

TOWARDS AN URBAN FUTURE

Since 2007 more than half of humanity has been living in the globe's urbanised areas. Every hour since, as people migrate at increasingly high speeds to cities, we are fast moving beyond that mark. But the distribution of this growth across the surface of the earth is unequal.

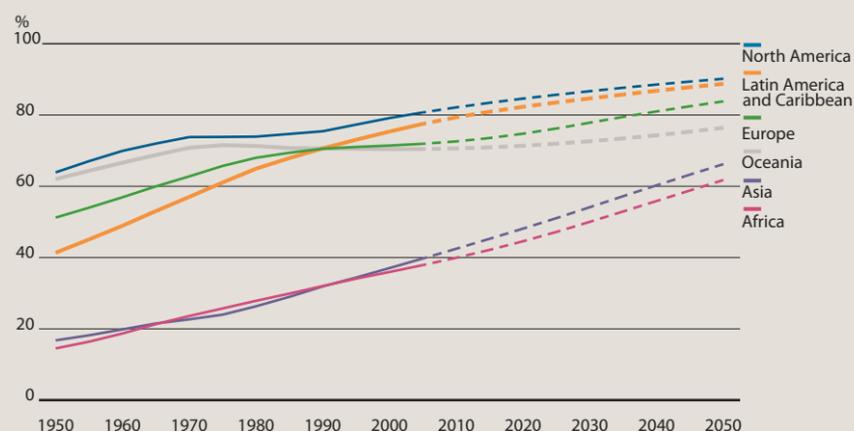
Today, metropolitan regions accommodate over one billion people, reflecting their roles as centres in the global flows of capital, people and culture. The number of cities with over one million inhabitants has grown dramatically over the last 50 years, reaching close to 450 in 2008. While many of these larger urban clusters were historically based in the developed countries, today 15 out of the 20 largest city regions of the world – with populations of between 10 and 20 million – can be found in the less economically advanced countries, many of them in the global South. The number of cities with over one million people in Asia, Africa and Latin America combined grew from 39 to 308 between 1950 and 2005. In the same period the numbers grew from 37 to only 96 in Europe and North America.

The cities of South America have a long history within the social and physical context of high urbanisation. South America is one of the most urbanised places on earth, with 83 per cent of its national populations living in cities. By 2050 this will be closer to 90 per cent, close to the twentieth-century urban heartland of North America, and ushering in a new generation of megacities with significant social, economic and environmental consequences.

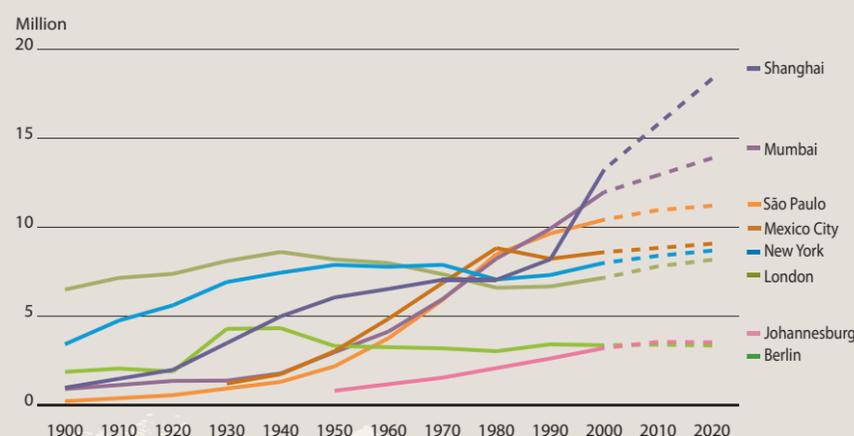
The movement to cities sparks push-and-pull dynamics of new and emerging economies, and embodies the intersection of the physical and material nature of the city with changing social behaviours and beliefs. Answering the question of our 'Urban Age' requires us to take stock of where cities are, who lives in them, how they are run and what obstacles they face. Tackling the problems of our urban future demands us to move beyond the present to manage increasingly scarce resources, develop sustainable ways of living, and take the intersection of growing inequality and the city seriously.

The information contained in this 'data section' summarises the findings of research undertaken by Urban Age since 2005. It includes an overview of new research carried out on five South American cities – São Paulo, Rio de Janeiro, Buenos Aires, Lima and Bogotá – and places them in a comparative context with other world cities including New York, Shanghai, London, Johannesburg, Mexico City, Berlin and Mumbai. By investigating the differing patterns of urban density, transport and governance, together with a wide range of social and economic indicators, the information provides a unique insight into the DNA of cities today.

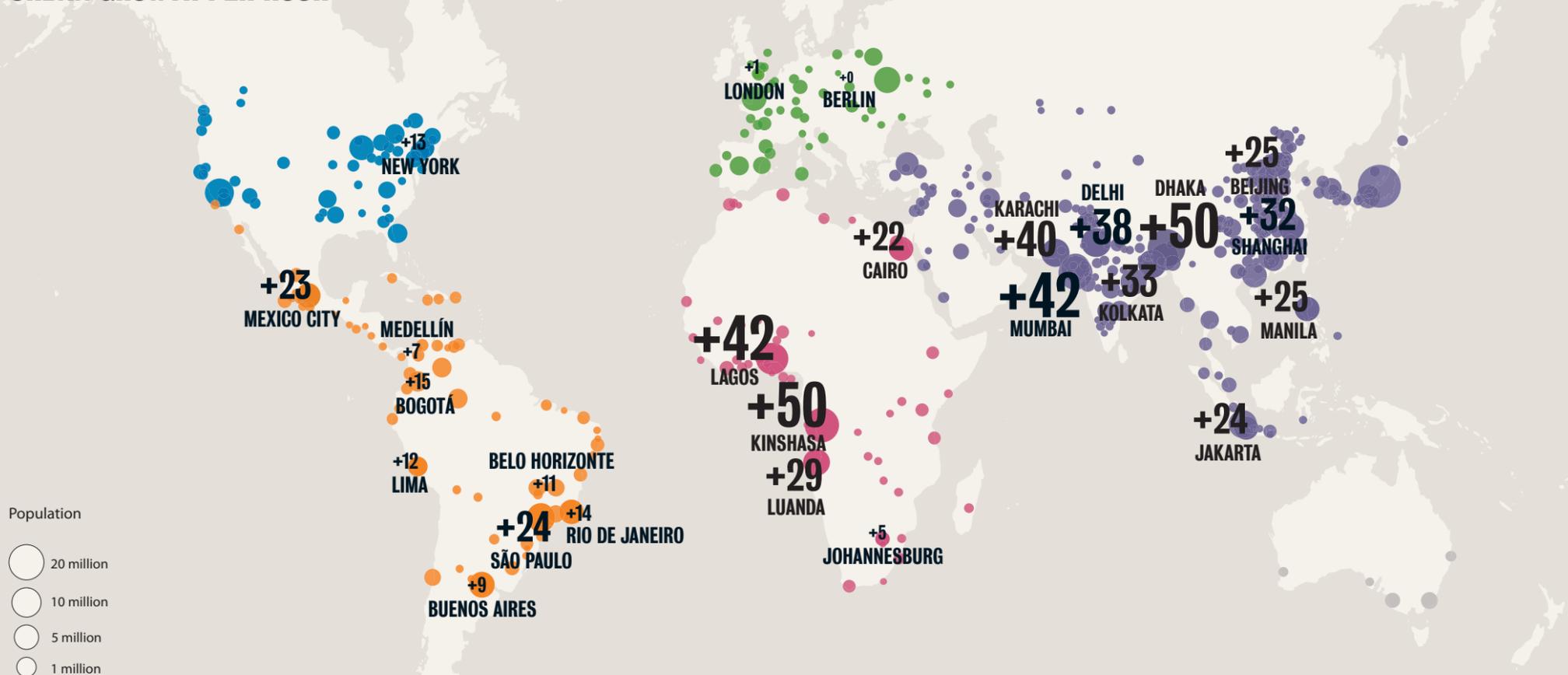
URBAN POPULATION BY WORLD REGION



POPULATION GROWTH IN THE URBAN AGE CITIES



URBAN GROWTH PER HOUR



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.

SOUTH AMERICAN CITIES

A hundred years ago, Buenos Aires was the only South American city with a population larger than one million. Today, there are 36. São Paulo, Rio de Janeiro, Lima, Buenos Aires and Bogotá represent the five largest metropolitan regions. These cities are typical of urbanisation in South America, having exhibited their fastest and largest population growth in the mid- to late-twentieth century. From 1950 to 1980, São Paulo saw its population quadruple: from two million to more than eight million people. Lima saw similar growth rates, Bogotá grew by a factor of seven, Rio de Janeiro grew more slowly, while the population of Buenos Aires remained broadly static. Today the combined metropolitan population of these five cities is just over 60 million, a fifth of South America's total urban population.

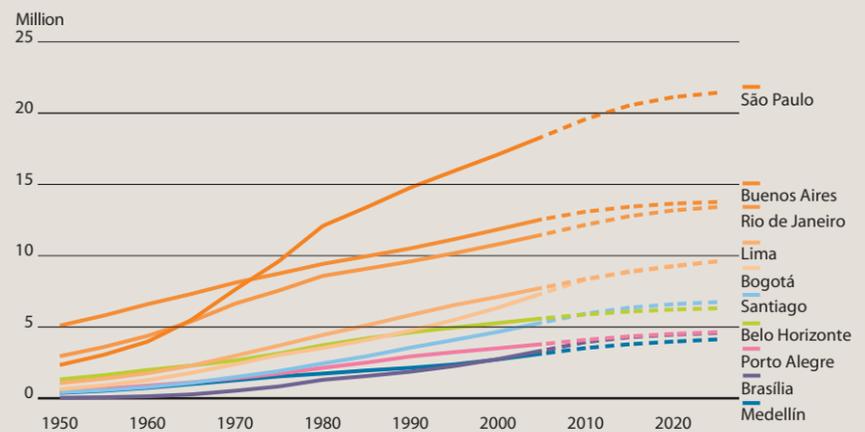
Since the 1980s, growth has slowed in São Paulo, though with close to 11 million in the city and over 19 million in the Metropolitan Region, it remains the largest in South America. Rio de Janeiro's growth rate has also slowed, and Bogotá's and Lima's stabilised earlier.

While each of the cities has a history stretching back to colonial times or earlier, their growth came after the withdrawal of Spain and Portugal's colonial powers from the continent. Driven first by agriculture and trade, and then by rapid industrialisation, these cities now face a third revolution within a century as they adapt to become centres of the new service economy. In many cases, with slowing growth, their crucial task is to consolidate and build on their growth as the global economy enters a period of unprecedented change.

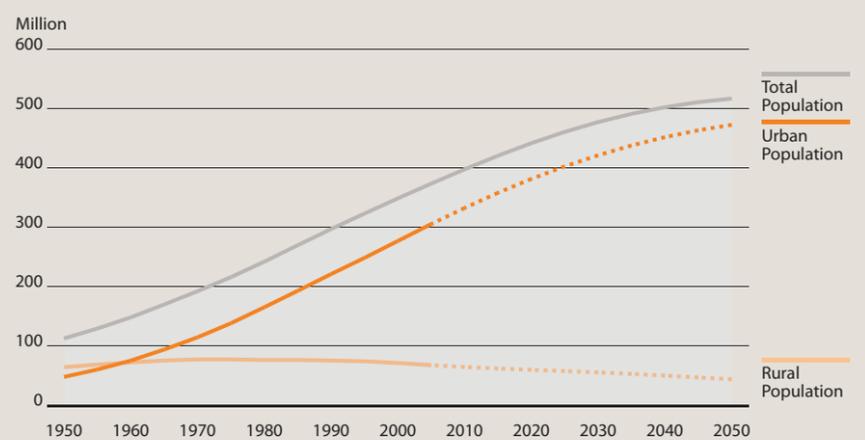
Given that 37 per cent of the population in Brazil live in favelas at the beginning of the twenty-first century, compared to 33 per cent in Argentina, 22 per cent in Colombia and an astounding 68 per cent in Peru, against an average of almost 36 per cent across South America, the challenge for decent housing, provision of urban services and economic opportunities requires urgent action.

Inequality, its implications and potential policy responses are major themes for the Urban Age. Against this backdrop, a comparative spatial analysis of inequality using educational attainment as a proxy for social status and wealth is presented on the following pages. Education levels are good indicators of social potential since they indicate varying levels of qualification and job opportunities. Maps indicating where pockets of highly or poorly educated people live in each city correspond to data which varies from city to city. In the case of Brazil, the education levels correspond to the head of household, whereas in Buenos Aires, Bogotá and Lima, the mappings correspond to the education levels of the total population. Nonetheless, in each of the cities, a pattern of segregation between the centre and the periphery results from a range of factors including unequal distribution of public infrastructure and the expansion of informal settlements. This spatial distribution creates both exclusive areas with a high quality of life as well as stigmatised areas intensified by inadequate services, accessibility and economic opportunities.

