) that is required on account of their cumulative impact. It also seeks to reduce the length of time taken in negotiations, by providing a transparent costing mechanism.

<sup>10</sup> British Property Federation, *Don't kill the goose – the case for tariffs not tax*, 2005, at [www.bpf.org.uk](http://www.bpf.org.uk)

<sup>11</sup> Milton Keynes Partnership/ English Partnerships, *The Milton Keynes Partnership: an overview of the infrastructure tariff and how it works*, 2006 (available on [www.miltonkeynespartnership.info](http://www.miltonkeynespartnership.info))

#### Joint funding/partnership models

While the 1997 Labour government was reluctant to continue with the ‘Thatcherite’ model of urban development corporations, the Urban Task Force report argued that long-term regeneration programmes still needed focused delivery structures, especially given the proliferation of area-based regeneration initiatives in the late 1990s. The UTF recommended that urban regeneration companies (URCs) should be established in these areas.

Unlike UDCs, which were based on the belief that the only way to promote regeneration was to remove powers from local authorities and give them to centrally controlled agencies, URCs were designed to promote and codify partnership, between local authorities, government and its regional economic development agencies, and the private sector. Reflecting this approach, URCs were not intended to undertake a direct development role, but to deliver physical improvements through new initiatives and enhanced co-ordination of existing programmes and public funding streams. URCs do not have

#### Box 7.5

### PLANNING OBLIGATIONS IN PRACTICE

Barking Riverside is an isolated 179-hectare brownfield site on the banks of the River Thames in East London. Over the past ten years, extensive masterplanning has taken place, with the involvement of Design for London in the most recent plan, prepared by a joint venture – Barking Riverside Limited (BRL) – comprising English Partnerships (a government agency, which has invested in clean-up of the contaminated site) and Bellway Homes (a residential developer).

An outline planning application was granted permission in 2007, and proposed a total of 10,000 homes, to be built over the next 20 years. It was accompanied by a detailed Section 106 agreement, which covered issues including:

- Housing (proportion of larger homes and proportion and quality of affordable homes);
- Community infrastructure (the development (by different partners) of places of worship, police stations, health centres, shops and community centres at certain points in the development process);
- Limits on development until new transport is completed, and contributions towards the cost of new public and road transport infrastructure by BRL;
- Reservation of sites for schools;
- Provision of open space and construction of an ecology centre;
- Provision of play space and sports pitches; and
- The continuing use of a design panel, agreement of design codes, and a public art strategy.

## Box 7.6

### NEW EAST MANCHESTER

New East Manchester (NEM), was established in 2000 to promote regeneration around the East Manchester site of the 2002 Commonwealth Games, in a 1,900-hectare area that had suffered from falling employment, a declining population, high crime and failing services.

NEM's core role was to:<sup>12</sup>

- Develop and implement, in partnership with others, a Strategic Regeneration Framework for East Manchester;
- Lead the major strategic physical regeneration of the area;
- Co-ordinate, integrate and oversee the delivery of a range of key initiatives which have been designed to address some of the worst problems of inner city deprivation – notably, the Beacons for a Brighter Future (New Deal for Communities) Programme and the East Manchester Education Action Zone;
- Focus mainstream public services and funding more effectively on the needs and aspirations of residents and stakeholders; and
- Secure additional public and private sector resources to deliver a long term, comprehensive regeneration programme.

To fulfil this role, NEM developed a strategic regeneration framework that included proposals for physical redevelopment, but also programmes to enhance social and economic opportunities for local people. An evaluation report<sup>13</sup> commissioned in 2006 found that NEM had been successful in working towards many of its targets, but also identified the need to tie partners – particularly national government – more closely into the partnership.

any specific statutory powers, but rely on their members to achieve planning permission and, where necessary, use compulsory purchase powers.

While many URCs have had a measure of success (see Box 6), the voluntaristic nature of their role has led to criticisms that they are toothless, and unable to deliver the scale of change that many developments require.

In recent years, the government has proposed several variations on the URC approach, including “city development companies”, “local housing companies” and “community interest companies”. In addition, in 2003, three new UDCs were established, though on a more consensual basis than their 1980s predecessors.

#### Asset-backed models

Traditionally, local authorities in the UK have been required to dispose of their land holdings (including surplus or redundant operational property) for the best possible price, which has on occasion led to local authorities' own land being used in a way that fails to meet their wider objectives for local people (though the sale may yield funds that can be redirected to meeting those needs).