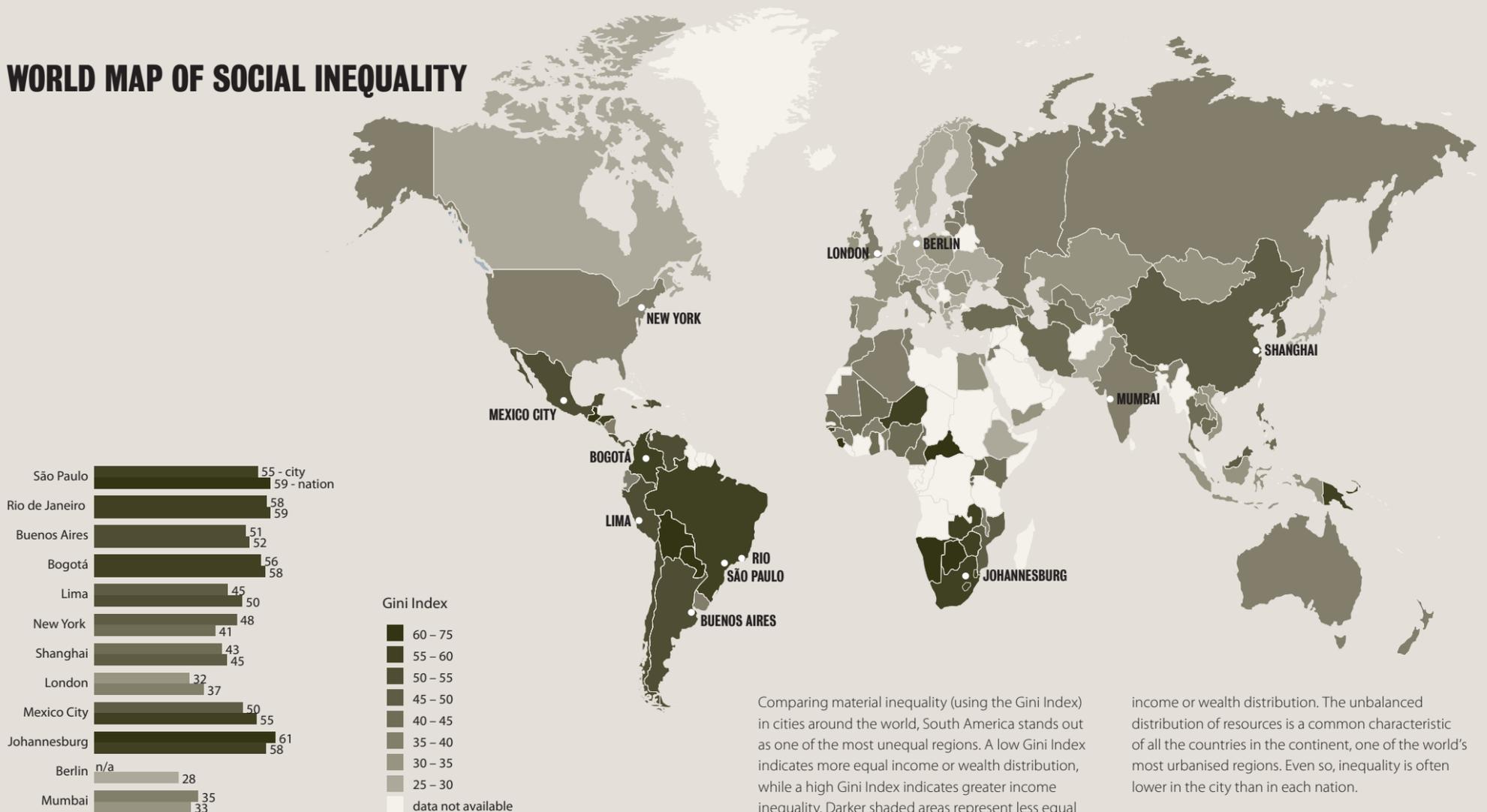
SOUTH AMERICA'S 10 LARGEST METROPOLITAN REGIONS



POPULATION GROWTH IN SOUTH AMERICA



WORLD MAP OF SOCIAL INEQUALITY



Comparing material inequality (using the Gini Index) in cities around the world, South America stands out as one of the most unequal regions. A low Gini Index indicates more equal income or wealth distribution, while a high Gini Index indicates greater income inequality. Darker shaded areas represent less equal

income or wealth distribution. The unbalanced distribution of resources is a common characteristic of all the countries in the continent, one of the world's most urbanised regions. Even so, inequality is often lower in the city than in each nation.

SÃO PAULO



Administrative city boundary
Metropolitan region boundary

SÃO PAULO URBAN AGGLOMERATION

1950	2000	2020
2,334,038	17,099,204	21,124,314

SÃO PAULO

1950	2000	2020
2,198,096	10,434,252	11,210,909

Nelson Kon

Of the 15 per cent of São Paulo's population living in favelas, close to 60,000 people reside in Paraisópolis, the largest favela located in wealthy Morumbi.

São Paulo is the capital of the State of São Paulo, the most populous Brazilian state. It is also South America's richest and largest city, with a population of over 19 million in its Metropolitan Region. It is located on a plateau, at an average elevation of 800 metres, 70 kilometres from the sea and Santos, South America's largest port. Rolling terrain prevails within the urbanised areas of São Paulo, except in the North of the city where it rises. Natural reservoirs define the extreme southern area of the metropolitan region, which provide nearly 30 per cent of the city's drinking water.

Since its foundation in the sixteenth century, São Paulo has experienced three major transformations. Established as a Jesuit mission, its first period of growth was fuelled by its role as a major coffee exporter in the nineteenth century. This opportunity arose from São Paulo's strategic location: alongside two major rivers, between the coast and a vast, fertile plateau. The huge labour demand of the coffee plantations attracted European immigrants and a great number of Italians, Portuguese, Spanish

and Germans settled there.

When coffee prices plummeted at the beginning of the twentieth century, São Paulo's local entrepreneurs switched investment into industrial development, shifting the economic emphasis from agriculture to industry. Once again, a great number of immigrants were attracted by the opportunities offered by the city, both from afar (Japan, Syria and Lebanon) and from regions closer by (north-eastern Brazil). The third transformation occurred at the end of the twentieth century as competition for industrial activity became more intense between Brazilian cities. This heralded a shift towards the service sector, and São Paulo is now the main business hub in Latin America, hosting many local and international banking offices, law firms, multinational companies and consumer services. The economy of the Metropolitan Region generates over 19 per cent of the national GDP, concentrated in established financial centres such as Avenida Paulista.

The importance of immigration in the city's evolution means that São Paulo is

an extremely multicultural city. Indeed, over 100 ethnicities coexist in São Paulo today, with the main communities being Italian, Portuguese, African, Arab, German, Japanese and Lebanese. This pattern of migration reflects the administrative city's growth: from 32,000 residents in 1880, 240,000 in 1900, 1.3 million in 1940, 3.8 million in 1960, 8.5 million in 1980 and almost 11 million today.

Despite all of these successes, urban development has raced ahead of urban planning and a limited public transport infrastructure. Heavy car use continues to congest the city's streets while air and water pollution, extensive poverty, high crime rates and gang violence all pose debilitating challenges in what remains an extremely unequal and spatially segregated city. The poor are concentrated in the periphery, with extensive favelas existing alongside protected reservoirs. In terms of human development, the periphery exhibits levels closer to North Africa while the centre boasts levels similar to Scandinavian countries.



Education levels

The distribution of units in which the head of household lacks primary education in São Paulo presents a clearly defined pattern of segregation. In the periphery over 50 per cent of families have a poorly educated head of household, while in the central areas this figure drops to 5 per cent. Nonetheless, sustained efforts to provide basic education across the city have seen a decrease in illiteracy rate in the metropolitan region from 7.2 per cent in 2001 to 5.5 per cent in 2007.

	AREA (KM ²)	POPULATION (2005)	DENSITY (PEOPLE/KM ²)	GDP (BN US\$ CURRENT)	GDP/CAPITA (US\$ CURRENT)	% OF NATIONAL GDP	ADMINISTRATIVE UNITS
BRAZIL	8,514,876	183,888,000	22	882	4,795	100%	27 unidades federativas
STATE OF SÃO PAULO	248,209	39,838,000	161	299	7,494	34%	645 prefeituras
SÃO PAULO METROPOLITAN REGION	7,944	19,226,426	2,420	171	8,896	19%	39 prefeituras
SÃO PAULO	1,525	10,886,518	7,139	108	9,927	12%	31 subprefeituras

RIO DE JANEIRO



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.

Rio de Janeiro is the second largest city in Brazil, with a population of six million and a Metropolitan Region of 11.6 million people. It occupies most of the south-western portion of the Guanabara Bay, a flat terrain interspersed by hills and surrounded by mountains. The city developed along the coast of the bay and the Atlantic, and then expanded inland.

While São Paulo's history has been shaped most profoundly by economic factors, it is politics that has affected Rio de Janeiro. The city's early history was shaped by colonialism. Founded in the sixteenth century by the Portuguese to claim back the bay from French settlers, it quickly became a strategic location for the Atlantic transit of ships between Brazil, the African colonies and Europe. This position was confirmed in the eighteenth century when Portugal's colonial administration was moved to Rio de Janeiro, and then again in the early nineteenth century when the Portuguese royal family fled to the city during the Napoleonic wars, establishing Rio de Janeiro as the only

European capital outside Europe.

During twentieth-century industrialisation, Rio de Janeiro's status as a capital city made it an attractive location for investors, and for the headquarters of major state-owned companies. Despite the transfer of the national capital to Brasília in 1960, Rio de Janeiro kept attracting more companies, especially those involved in oil and gas after the nearby discovery of oil in the Campos Basin (which produces most of Brazil's oil). Today, the city ranks second nationally in terms of industrial production, is host to the second most active stock market in Brazil, and is a major service centre. It is also a national telecommunications and entertainment hub as well as the nation's top tourist attraction for both Brazilians and foreigners. It has an extremely vibrant culture, borne from its multi-ethnic make-up. Indeed, almost half of the population is black or mixed-race and their cultural influence is expressed in the Rio de Janeiro Carnival and its Samba.

However, like São Paulo, Rio de Janeiro is plagued by a number of social problems, the most salient of which are inequality and crime. The disparities between rich and poor in Rio de Janeiro are reflected spatially: the poorest favelas are crowded onto the hillsides above the waterfront, where sturdy buildings are difficult to build, accidents from heavy rainfall are frequent, and access to sanitation and electricity networks can be inconsistent.

These favelas exist in close proximity to the city's wealthiest districts, with upper-class neighbourhoods such as Ipanema and Copacabana squeezed in between the beach and the hills. These disparities can be argued to contribute to Rio de Janeiro's high crime rates: murder rates are 17 times higher than in London. Violence is most acute in the favelas, where the poor are preyed upon by gangs and drug traffickers, and where corruption and violence have undermined confidence in law enforcement.



Administrative city boundary
Metropolitan region boundary

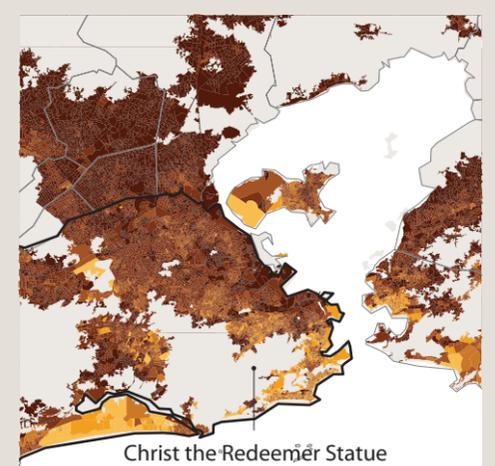
RIO DE JANEIRO URBAN AGGLOMERATION

1950	2000	2020
2,950,238	10,802,750	13,178,717

RIO DE JANEIRO

1950	2000	2020
2,377,451	5,857,904	6,234,509

Dante Basquet



Advanced High Relatively high Relatively low Low Poorly educated Administrative city boundary

Education levels

Despite sustained efforts to improve access to education, the national literacy rate for the population aged 15 and over in Brazil was 88.6 per cent in 2005, lagging behind other Latin American countries like Argentina, Ecuador and Paraguay. In Rio de Janeiro, the distribution of families in which the head of household has a poor level of education shows a widespread pattern across the entire metropolitan area, with peaks in the more outlying areas. Instead Rio de Janeiro's central districts, Niteroi and the southern coastal neighbourhoods have less than 5 per cent of families with a poorly educated head of household. A recent survey suggests that half of the city's population of 15-17 year-olds does not go to secondary school.

	AREA (KM ²)	POPULATION (2005)	DENSITY (PEOPLE/KM ²)	GDP (BN US\$ CURRENT)	GDP/CAPITA (US\$ CURRENT)	% OF NATIONAL GDP	ADMINISTRATIVE UNITS
BRAZIL	8,514,876	183,888,000	22	882	4,795	100%	27 unidades federativas
STATE OF RIO DE JANEIRO	43,696	15,406,478	353	101	6,582	12%	92 prefeituras
RIO DE JANEIRO METROPOLITAN REGION	5,724	11,563,302	2,020	71	6,128	8%	20 prefeituras
RIO DE JANEIRO	1,261	6,093,472	4,832	49	8,018	6%	18 subprefeituras

BUENOS AIRES



Avenida 9 de Julio spans an entire city-block and ranks among the widest streets in the world. Its tree-lined traffic lanes stretch north-south through the downtown area, home to a resilient middle-class population which has remained stable despite decades of rampant change in Greater Buenos Aires.

Buenos Aires is Argentina's financial, industrial, commercial, and cultural hub. Located on the southern shore of the Río de la Plata on the south-eastern coast of South America, Buenos Aires is the country's capital and largest city with a population of three million in the city. Over 12 million people live in Greater Buenos Aires, South America's second largest conurbation.

Founded in 1536, the early history of Buenos Aires was dominated by trade, though also by tensions with Spanish colonisers who sought to direct trade through Lima and were ejected from the city in 1810. From the second half of the twentieth century until the 1920s, Buenos Aires experienced rapid growth and development of infrastructure, including South America's first underground metro system, made possible by the wealth generated by the fertile pampas around the city, by its strategic riverside position, and by the construction of the railway system that allowed raw materials to flow into its

factories. Buenos Aires became a favoured destination for European immigrants – a multicultural city that ranked alongside the major European capitals.

This golden era ended with the global economic crisis of the late 1920s. As the city's population continued to grow, many workers in the city were forced to relocate to peripheral shanty towns in order to survive. In the next decade, this impoverished population would provide the social base for Juan Peron's populist nationalism. Following Peron's deposition in 1955, the ensuing three decades were marred by military rule, uprisings and state-sponsored violence that left little room for planned urban development.

Following the resumption of democratic rule, a constitutional amendment was passed in 1993 that gave the city autonomy from the federal state and allowed it to elect its own mayor. This authority corresponds with the economic dominance of the city, which contributes close to one-quarter

of the to the national GDP. The city's economy is defined in part by its port, one of the busiest in South America, which is connected to north-east Argentina, Brazil, Uruguay and Paraguay by navigable rivers that serve a vast area of south-eastern South America. Even so, the Mayor's authority over metropolitan-wide issues is greatly limited since the city occupies only five per cent of the area of Greater Buenos Aires.

The disparity between its service-oriented city centre and a Metropolitan Region dominated by agriculture and manufacturing industry is reflected in its physical and social composition. The city's high human development index (HDI) reveals concentrations of better educated middle and upper classes in the small administrative city (203 km²) along with businesses and most transport infrastructure, while the poor live in the peripheral areas of the Metropolitan Region.



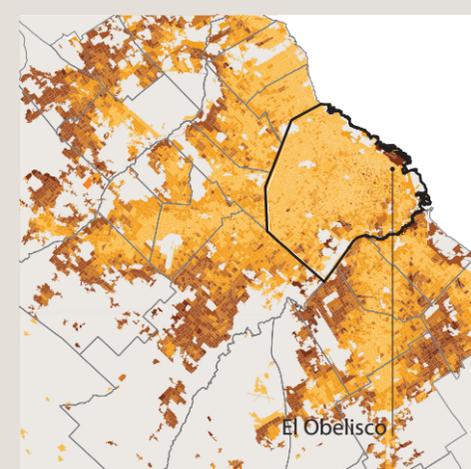
Administrative city boundary
Metropolitan region boundary

BUENOS AIRES URBAN AGGLOMERATION

1950	2000	2020
5,097,612	11,847,329	13,652,564

BUENOS AIRES

1950	2000	2020
2,981,043	2,995,397	3,122,542



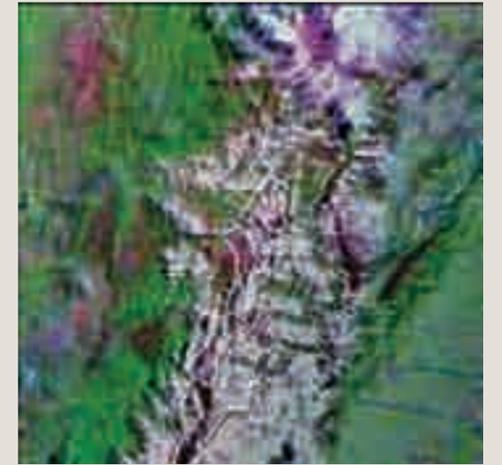
Advanced High Relatively high Relatively low Low Poorly educated Administrative city boundary

Education levels

South American cities such as Buenos Aires reveal strong patterns of segregation in educational attainment across the city as a whole. At 97.2 per cent, Argentina has a very high national literacy rate for the population aged 15 and over, but in Buenos Aires there is an unequal distribution of the lower educated population, with a concentration of families with a high proportion of children under the age of 14 in peripheral areas. The *Partidos* in the South, West and North of the city are particularly affected due to land tenure vulnerability and the absence of basic social infrastructure.

	AREA (KM ²)	POPULATION (2005)	DENSITY (PEOPLE/KM ²)	GDP (BN US\$ CURRENT)	GDP/CAPITA (US\$ CURRENT)	% OF NATIONAL GDP	ADMINISTRATIVE UNITS
ARGENTINA	2,766,889	38,592,150	14	183	5,840	100%	23 provincias + 1 ciudad autonoma
PROVINCE OF BUENOS AIRES	307,571	14,654,379	48	60	4,085	33%	134 partidos
GREATER BUENOS AIRES	3,839	12,198,207	3,177	n/a	n/a	n/a	24 partidos
BUENOS AIRES	203	3,018,102	14,867	43	14,231	24%	15 comunas

BOGOTÁ



Administrative city boundary
Metropolitan region boundary

BOGOTÁ URBAN AGGLOMERATION

1950	2000	2020
630,315	6,355,892	9,298,779

BOGOTÁ

1950	2000	2020
630,315	6,302,881	8,380,801

Giovanna Silva

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.

Bogotá is the capital city of Colombia and the most populous city in the country with nearly 7 million inhabitants and a Metropolitan Region population of over 8 million. Located between a mountain range and fertile agricultural land, Bogotá is the highest-altitude city in the world after La Paz and Quito. The city is home to Colombia's largest economic centre and main stock market.

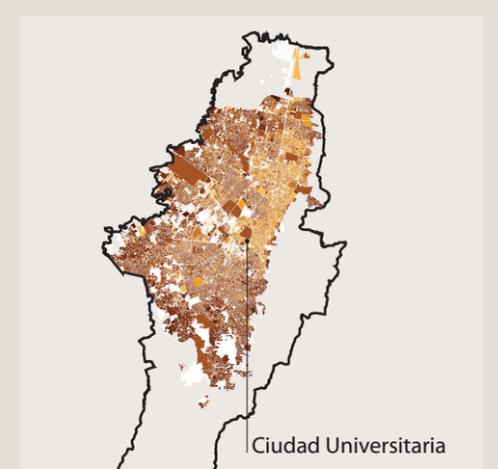
Of the five South American cities included in this study, Bogotá is the only one that was already inhabited when the Spanish colonised it in 1538. Always seen as a regional capital, Bogotá was, until the early-nineteenth century, the capital of the Viceroyalty of Grenada, an area that broadly encompassed modern Panama, Colombia, Ecuador, and Venezuela. In 1819, Bogotá was liberated by Simon Bolivar and made capital of Gran Colombia, a federation including those same states. After Gran Colombia's dissolution in 1831, Bogotá became the capital of the Republic of Colombia.

The rest of the nineteenth century was dominated by civil wars and in 1900 the isolated city's population was only about 100,000. The construction of railways and infrastructure, as well as a hydro-electric dam, and in 1920, South America's first airport, enabled development into the twentieth century alongside a tripling of the population by the 1930s.

Following urban and rural political disturbances in the 1950s, the city's pattern of growth changed. Richer residents moved out of the centre to peripheral areas, forcing the city to modernise them and to extend infrastructure and transport networks. At the same time, rural violence led to a mass influx of people in Colombia's largest cities, and especially to Bogotá. These factors led to a sharp increase in both the spatial extent of the city and its population, which went from a little over 630,000 in 1951 to around 7 million today. In 1955, the municipality was extended to take over neighbouring

municipalities, and the next four decades saw the creation of new municipalities around the city. In 1991, a further merger of the municipalities created a new administrative entity: the Distrito Capital, or Capital District.

While problems of out-migration persist, Bogotá's mayors have in recent years implemented innovative programmes that address shortcomings in transport, green space and education. One of the most noteworthy is the TransMilenio 'bus rapid transit' (BRT) system. Other initiatives include a city-wide programme of bicycle paths, public schools and library construction. Bogotá has also reduced crime and murder rates – dropping from 61 to 24 murders per 100,000 in a little over ten years.



Advanced High Relatively high Relatively low Low Poorly educated Administrative city boundary

Education levels

At 92.8 per cent, Colombia has a high national literacy rate for the population aged 15 and over, yet Bogotá displays inequality in the distribution of poorly educated children. This pattern is closely related to other social variables across the city's *localidades* (boroughs) – such as Ciudad Bolivar and Rafael Uribe – which reflect the social and economic dynamics of accelerated urbanisation. The *localidades* situated at the southern end of the city have the highest urban growth. The distribution of inequality forms the basis of a city-wide strategy that prioritises fiscal and investments programmes that benefit the most deprived social groups.

	AREA (KM ²)	POPULATION (2005)	DENSITY (PEOPLE/KM ²)	GDP (BN US\$ CURRENT)	GDP/CAPITA (US\$ CURRENT)	% OF NATIONAL GDP	ADMINISTRATIVE UNITS
COLOMBIA	1,138,194	42,888,592	38	144	3,365	100%	32 departamentos + 1 distrito capital
DEPARTMENT OF CUNDINAMARCA (EXCL. BOGOTÁ D.C.)	22,435	2,200,790	98	8	3,512	5%	115 municipios
DEPARTMENT OF CUNDINAMARCA (INCL. BOGOTÁ D.C.)	24,210	9,040,906	373	44	4,862	30%	116 municipios
BOGOTÁ METROPOLITAN AREA	3,732	8,074,212	2,164	n/a	n/a	n/a	18 municipios
BOGOTÁ	1,775	6,840,116	3,854	36	5,296	25%	20 localidades

LIMA



Approximately 370,000 people live in the largely self-organising district of Villa El Salvador on the outskirts of the city. The area began as a shantytown in the empty sand flats to the south of the city almost 40 years ago because of the urgent housing shortage among immigrant families.

Lima is Peru's capital and largest city. It is located on desert land on Peru's Pacific coast, around the valleys of the Chillón, Rímac and Lurín rivers, and forms, together with the major port of Callao, a continuous urban area referred to as the Metropolitan Region of Lima and Callao.

Following the Spanish conquest of the Inca Empire, Lima was established as the capital of the Viceroyalty of Peru, which at the time corresponded roughly with the whole Spanish colonial empire. Its prestige was enhanced by the fact that Callao served as the shipping base for all Incan gold that was sent back to Europe, and Lima also hosted South America's first university and printing press. The city flourished during the seventeenth century as the centre of a trade network that extended as far as Europe and the Philippines, but the city's growth was hampered by a series of major earthquakes between 1582 and 1746, the last of which caused immense damage. Lima nevertheless remained the most important Spanish

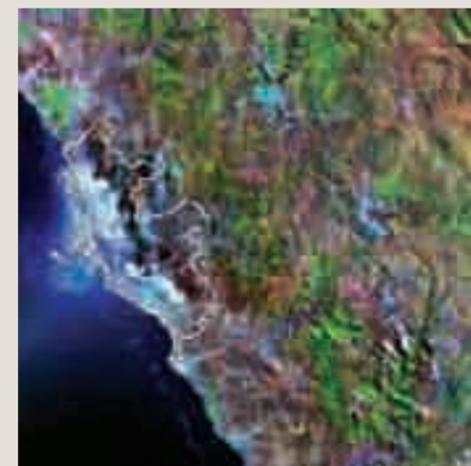
city in South America until the early nineteenth century.

After independence, a mid-nineteenth-century economic boom led to renewed growth, and in 1872 the city walls were torn down to enable expansion. However, during the 1879-1883 War of the Pacific, Chilean troops occupied Lima, destroying and burning some parts of it. At the end of the nineteenth century, the city remained relatively small, with a population of around 170,000. But from the 1940s onwards, internal immigration accelerated growth – from 650,000 in 1940, to 1.85 million in 1960, and to 4.6 million in 1980 – which outstripped public services, giving rise to large shanty towns, or *pueblos jóvenes*, some of which have now been retrofitted with infrastructure and are fully incorporated into Lima.

The Metropolitan Region of Lima and Callao today is home to almost 7.8 million people, spread over an area of 2,800 km². The vast majority live within the City of Lima, Peru's industrial and financial centre, which

accommodates more than two thirds of the country's industrial production and most of its service sector. Callao remains one of the main fishing and commerce ports in South America, handling 75 per cent of Peru's foreign trade. Consequently, the Metropolitan Region of Lima and Callao accounts for 47 per cent of Peru's GDP, and most of the foreign companies operating in the country are based there.

Public transport provision is a major challenge for Lima. Since privatisation in the 1980s, an illegal but tolerated system of private mini-buses created erratic and sometimes dangerous travel conditions in the city. In 2005, the municipality was given authority to extend the metro network beyond its one line, while a BRT system is also planned.



Administrative city boundary
Metropolitan region boundary

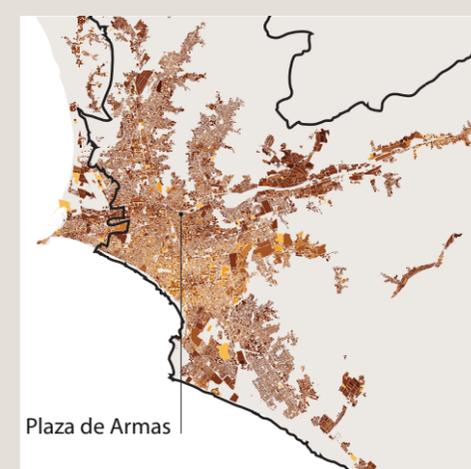
LIMA URBAN AGGLOMERATION

1950	2000	2020
1,065,888	7,116,441	9,251,023

LIMA

1950	2000	2020
n/a	6,400,000	n/a

Yannick Jochem



Advanced High Relatively high Relatively low Low Poorly educated Administrative city boundary

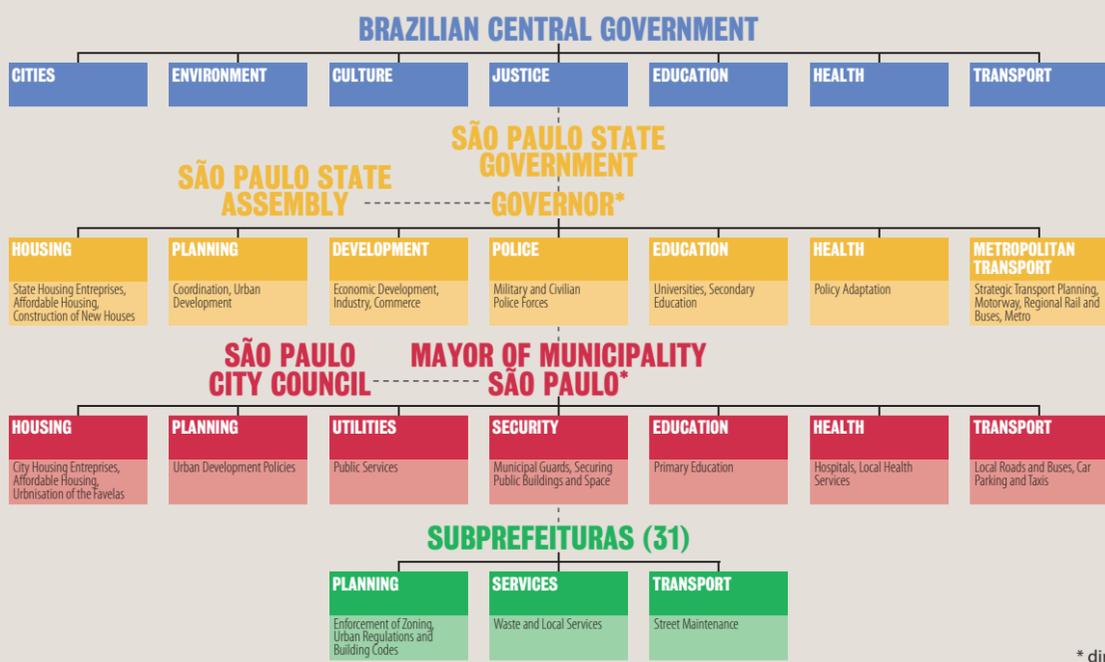
Education levels

While the national literacy rate in Peru is around 88 per cent, it rises to almost 96 per cent in Lima, reflecting the higher concentration of better facilities and levels of educational attainment across the capital. Nevertheless, within the city there is a clear pattern of inequality with less educated populations concentrated on the fringes. Many districts such as Villa Maria del Triunfo and Villa El Salvador in the South, and Ventanilla and Puente Piedra in the North concentrate the highest number of people without primary education, while in central districts such as San Isidro, San Borja and Miraflores over 60 per cent of the population has higher levels of education.