In recent years, taking advantage of a more permissive national regime, some local authorities have begun to explore new models of partnership, generically known as “local asset-backed vehicles”

(LABVs). These typically involve local authorities entering into formal partnerships with a private sector partner: the local authority contributes land and identifies regeneration projects that it wishes to see delivered; the private sector partner brings capital finance and development expertise; risk and reward are shared between the partners. LABVs are in their infancy, and several issues (such as whether the partnerships can be regarded as ‘private sector’, so that they can raise finance outside the public-sector borrowing regime) remain to be resolved. Nonetheless, several innovative models are being developed (Box 7).

Recent research suggests that LABVs can offer a route to successful partnership, and recycling of profits to create public benefits, but also identifies some challenges in the UK context. These include residual suspicion of the private sector, ensuring that LABVs do genuinely create (rather than re-allocate) value, creating robust governance mechanisms, and ensuring that partners have the skills and capacity to manage the process.<sup>14</sup>

<sup>12</sup> New East Manchester, *Report to Manchester City Council Regeneration Scrutiny Committee*, 5 March 2006 (available at [www.manchester.gov.uk](http://www.manchester.gov.uk))

<sup>13</sup> European Institute of Urban Affairs, *New Evaluated Manchester*, 2006 (available at [www.neweastmanchester.com](http://www.neweastmanchester.com))

<sup>14</sup> Ben Harrison and Adam Marshall, *City Solutions: delivering local growth*, PWC/Centre for Cities, 2007 (at [www.centreforcities.org.uk](http://www.centreforcities.org.uk))

### Concluding observations

With government encouragement and a decline in ideological suspicion, public authorities in the UK have developed a diverse if sometimes bewildering array of different approaches to working with the private sector to achieve social and economic aims through private sector development projects.

Underpinning all of them is the belief that it is legitimate and possible for the public sector to negotiate and deliver public benefits through private sector development projects, and that the private sector is better-equipped to deliver major development programmes.

Success has not been universal, however. One problem has been the sheer complexity of the UK planning process, and – more importantly – the horse-trading that accompanies it. In some cases – Heathrow Airport’s Terminal 5 is a good example – the interval between design and completion can be measured in decades not years.

Another problem rests in the capacity of the public sector. While few in local authorities now expect directly to deliver building projects as they

did in the council housing boom of the post-war years, people working in local government have not necessarily acquired the skills or capacity (in terms of time) to engage fully as clients or partners for private sector developers. With weak or inconsistent clients and partners, private developers are set adrift, unable to deliver unarticulated needs.

Lastly, the flourishing of development partnerships (since the mid-1990s) has taken place against the backdrop of economic growth and a construction boom. In these circumstances, rising profits and an appetite for speculative development create financial room for negotiation, and for accommodation of a growing list of public sector requirements. As the economic tide turns, the emphasis may shift – from making the most of what’s happening, to trying to make something happen. As a colleague of mine once observed, “You can only make a snowman if it’s snowing.”

#### Box 7.7

### **CROYDON COUNCIL URBAN REGENERATION VEHICLE**

Croydon, in south London, is the capital’s third largest employment centre, boasting excellent connections to central London and Gatwick Airport, but suffering from a slightly tired stock of 1960s and 1970s office building.

In 2006-07, Croydon Council undertook a review of how it could renew or replace its own offices, while also contributing to the revitalisation of the city centre. It reviewed alternatives including a straightforward sale of its buildings (and re-investment of the proceeds) and a sale process with conditions attached. It decided to seek a private sector partner to enter into a joint venture partnership, to be owned 50:50, and a preferred partner was selected in Summer 2008.

The Croydon Council Urban Regeneration Vehicle will have three main aims:

- To support and contribute to the regeneration process for the Town Centre and the wider Borough.
- To maximise the value of surplus Council assets and have greater control over their long term development.
- To replace its aging civic office accommodation which is not fit for purpose, increasingly costly to maintain and which is inadequate for current working practices and customer services.

Detailed contractual and funding (including risk and reward sharing) arrangements for the vehicle (intended to be incorporated as a ‘limited liability partnership’) are currently being negotiated.



# 8 IMPLICATIONS FOR POLICY

left

Cities have a great potential to mitigate income inequality by investing in infrastructure shared by all urban dwellers. To date, the proximity of rich and poor has not closed the gap between them.

*Dante Busquets*

Cities are places of mix and exchange. They are also the places where different worlds collide or at least meet. In the words of Wolfgang Nowak, Managing Director of the Alfred Herrhausen Society, “the big cities are everything; the first world, the second world and the third world come together in one city.”