	AREA (KM ²)	POPULATION (2005)	DENSITY (PEOPLE/KM ²)	GDP (BN US\$ CURRENT)	GDP/CAPITA (US\$ CURRENT)	% OF NATIONAL GDP	ADMINISTRATIVE UNITS
PERU	1,285,220	26,152,265	20	79	3,039	100%	25 regiones
REGION OF LIMA PROVINCIAS (EXCL. METROPOLITAN REGION OF LIMA AND CALLAO)	32,129	812,048	25	n/a	n/a	n/a	177 distritos
REGION OF LIMA PROVINCIAS (INCL. METROPOLITAN REGION OF LIMA AND CALLAO)	34,923	8,577,163	246	n/a	n/a	n/a	226 distritos
METROPOLITAN REGION OF LIMA AND CALLAO	2,794	7,765,115	2,779	37	4,829	47%	49 distritos
LIMA	2,665	6,924,547	2,598	n/a	n/a	n/a	43 distritos

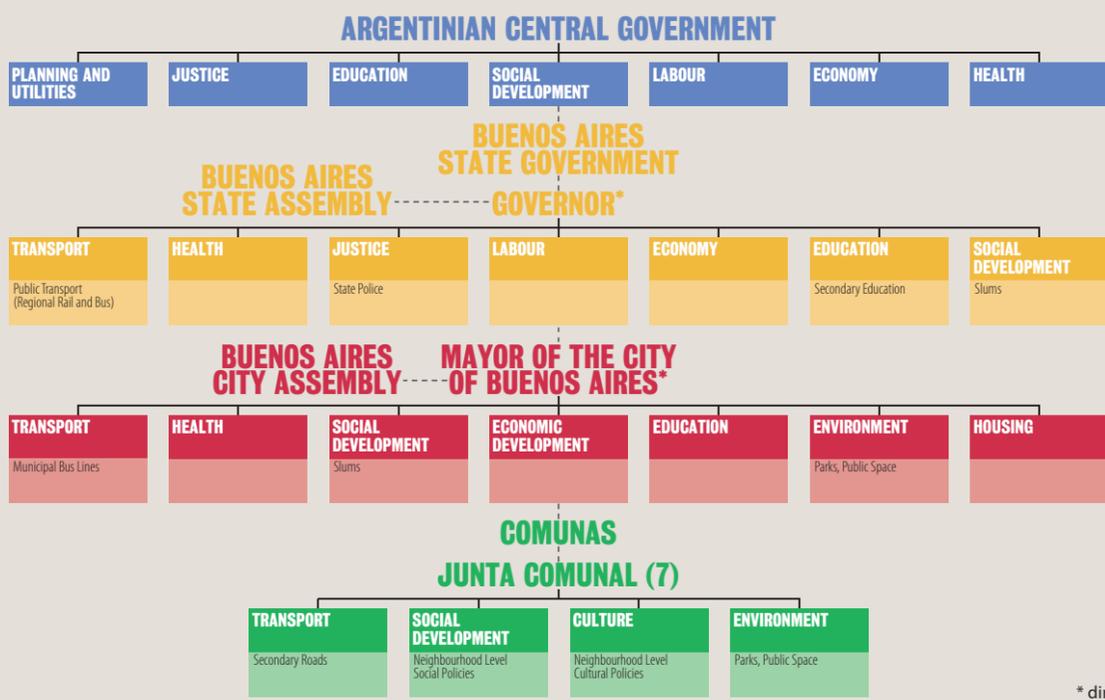
GOVERNING CITIES

— executive power including the right for regulatory overwrite
 - - - some limited powers
 ■ National Level
 ■ State Level
 ■ City Level
 ■ Borough Level



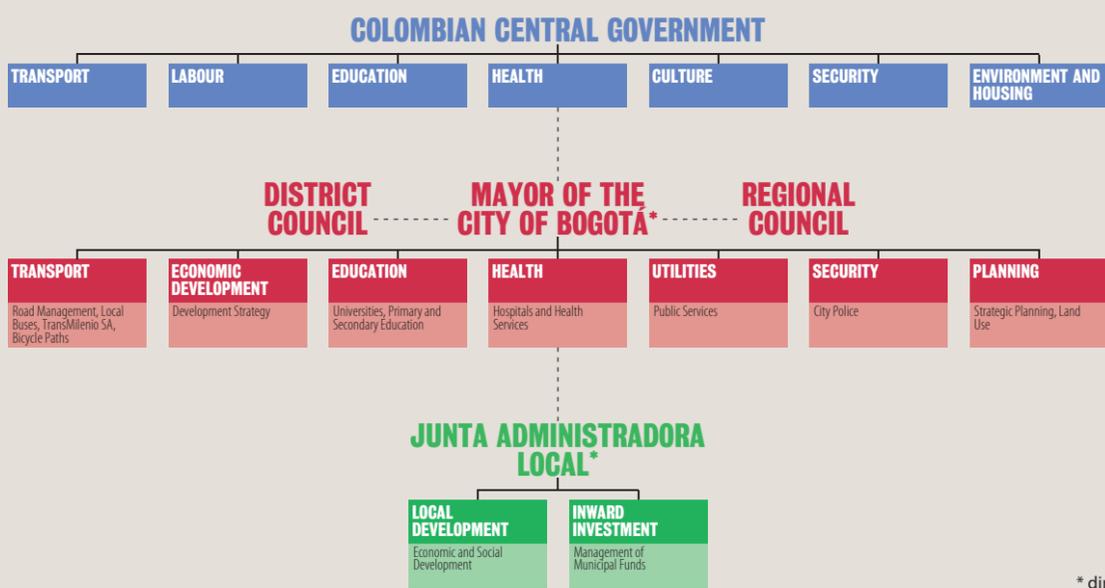
SÃO PAULO

São Paulo's city government is led by a directly-elected mayor, and São Paulo State is led by a directly-elected governor. The mismatch between São Paulo's municipal boundaries and the extent of the city requires these two levels to work very closely together. In terms of transport, the city government controls part of the urban transport system while the state is responsible for integrated transport planning across the metropolitan region. With respect to housing, both levels have housing enterprises with specific responsibilities. As concerns security, the military and civilian police forces fall under the State's authority, while the city maintains a local police force. In the field of education, responsibilities are divided between the state and the city governments while in health, an institutionalised structure of management exists that distributes responsibilities to federal, state and local governments. A third decentralised level also exists under the municipality: 31 *subprefeituras* are the main point of contact for the population, manage local public services and have some planning and transport responsibilities.



BUENOS AIRES

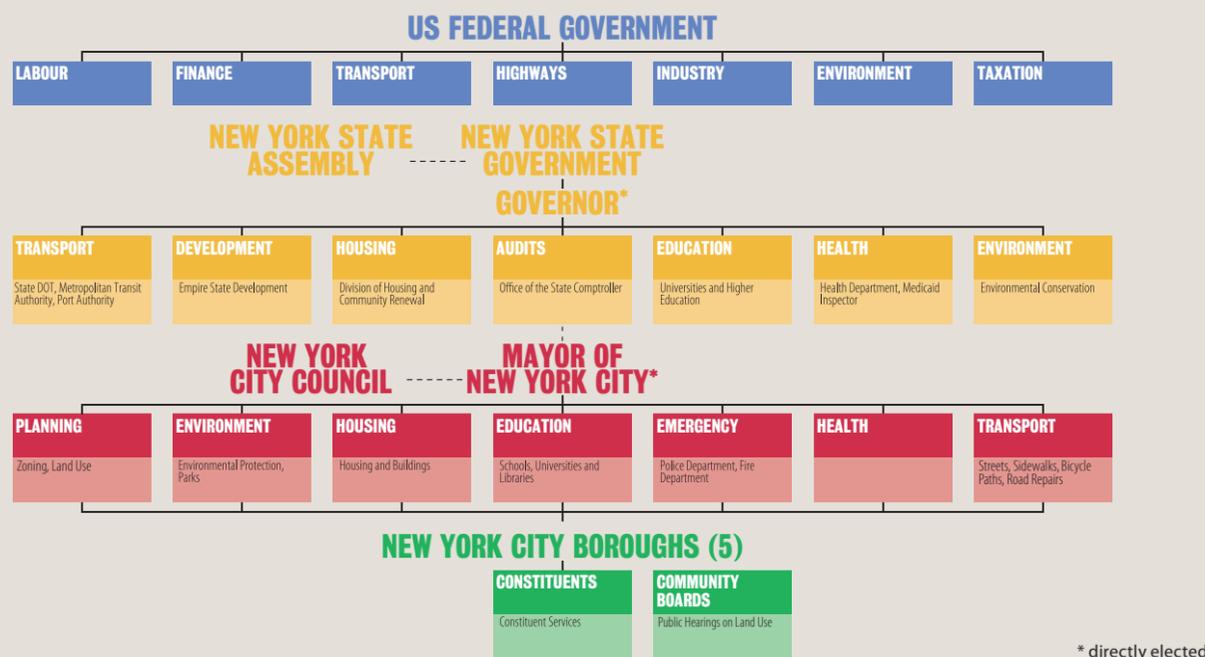
In 1994, the City of Buenos Aires adopted a constitution that allows its citizens the right to choose their own government. The city, Argentina's capital, is governed by a directly-elected Mayor and a 60-member City Assembly. City government manages education, health care, housing, parks and social and economic development. But provincial government, led by a directly-elected governor, retains many functions, including policing. While the city can regulate land use, it cannot independently organise public transport (with the exception of municipal bus lines), which is managed by private companies under supervision of the provincial government. Additionally, the Buenos Aires metro and commuter rail network has been privatised since 1994, stripping governments on both levels of any strategic planning with respect to transport. In 2007, the city embarked on a new decentralisation scheme, creating new comunas managed by seven-member elected committees. These have authority over social and cultural policies at neighbourhood level as well as the management of green spaces and secondary roads.



BOGOTÁ

Bogotá's city government is headed by a directly-elected mayor and a separately-elected council. As Colombia's Capital District, it has the administrative status of a department and thus enjoys full autonomy from Cundinamarca, the greater administrative area in which it is located. The Mayor operates as the executive arm of the city government, with the city council performing a legislative function. City government's remit includes transport, environmental issues, economic development, healthcare, and education. In the field of security, even though the police is a national force, the Mayor is constitutionally the Chief of Police of the city. Beneath city government, Bogotá has 20 partially autonomous Local Administrative Boards – while the local population elects its members, it is the Mayor of Bogotá that chooses the local Mayor. These Local Administrative *juntas* prepare district level plans and programmes for economic and social development and are also responsible for the management of the municipal funds they receive.

These six charts are illustrative indications of how government structures are organised in São Paulo, Buenos Aires, Bogotá, New York, Mumbai and London. They are designed to give a crude impression of how the basic patterns of responsibilities are organised within each of these cities, identifying some of the key functions carried out at central, state and local government level. While they offer a useful comparative overview they are not intended to give an accurate account of the detailed systems of accountability, which can only be explained comprehensively on a case-by-case basis.

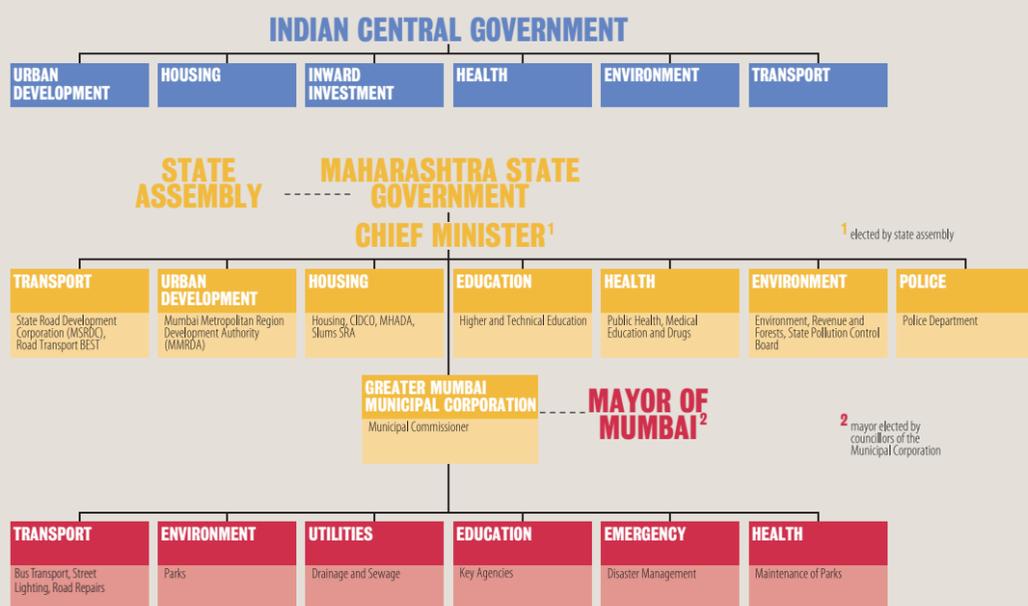


NEW YORK

New York City's government operates within a legislative framework determined at state level (the Federal State of New York). Federal government in the United States has no direct powers to direct or legislate for the actions of individual cities, though federal agencies operate in all parts of the country. However, the state level of government is important both as a legislator but also because of its powers of budgetary supervision. The state also runs the major transport systems, is co-owner of the city's airports and some elements of economic development. Within its powers, the city is powerful by international standards, with the Mayor of New York one of the most important politicians in the United States. Local legislation is the responsibility of the City Council. New York City government is responsible for public education, public hospitals, social care, the environment, local transport and planning. There are five boroughs, headed by an elected Borough President, which have rights to be consulted, though they provide no services. There are also 59 Community Boards which provide advocacy for neighbourhoods.

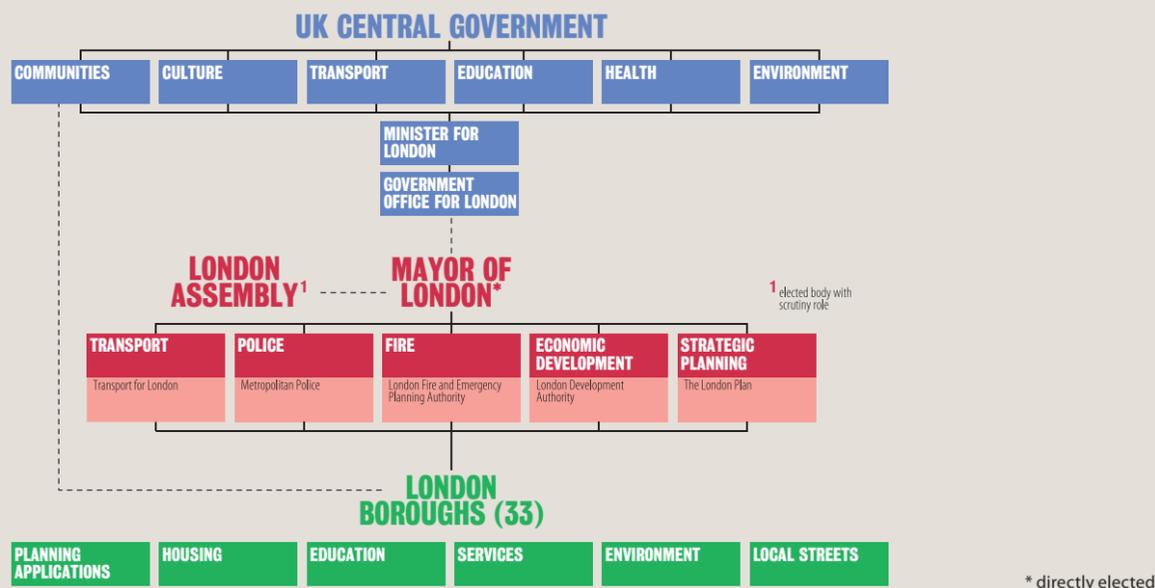
MUMBAI

Mumbai's government involves interventions at national, the state of Maharashtra and local levels. The national government has a number of powerful departments that provide services and resources for the city. There is a powerful level of state government, headed by a Chief Minister, which operates many services within the city, including roads, housing, education, health care, environmental services and policing. The city government is headed by an elected Mayor with limited power. The real executive power lies in the hands of the Municipal Commissioner and the Secretary for Special Projects, both civil servants appointed directly by the Maharashtra State government. The state government is about to constitute a Metropolitan Planning Committee for the Metropolitan Area as required by the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). There is significant overlap between responsibilities at state and city levels. Overall, the city government is relatively less powerful than the state as required by the JNNURM.



LONDON

London's government operates within a relatively centralised, unitary state. Several central departments have responsibilities within the city, including health care, the regulation of commuter railways and as final arbiter for major planning decisions. Central government also has a number of regulatory powers over the Mayor and the city's boroughs. The Mayor of London is the elected executive for a number of major city-wide services, notably public transport and spatial planning. The Mayor is overseen by an elected, non-legislative assembly. There are also 32 elected borough councils whose responsibilities include schools, social care, the environment, local transport and local planning. The City of London, the UK capital's financial and business hub, has the powers of a borough but also several additional responsibilities. The government of London has been reformed on several occasions since the late-nineteenth century, most recently in 2000 to allow Londoners to vote for a mayor for the first time in their history.



CITIES AND REGIONS

Cities are dynamic, while administrative geography is static. As cities have grown, many municipal boundaries look increasingly outdated and unrepresentative of the functional extent of the city.

The Urban Age has a primary focus on the municipal level of organisation, reporting data at this level and targeting municipal government in drawing out implications for public policy. Nonetheless, it is important to see municipalities within their wider metropolitan and regional context. For example, while the São Paulo municipality (covering around 1,500 km²) comprises more than ten million people, the wider São Paulo Metropolitan Region (covering around 8,000 km²) has a population of over 19 million, and includes many of the peripheral settlements (including decentralised industrial areas and favelas) that form part of São Paulo's functional metabolism. At the other extreme, Shanghai covers more than 6,000 km² and includes extensive areas of agricultural land as well as built-up space.

Other Urban Age cities show a varying degree of matching. While London's boundaries broadly match the 'Green Belt' that constrains its growth, the city forms part of the densely-populated south-eastern region, with cities around its periphery forming part of its functional economic geography. New York includes rural areas in Staten Island, but across the Hudson River, Newark and Atlantic City are not only separate municipalities, but part of a separate state (New Jersey). In other cases, like Berlin and Johannesburg, there is a closer correlation between built-up area and municipal boundaries.

These differing administrative arrangements have implications for both analysis and governance. Firstly, they require a degree of caution in interpreting raw data on a city-wide basis; apparent dissimilarities in economic

and social structure, or physical form, can be exaggerated or even brought into being by differing geographies. For this reason, some elements of the Urban Age research are presented for a specified area: our density diagrams on pages 32-33 are presented in relation to 100 x 100 km² tiles, and the diagrams on this page represent 315 x 315 km².

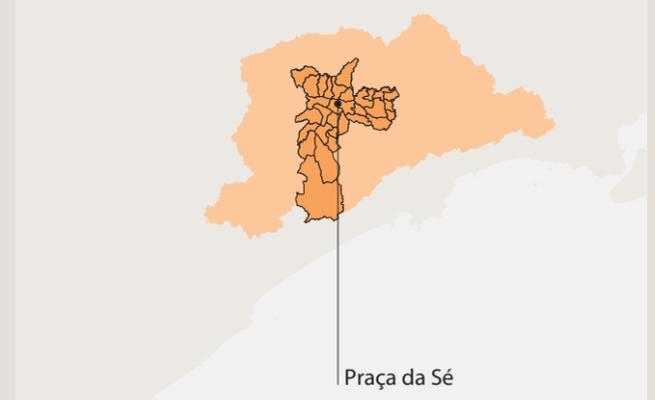
Mismatched boundaries can create the potential for conflict between neighbouring administrations. For example, while São Paulo's municipal boundary extends southwards to take in two major water sources (the Guarapiranga and Billings reservoirs), upstream pollution of the Tiete and Pinheiros rivers remains a challenge for cooperation between São Paulo and neighbouring municipality Guarulhos.

Conflicts can arise over social and economic issues too. In cities like Bogotá, the city's boundaries are seen as undermining social cohesion and the city's tax base, as richer people migrate to suburbs located in different municipalities (attracted by lower tax rates and, in some cases, by planning regulations that permit more sprawling development patterns).

A related problem is the way in which the political representation of urban areas lags behind their relative growth, often compounding an anti-urban bias in national political discourse. For example, while São Paulo State houses more than 20 per cent of Brazil's population, its representation in Brazil's National Assembly is capped at 13.5 per cent, with only four per cent of Senate seats, which are shared equally among Brazil's states. This means that São Paulo State has less than two representatives per million people in the National Assembly, compared to an average of five across Brazil.

SÃO PAULO METROPOLITAN REGION
7,944 km²

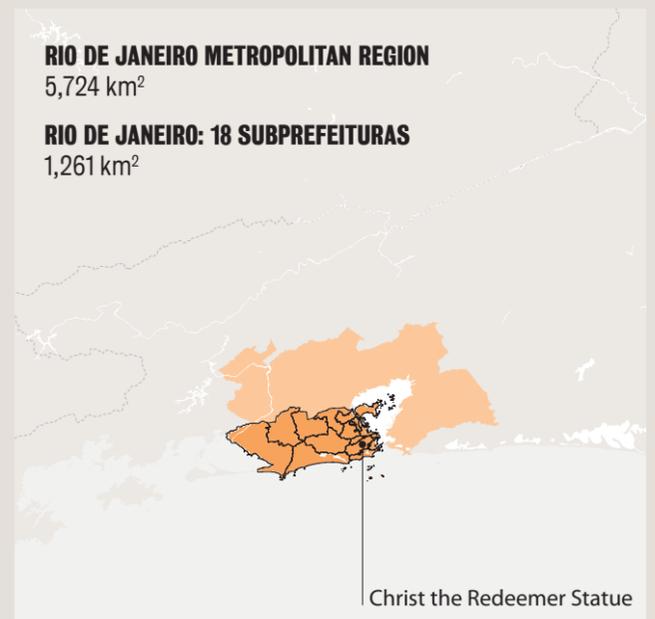
SÃO PAULO: 31 SUBPREFEITURAS
1,525 km²



SÃO PAULO

RIO DE JANEIRO METROPOLITAN REGION
5,724 km²

RIO DE JANEIRO: 18 SUBPREFEITURAS
1,261 km²



RIO DE JANEIRO

GREATER BUENOS AIRES
3,839 km²

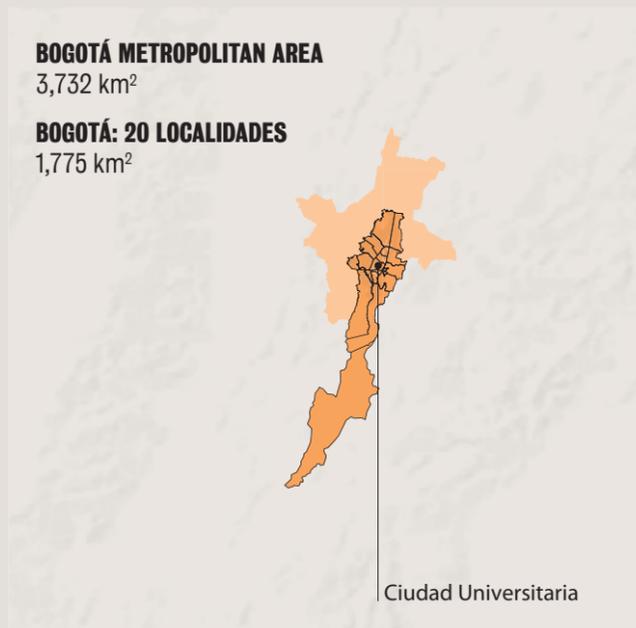
BUENOS AIRES: 15 COMUNAS
203 km²



BUENOS AIRES

POPULATION GROWTH

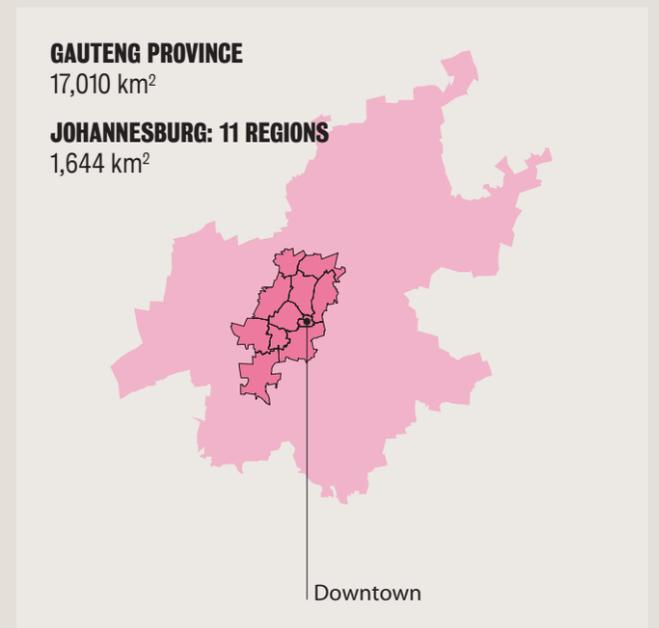
URBAN AGGLOMERATION	1950	2008	2025
SÃO PAULO	2,334,038	19,097,819	21,427,559
RIO DE JANEIRO	2,950,238	11,890,040	13,413,254
BUENOS AIRES	5,097,612	12,901,465	13,767,514
BOGOTÁ	630,315	7,969,462	9,600,119
LIMA	1,065,888	8,139,667	9,599,648
NEW YORK	12,338,471	19,181,849	20,628,241
LONDON	8,360,847	8,585,818	8,617,842
SHANGHAI	6,065,511	15,244,010	19,412,266
MEXICO CITY	2,883,228	19,178,471	21,008,776
JOHANNESBURG	899,876	3,506,876	4,040,979
BERLIN	3,351,757	3,412,490	3,435,600
MUMBAI	2,857,359	19,348,649	26,385,026