This mix can be exhilarating, but also presents policy makers with challenges. Can cities afford to accommodate inequality, with its negative impacts on social, economic and environmental sustainability? Even if a city cannot tackle the root causes of poverty and inequality, how can enlightened public service provision help to tackle civic inequality, to prevent environmental dereliction, higher crime rates and poor transport accessibility compounding the disadvantages of poverty?

As São Paulo State Governor José Serra said in his keynote speech to the conference in December 2008, the value of the Urban Age programme lies in the discourse it can promote between policy and practice: “we are not limited to discussing ideas and theories, but can also bring together interests and perspectives.” In bringing those interests and perspectives together, a few key messages emerge:

- Cities will always display a measure of inequality, as populations change and newcomers are drawn in, but they must also be made places of social mobility. From this perspective, in the words of Manoel Ribeiro, favelas can be seen not just as a problem but as

“an integral part of the city and...as a tool for fighting social inequality”. Transitional areas can play a part in urban life, but only if they are able to complete a transition, or to enable their residents to do so.

- Planning urban systems and infrastructure – from rail networks to parks and green spaces – needs to take account of the potential impact on equality. Does provision to meet current demand simply reinforce patterns of segregation and polarisation? Are there ways in which new institutions and infrastructure could be used to promote civic equity and social cohesion?
- The poor are most excluded from social equity when located at the city fringes. Inclusive cities need to accommodate the less well-off within the core urban fabric, minimizing the degree of isolating poverty and allowing to create truly public infrastructure, shared by a wide range of different income groups. Limiting sprawl and increasing the overall compactness of cities is a crucial element of social policy.
- Public space is one of the defining characteristics of a humane city, but sometimes the best public space is unplanned – the reinvention of an overpass as a weekend promenade, the creation of a skatepark in a concrete undercroft, the emergence of a playground on wasteland. City governments should seek to support and ratify the creation

below  
With one of the largest fleets of helicopters in the world, the business elite in São Paulo opt to commute by helicopter to avoid paralysing traffic throughout the city and the Minhocão (shown centre), completed in the early 1970s to alleviate already debilitating levels of traffic congestion.  
*Tuca Vieira*



of such public spaces, not to outlaw them unnecessarily.

- Exclusionary tactics like private security patrols, surveillance cameras and security gates can help to remove – or at least displace – crime, but inclusive approaches, which help to develop a sense of ownership and pride among communities can have a longer lasting impact.
- In cities where a large proportion of the population is excluded from public transport systems, radical approaches may be needed to deliver the scale of change that is needed to redress the balance. While it is politically difficult, reducing the privileges and subsidies granted to private car use may be the only way to create viable transport corridors.
- When considering transport strategies, city planners should not just focus on single modes of transport, but on how the whole system can support policy aims, including re-aligning the distribution of public services (from rail, to bus rapid transit, to walking routes) to help those people socially and spatially marginalised from the city.
- The idea that the private sector can on its own create viable cities is as false as the assumption that the public sector can realise its plans autonomously. Active use of planning instruments, as well as targeted incentives are needed to channel the energy of the property

development industry in directions that help the citizen as well as the developer over the long term.

- In modern cities with diverse populations, both political debate about the future and the partnerships needed to turn debates and visions into reality, require a pluralistic process, that involves civic actors from all sectors, including public, private and community sectors.

Urban inequality undermines economic vitality, social cohesion and environmental sustainability. It is a persistent but growing phenomenon, and can seem intractable in a world that continues to urbanise. The Urban Age South America programme has helped to delineate the issues, and also to point the way towards solutions, and towards the central role for urban government.

Cities may not be able to redistribute private resources, but they can use the powers and resources that they do control to create cities that are more cohesive, where public services and infrastructure form the glue for better civic life. A city cannot control the economy or the national legislature, but it provides something more fundamental – the environment for the day-to-day lives of millions of people. In the words of former Bogotá mayor Enrique Peñalosa, “the way cities are built determines to a large degree citizens’ quality of life for hundreds of years into the future.”



# LIST OF WORKSHOPS AND WORKING GROUPS

## Strategy Workshop São Paulo

**Marcos Bicalho**, Superintendent, Associação Nacional de Transportes Públicos (ANTP); **Ciro Biderman**, Professor, CEPESP, FGV and Visiting Fellow, Lincoln Institute of Land Policy, MIT; **Juarez Rubens Brandão Lopes**, Sociologist and Advisor, EEMPLASA; **Ricky Burdett**, Director, Urban Age, LSE; **Alexandre Cafcalas**, Principal, Cafcalas Arquitetos; **Andrea Calabi**, Professor, Faculdade de Economia e Administração, USP; **Renato Cymbalista**, Architect and Urbanist, Instituto Pólis; **Alexandre de Avila Gomide**, Researcher, Instituto de Pesquisa Econômica Aplicada, State of São Paulo; **Fernando de Mello Franco**, Architect, MMBB Arquitetos; **Jose de Souza Martins**, Author and Sociologist, Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo; **Bruno Feder**, Assistant to the Advisor for International Affairs, State of São Paulo; **Elisabete França**, Director, Secretaria de Habitação Social, São Paulo Municipality; **Jurandir Fernandes**, President, EEMPLASA; **Helena Maria Gasparian**, Advisor for International Affairs, State of São Paulo; **Stela Goldenstein**, Deputy Chief of Staff, São Paulo Municipality; **Sandra Gomes**, Researcher and Transference Coordinator, CEM; **Oded Grajew**, General Coordinator, Nossa São Paulo; **Marta Dora Grostein**, Architect and Urbanist; Coordinator of LUME/FAU, USP; **Ayako Iba**, Event Coordinator, Urban Age, LSE; **Danilo Iglioni**, Affiliated Lecturer, Department of Land Economy, University of Cambridge; **Eduardo Jorge**, Secretary of Environment, São Paulo Municipality; **Carlos Leite**, Professor, Faculdade de Arquitetura e Urbanismo, Universidade Presbiteriana Mackenzie, São Paulo; **Vladimir Fernandes Maciel**, PhD. ABD Public Administration, EAESP/FGV and Researcher, CEPESP/FGV; **Rosa Mancini**, Coordinator, Hydric Resources, Companhia de Tecnologia de Saneamento Ambiental (CETESB); **Erminia Maricato**, Titular Professor, LABHAB, FAU/ USP; **Eduardo Marques**, Director, CEM; **Regina Meyer**, Architect and Urbanist; Coordinator of LUME/FAU, USP; **Paula Miraglia**, Executive Director, ILANUD, São Paulo; **Edson Ortega**, Coordenador de Segurança Urbana, São Paulo Municipality; **Frederico Ramos**, Research Associate, Urban Age, LSE; **Melina Riso**, Director, Institutional Development, Instituto Sou de Paz; **Philipp Rode**, Executive Director, Urban Age, LSE; **Raquel Rolnik**, Architect and Professor, Pontifícia Universidade Católica de Campinas; **Paula Santoro**, Mananciais Program, Instituto Socioambiental (ISA), São Paulo; **Nadia Somekh**, Director, Faculdade de Arquitetura e Urbanismo, Universidade Presbiteriana Mackenzie, São Paulo; **Renato Tagnin**, Architect and Professor, Serviço Nacional de Aprendizagem Comercial (SENAC), São Paulo; **Ricardo Toledo**, Deputy Secretary, Secretaria Estadual de Recursos Hídricos, State of São Paulo; **André Urani**, Executive Director, Instituto de Estudos de Trabalho e Sociedade, Rio de Janeiro; **Eduardo Vasconcellos**, Consultant, ANTP; **Daniel Vasquez**, CEM; **Jorge Wilhelm**, Principal, Jorge Wilhelm Consultores e Associados, São Paulo

## Research Workshop London

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## DATA SOURCES

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### 3 Inequality, territory and urban form

Interpreting the Gini coefficient, *UN-HABITAT Monitoring and Research Division, 2008*; The three main measures of inequality, *Davies, 2008, Milanovic, 2005 and Butler 2007*; Decomposing world income distribution, *Milanovic, B; Yitchzachi, S. World Bank, 2001*; World map of inequality, *UNDP HDR 2007/2008*; **Graph 3.1**, Gini index vs. GDP PPP per capita and income distribution by quintiles for a selection of countries, *Urban Age research based on UNDP HDR 2007/2008 and World Bank datasets*; World map of inequality with the Gini indices of selected cities, *UNDP HDR 2007/2008, Government of Gauteng Province 2004, Harvard Diversity Data 2007, Chen, X. (2007), Portes, A. (2005), Dickey, H. (2007), Dhongde, S. (2004), INSEE 2004, OECD Territorial Review Istanbul 2008*; **Graph 3.2**, Gini index vs. GDP PPP per capita for a selection of countries and their major cities and income distribution by quintiles for the selected countries, *Urban Age research based on UNDP HDR 2007/2008 and World Bank datasets; for the cities: PwC 2007, UN WUP 2007, Government of Gauteng Province 2004, Harvard Diversity Data 2007, Chen, X. (2007), Portes, A. (2005), Dickey, H. (2007), Dhongde, S. (2004), INSEE 2004, OECD Territorial Review Istanbul 2008*; Scatterplot of national urbanisation levels (% of the population that is urban) and national Gini indices for 2005, *UNDP HDR 2007/2008*; Census information, *IBGE, Contagem da População 2007; INDEC, serie análisis demográfico 34, 2008; DANE, Censo 2005; INEI Censo 2005; Censo Demográfico IBGE, 2000; Gobierno de la Ciudad de Buenos Aires / Censo Población INDEC, 2001; Catastro Bogotá / Censo General, DANE, 2005; INEI, Estadística de Centros Poblados, 1993; Educational information, Censo Demográfico IBGE, 2000; Gobierno de la Ciudad de Buenos Aires / Censo Población INDEC, 2001; Catastro Bogotá / Censo General, DANE, 2005; INEI, Estadística de Centros Poblados, 1993; UNDP HDR 2007/2008; Average education attainment for the São Paulo metropolitan region, *Censo Demográfico IBGE, 2000*; Average education attainment for the Rio de Janeiro metropolitan region, *Censo Demográfico IBGE, 2000*; Educational attainment for Greater Buenos Aires, *Gobierno**