BOGOTÁ



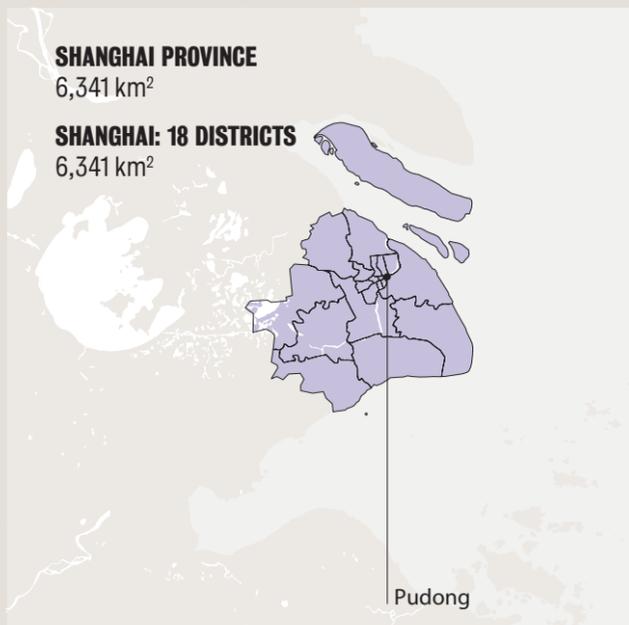
NEW YORK CITY



JOHANNESBURG



LIMA



SHANGHAI



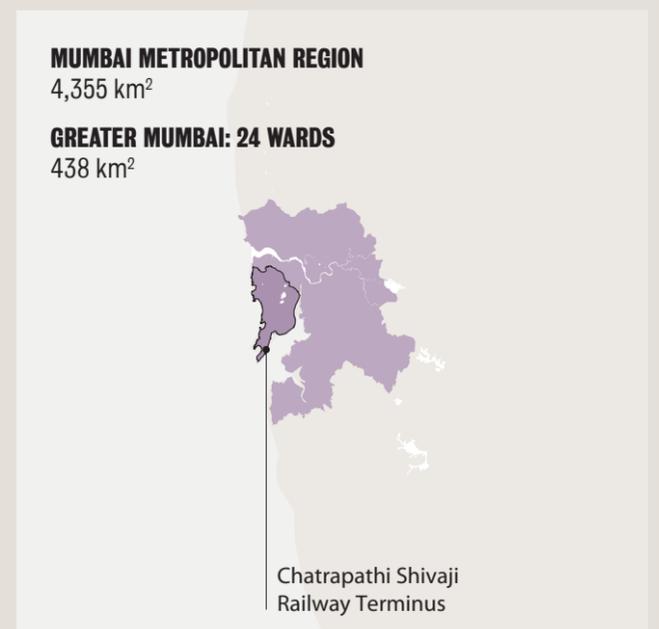
BERLIN



MEXICO CITY



LONDON



MUMBAI

URBAN FOOTPRINT

These previously unpublished maps identify the built-up area (shown in grey) of twelve world cities, drawn to the same scale. They have been drafted using the latest 'heat-sensitive' GIS technology based on recent satellite views rather than on census or survey data. As a result they give both an accurate and contemporary account of the real shape of the human footprint in these metropolitan regions today, offering a new perspective of settlement patterns across a range of global cities.

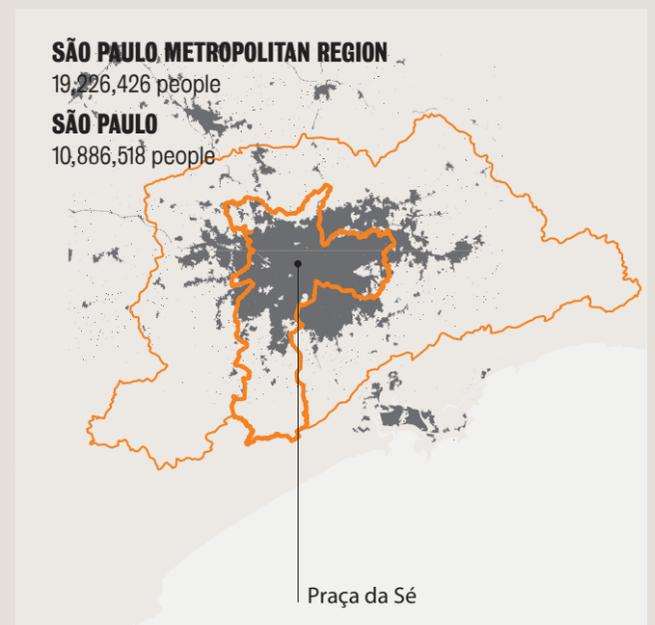
Two phenomena immediately stand out. The first is the clear misalignment in some cities between the administrative boundaries and where people live and work. São Paulo spills out of its municipal boundaries with a level of uncontrolled peripheral development that is similar to Mexico City (which overshoots the boundary of Mexico's Distrito Federale governed by the city's Mayor) and the lower density urban development on the fringes of New York City (outside the five boroughs controlled by New York's Mayor).

Instead, London demonstrates the effectiveness of its 'Green Belt' – revealed by the white circle around its periphery – that has acted as an effective urban containment boundary for the last 50 years, and is now controlled by the Mayor of London and the Greater London Authority. Shanghai's vast administrative boundary encompasses nearly all the continuous built-up area and the large number of farms and agricultural land, as well as the Chong Ming Island in the Yellow River Delta. Reforms in boundary configuration have determined that the bulk of Bogotá's population falls under the administrative authority of the city Mayor, while the larger component of Buenos Aires falls within the Buenos Aires State Government.

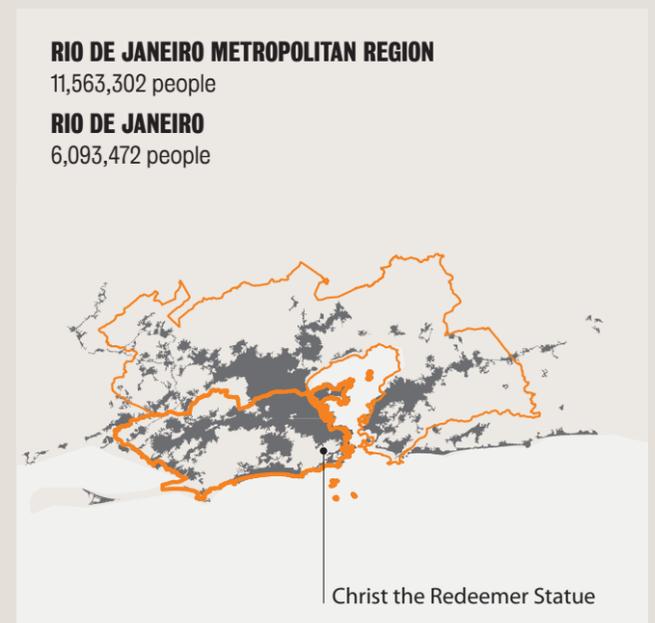
The second significant finding is the extreme variation in 'land-take' of cities in response to their geographic locations and differing population densities (further data on density follows on the next pages). Mumbai, with a population size comparable to São Paulo and Shanghai – is densely packed in a relatively small footprint within its natural contours between the Arabian Sea and the Thane Creek. São Paulo has been able to expand horizontally along its high plateau, encroaching on natural features and water reservoirs to the South. In a similar fashion Mexico City, Buenos Aires, Rio de Janeiro and Lima are constrained by the incidence of natural features including high mountains on one side and the ocean coastline on the other, which have shaped their geometries with 'fingers' of (often informal) settlements along the deep valleys connecting to the more structured waterfront areas. Shanghai reveals a pattern of organic 'satellite towns' along radial routes feeding to the heart of this Asian megacity, with the bulk of development in central areas close to the Huang-Po River. Johannesburg is a unique phenomenon across the sample of Urban Age cities, with its relatively empty inner-city core, while a large proportion of its population is located in the wider Gauteng Province, which is set to become one of the largest metropolitan areas in Africa.

BUILT-UP AREA

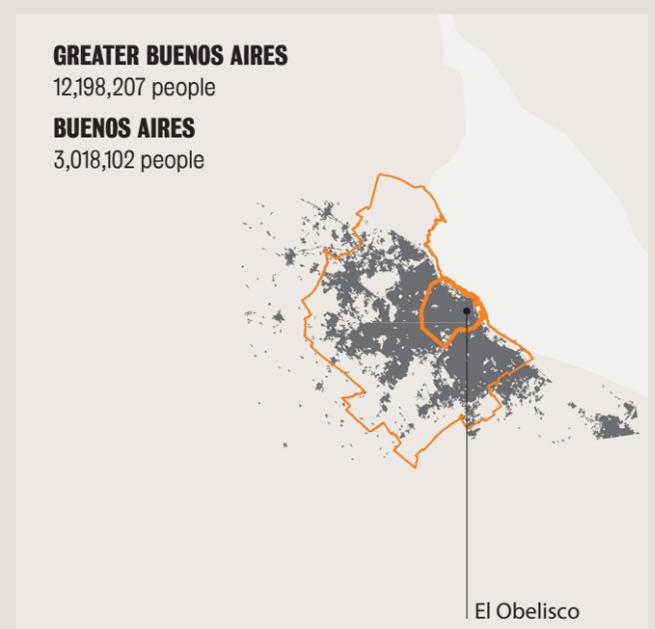
	METROPOLITAN REGION	ADMINISTRATIVE CITY
SÃO PAULO	21%	56%
RIO DE JANEIRO	29%	51%
BUENOS AIRES	47%	89%
BOGOTÁ	data not available	18%
LIMA	26%	25%
NEW YORK	13%	88%
LONDON	7%	53%
SHANGHAI	18%	18%
MEXICO CITY	25%	36%
JOHANNESBURG	5%	18%
BERLIN	11%	38%
MUMBAI	15%	53%



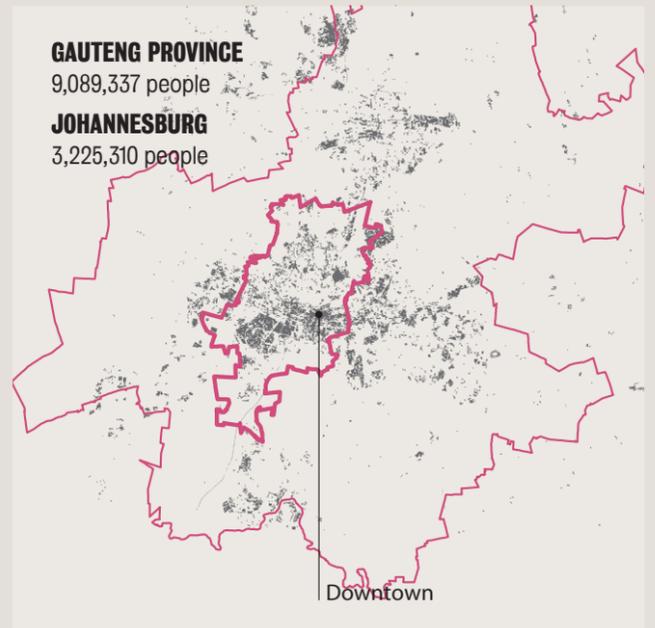
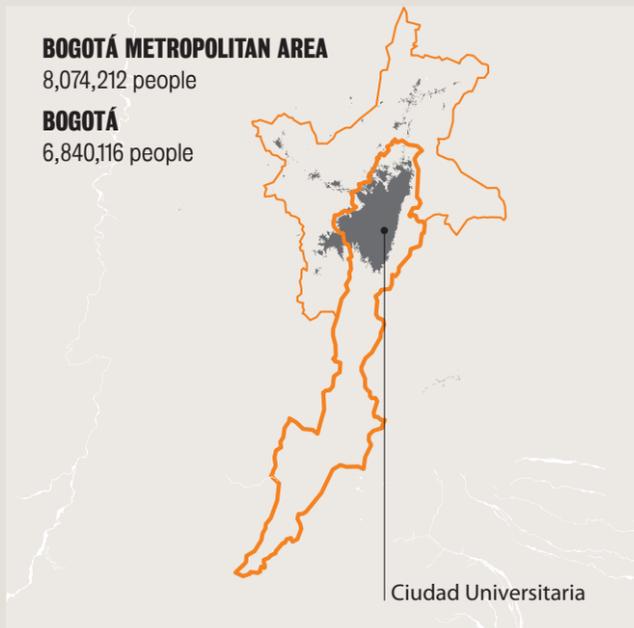
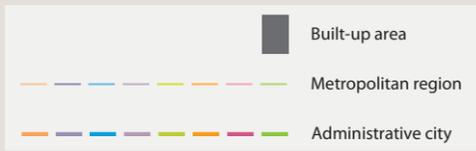
SÃO PAULO