de la Ciudad de Buenos Aires / Censo Población INDEC, 2001; Educational attainment for the city of Bogotá, Catastro Bogotá / Censo General, DANE, 2005; Educational attainment for the metropolitan region of Lima and Callao, INEI, Estadística de Centros Poblados, 1993;

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*AIM/SMS-SP, IBGE, SEADE Foundation and CEM.*

#### 6 Mobility, integration and accessibility

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# GLOSSARY

## 3 Inequality, territory and urban form

PPP – Purchasing Power Parity

OECD – Organization for Economic Cooperation and Development

UNDP – United Nations Development Programme

## 4 Urban Age city survey

SPMR – São Paulo Metropolitan Region

IBGE – Brazilian Institute of Geography and Statistics

PNAD – Pesquisa Nacional por Amostra de Domicílios (National Household Sample Survey)

Economic Classes A, B, C, D and E – Calculated using information about material possessions and education

## 5 Safe spaces, safe city

CEM – Centro de Estudos da Metrópole (Centre of Metropolitan Studies)

AME Jardins – Association of Residents of Jardim Europa, América, Paulista and Paulistano

COHAB – Metropolitan Housing Company

PCC – First Command of the Capital

CEU – Centro de Extensão Universitária (Centre of University Extension)

SAMORCC – Sociedade dos Amigos, Moradores and Empreendedores do Bairro Cerqueira César

BNH – Banco Nacional de Habitação (National Housing Bank)

CDHU – Companhia de Desenvolvimento Habitacional e Urbano do Estado de São Paulo (Company of Housing and Urban Development of the State of São Paulo)

Decradi – Department of Police for Racial Crimes and Racial Intolerance

CONSEG – Conselhos Comunitários de Segurança (Community Safety Advice)

## 6 Mobility, integration and accessibility

AIU – Urban Intervention Area

ARTESP – São Paulo State Transport Agency

BNDES – Brazilian Development Bank

BRT – Bus Rapid Transit

CA – Floor Area Ratio (FAR)

CET – Traffic Engineering Company

CIDE – Taxes on energy fuel

CMSP – São Paulo Metro Company

CPTM – Metropolitan Trains Company

DENATRAN – National Road Transport Department

DER – Department of Highways

DERSA – São Paulo State Highway Company

EMTU – Metropolitan Company Urban Transport

FUNDURB – Urban Development Fund

IPTU – Property Tax

Metrô – São Paulo Metro Company

TEU – Corridor line connecting SP and ABCD

OD – Origin Destination Surveys

ODC – Onerous Grant of the Right to Build (OGRB)

OU – Urban Operation

PDE – São Paulo Strategic Master Plan (SPMP)

PITU – Integrated Urban Transport Plan

PSIU – Urban Silence Program

PUE – Specific Urban Plans

Rodízio – Plate control system

SET – State Secretary of Transportation

SP – São Paulo Municipality

SPMA – São Paulo Metropolitan Area

SPTrans – Public Transportation Company São Paulo

STM – Secretariat of Metropolitan Transport

ZEIS – Special Zones of Social Interest

## 7 Steering regeneration in cities

UDC – Urban Development Corporation

CABE – Commission for Architecture and the Built Environment

Dfl – Design for London

UTF – Urban Task Force

URC – urban regeneration companies

BRL – Barking Riverside Limited

NEM – New East Manchester

LABV – local asset-backed vehicles

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left

Built in 1953, Oscar Neimeyer's Copan building in the centre of São Paulo is the largest structure in Brazil and has the largest floor area of any residential building in the world.

Tuca Vieira





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