RIO DE JANEIRO



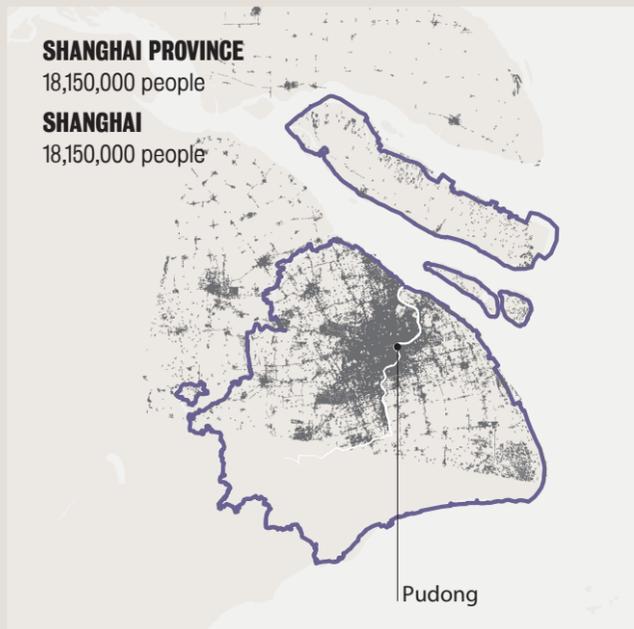
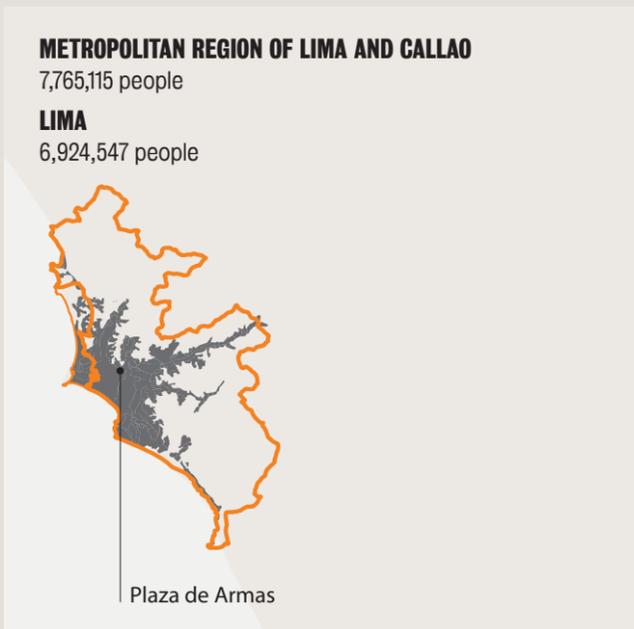
BUENOS AIRES



BOGOTÁ

NEW YORK CITY

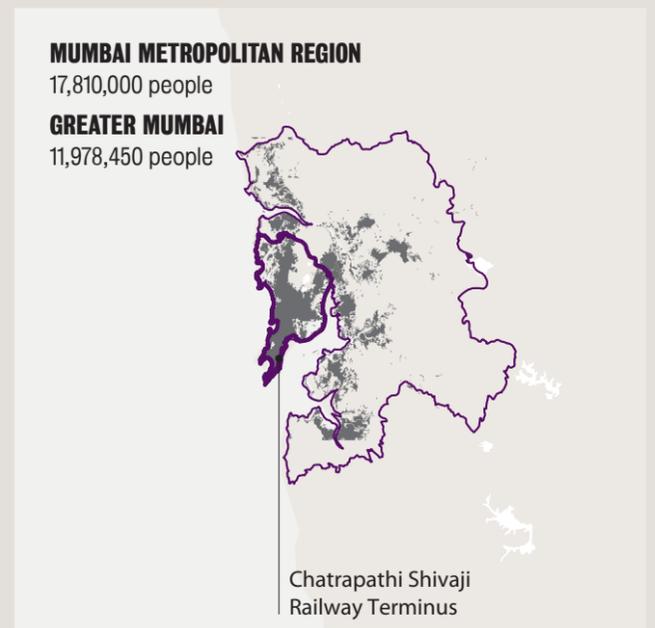
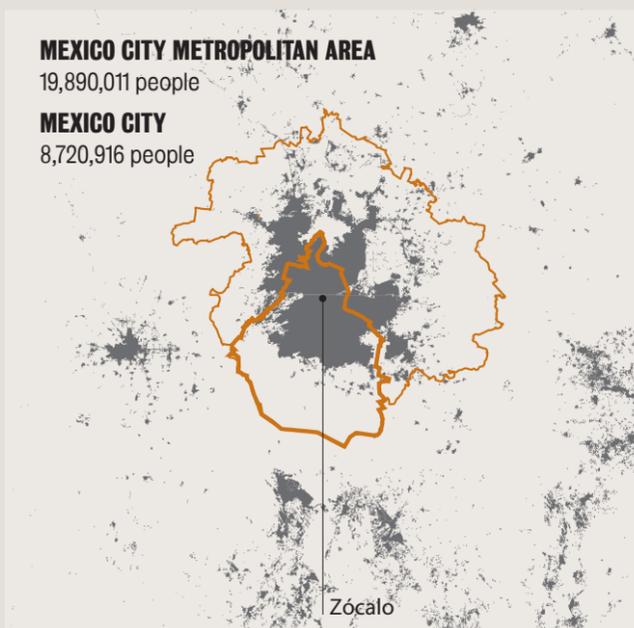
JOHANNESBURG



LIMA

SHANGHAI

BERLIN



MEXICO CITY

LONDON

MUMBAI

DENSITY

Urban density (illustrated here in terms of the number of people living in each km² of a 100 x 100 km² urban area) is driven by topographical constraints, by the provision of public transport and other infrastructure, but also by inherited traditions of urban planning and development. While high density can be a symptom of overcrowding, it can also enable a better quality of life and limit environmental impact by enabling walking and cycling, enhancing urban vitality and making the provision of public transport and other amenities more viable.

Urban Age cities include a wide range of different density patterns, from the very high densities exhibited in the centres of Mumbai and Shanghai, to the much lower density development patterns of Berlin and London. A third category, exemplified among the Urban Age cities by Johannesburg but also visible in many North American cities, shows limited areas of high density set around a downtown that no longer has a residential population, in the midst of a very low-density sprawl.

In falling between the extremes, most of the Urban Age South American cities exhibit similar patterns to New York. Buenos Aires, Bogotá, Rio de Janeiro and Lima show how the constraints of mountains and water drive densities that rise to a 'spike' like Manhattan's.

São Paulo, on the other hand, is multi-centred (though with a high-density centre) and similar in its overall density pattern to Mexico City. This is striking, given that the two cities are very different in terms of their urban form: São Paulo's skyline is dominated by high-rise apartment blocks, while Mexico City is consistently low-rise (see next section for analysis of these differing forms). Urban form and density are different concepts, however, and the similarity of these two cities' density profiles shows how high-rise building does not necessarily create higher density by comparison with more tightly planned low-rise development, especially when individual towers are surrounded by large areas of motorways or unused space.



SÃO PAULO PEAK 29,380 pp/km²



RIO DE JANEIRO PEAK 29,450 pp/km²

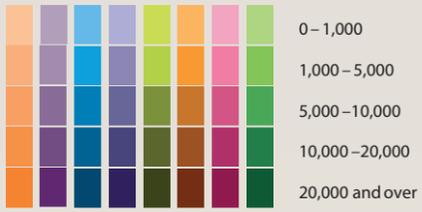
RESIDENTIAL DENSITIES OF CITY AND REGION (PEOPLE/KM²)

DENSITY	METROPOLITAN REGION	ADMINISTRATIVE CITY	CENTRAL AREA (WITHIN 10 KM OF CENTRE POINT)	PEAK
SÃO PAULO	2,420	7,139	10,299	29,380
RIO DE JANEIRO	2,020	4,832	8,682	29,450
BUENOS AIRES	3,177	14,867	12,682	49,340
BOGOTÁ	2,164	3,854	21,808	59,870
LIMA	2,779	2,598	12,620	31,342
NEW YORK	783	9,551	15,361	53,000
LONDON	679	4,795	7,805	17,200
SHANGHAI	2,862	2,862	24,673	96,200
MEXICO	3,796	5,877	12,541	48,300
JOHANNESBURG	520	1,962	2,270	38,500
BERLIN	801	3,806	7,124	21,700
MUMBAI	4,090	27,348	34,269	101,066



BUENOS AIRES PEAK 49,340 pp/km²

Population Density (people/km²)



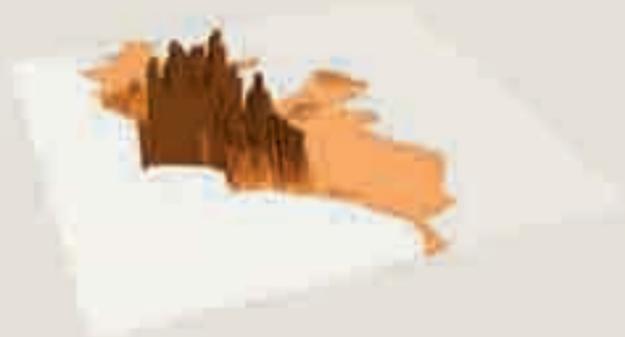
BOGOTÁ PEAK 59,870 pp/km²



NEW YORK CITY PEAK 53,000 pp/km²



JOHANNESBURG PEAK 38,500 pp/km²



LIMA PEAK 31,342 pp/km²



SHANGHAI PEAK 96,200 pp/km²



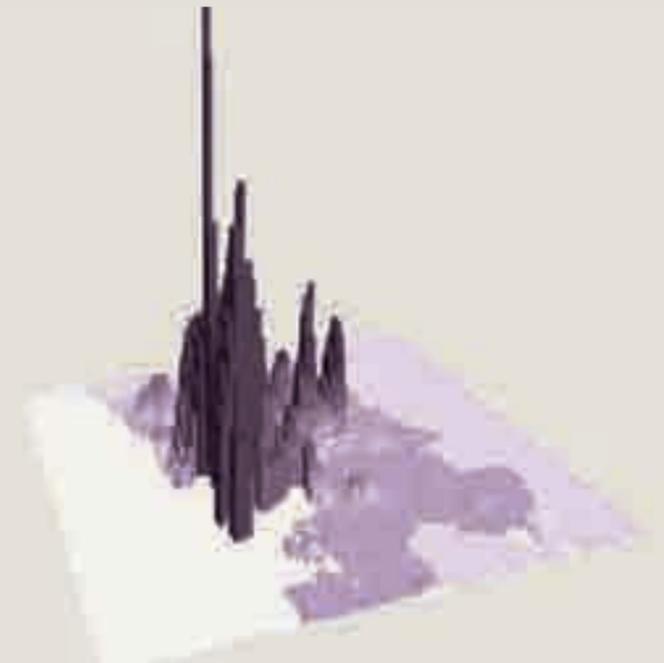
BERLIN PEAK 21,700 pp/km²



MEXICO CITY PEAK 48,300 pp/km²



LONDON PEAK 17,200 pp/km²



MUMBAI PEAK 101,066 pp/km²

URBAN FORM

The layout of streets, buildings and spaces forms the spatial DNA of urban growth, the patterns through which city life can develop and cities can grow. These spatial arrangements are critical to the liveability of cities, to the quality of life that they can offer their residents, to the density that they can accommodate, and to their flexibility in adapting to change and growth.

The images presented here help to visualise the micro-structure of urban neighbourhoods, how buildings (in black) and open spaces (in white) come together to create an integrated urban whole. The maps presented each cover one km², usually near the centre of the city under analysis.

The South American cities exhibit a variety of spatial structures, reflecting their different historical inheritance and development patterns. The low-rise Palermo district of Buenos Aires exhibits a highly regular urban grid around a clearly defined centre, analogous to centrally planned European (and in particular Spanish) cities, and Lima's Miraflores district exhibits a similar form, while Bogotá's rectangular blocks with central courtyards, around Parque de Virrey, are more like New York's in their proportions.

São Paulo and Rio de Janeiro, on the other hand, have

a less regular urban form, reflecting their topographical characteristics and a colonial heritage that was Portuguese rather than Spanish. In Rio de Janeiro, the high-value apartment blocks on the headland between Ipanema and Copacabana beaches contrast starkly with the favelas that crawl up the slopes of Morro do Cantagalo. In São Paulo's wealthy Jardins District, south-west of Avenida Paulista (seen surrounded by larger buildings in the top-right corner of the diagram), high-rise tower blocks are set apart from the urban grid, making streets almost impossible to discern from other areas of open, usually gated, space.

The other Urban Age cities exhibit a similar diversity of urban layout. The central area of Buleshwar Market in Mumbai is formed by dense urban blocks, arranged efficiently along main streets and side alleyways. New York's East Village shows how a dense continuous street grid has adapted to different economic cycles, as do Mexico City's north-eastern neighbourhoods. In the Hongkou district of Shanghai and in Johannesburg, neighbourhoods are more dispersed, lacking the continuity found in the crescents of London's Notting Hill or in the perimeter blocks of central Berlin.

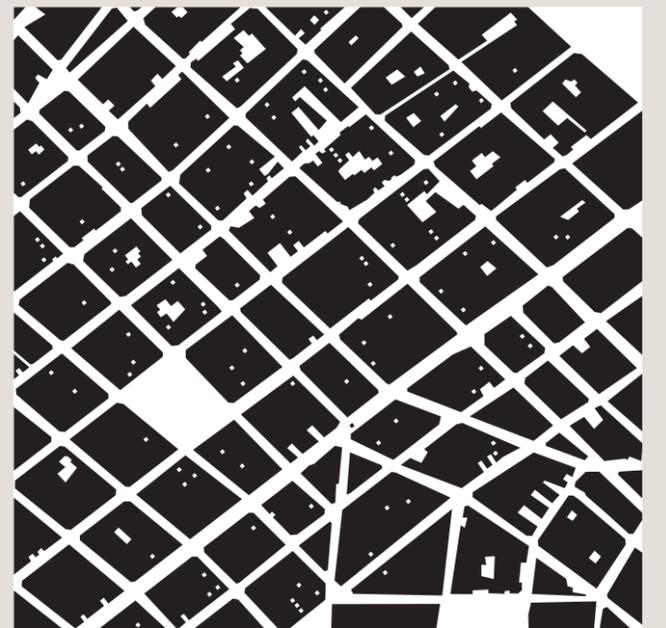
1 km



SÃO PAULO JARDINS



RIO DE JANEIRO COPACABANA



BUENOS AIRES PALERMO



Aerial view of the Jardins District in São Paulo.



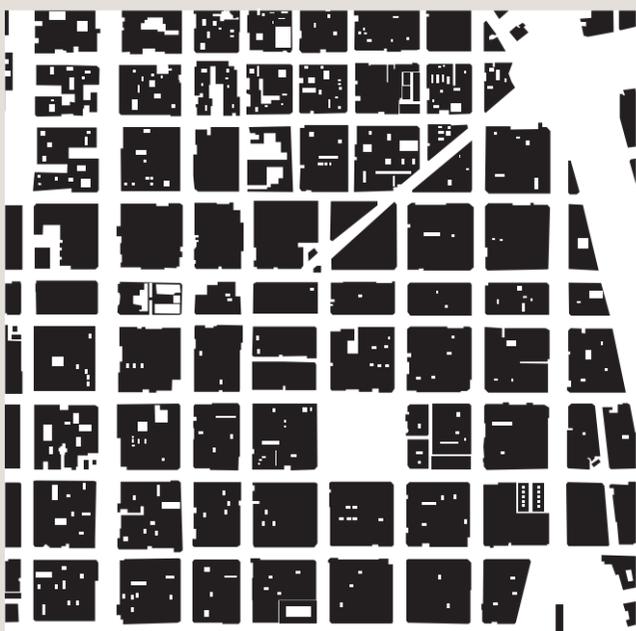
BOGOTÁ PARQUE DE VIRREY



NEW YORK EAST VILLAGE



JOHANNESBURG SANDTON



LIMA MIRAFLORES



SHANGHAI HONGKOU DISTRICT



BERLIN PRENZLAUER BERG



MEXICO CITY GUSTAVO A. MADERO DELEGACION



LONDON NOTTING HILL



MUMBAI BULESHWAR MARKET

MOVING IN THE CITY



Transport infrastructure is a critical driver of urban form, enabling centralisation of economic functions and the accommodation of a growing population along metropolitan rail and bus routes. Where public transport infrastructure is not in place, space-hungry motorways dominate, usually resulting in more sprawling forms of development, and generating congestion as private car use persistently runs ahead of road building.

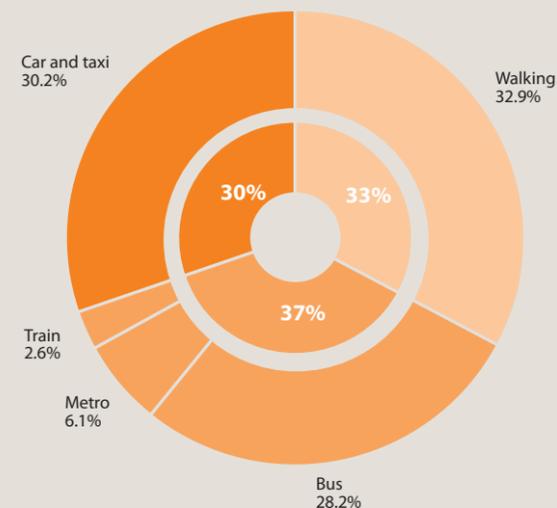
The Urban Age South America cities offer varying levels of transport infrastructure, though none has the extensive metro systems that have been put in place in London, New York and Berlin. As a result, many South American cities are now following Bogotá's example in seeking to implement 'bus rapid transit' systems, which re-allocate road space to dedicated bus corridors, thereby creating a bus system that can operate with a speed and frequency nearing that of metro systems, but without the considerable capital costs and disruption involved.

São Paulo and Rio de Janeiro show a three-way split between walking and cycling, public transport, and private car use, with a stronger bias towards car use in Rio de Janeiro. Buenos Aires has very high public transport use, but it is notable that this appears to have displaced walking and cycling rather than private car use, despite the city's compact urban form. Lima is dominated by various informal methods of road-based public transport (including micro-buses and taxis), reflecting its minimal public transport system, while the dominance of public transport in Bogotá's figures reflects the success of the TransMilenio system.

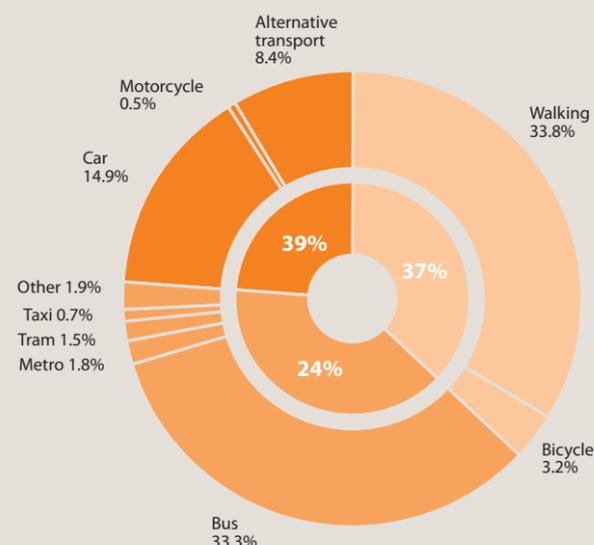
Buenos Aires has the most extensive rail network in South America, developed by a British-owned company in the late-nineteenth century. While this infrastructure has suffered from limited investment in recent decades, combined with pedestrianised central streets and a highly regular block formation, it creates one of South America's most walkable cities.

São Paulo has a small but growing metro system, and is crossed by major railway lines, reflecting the city's history as a centre for trade. While these railway corridors are dominated by freight, city transport planners are examining options for running more passenger services along them. The city is also currently implementing proposals for an orbital motorway network, to remove truck movements from its centre.

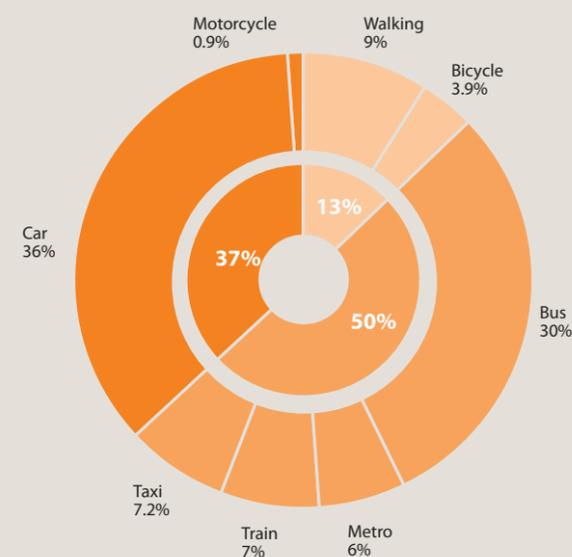
Bogotá and Lima both exhibit extremely low levels of public transport infrastructure. In Lima, even the limited bus networks have been privatised, leading to inconsistent provision of services across the city, though new investment is now underway. Bogotá had an equally poor inheritance, but the introduction of the TransMilenio 'bus rapid transit' system has made a dramatic difference to journey times and to the public realm within the city.



SÃO PAULO

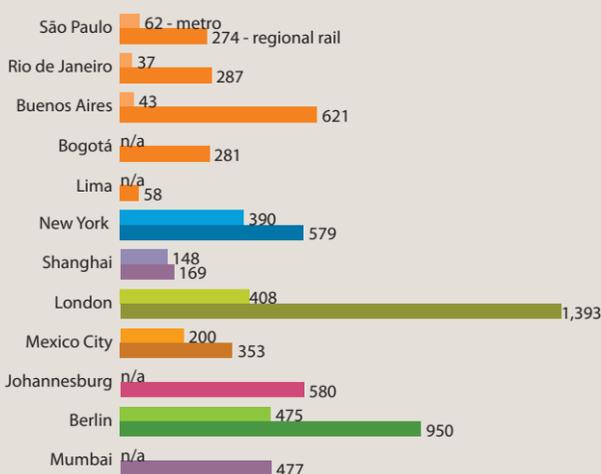


RIO DE JANEIRO



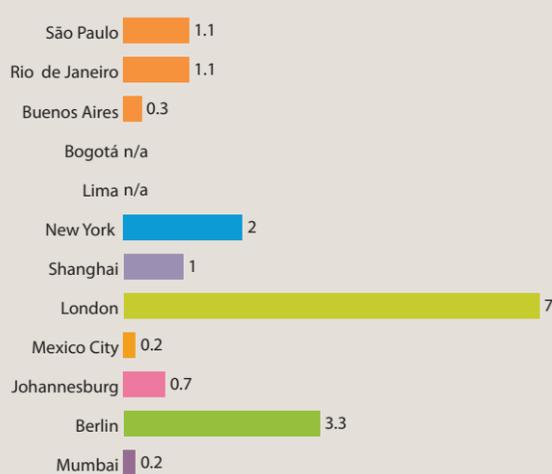
BUENOS AIRES

SYSTEM LENGTH (KM)

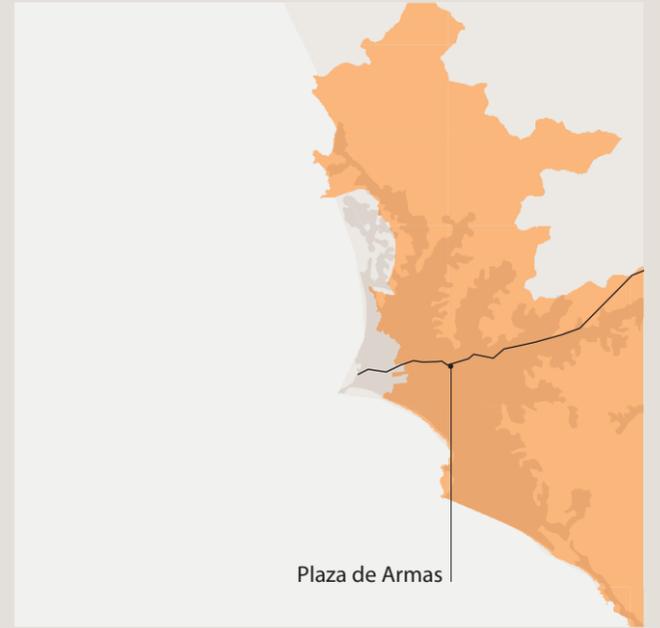
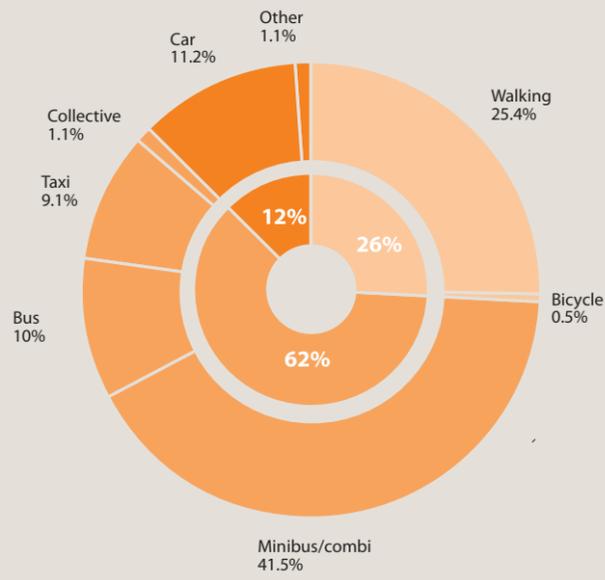
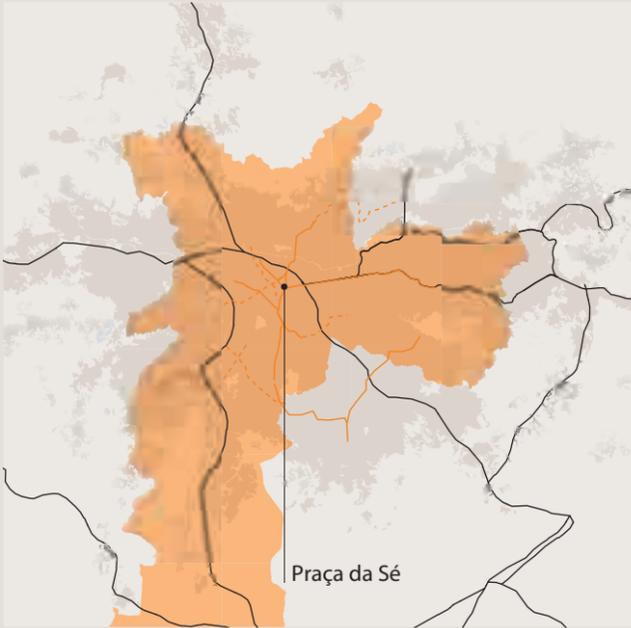


Besides metro systems which are most developed in Berlin, London and New York, regional rail is a significant component of rail transport in the twelve cities. The estimated GIS figures for the length of regional rail networks in each city within 70X70km emphasise the extensive amount of rail infrastructure in London and significant levels in Berlin, Johannesburg, Buenos Aires, New York and Mumbai.

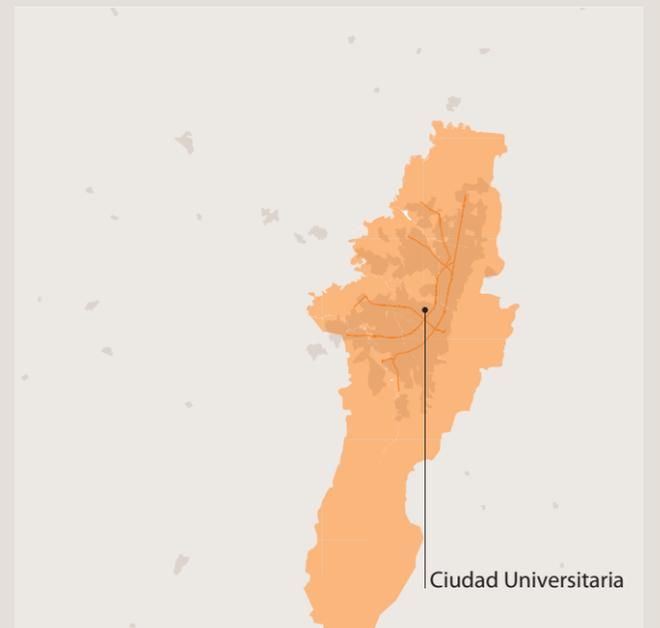
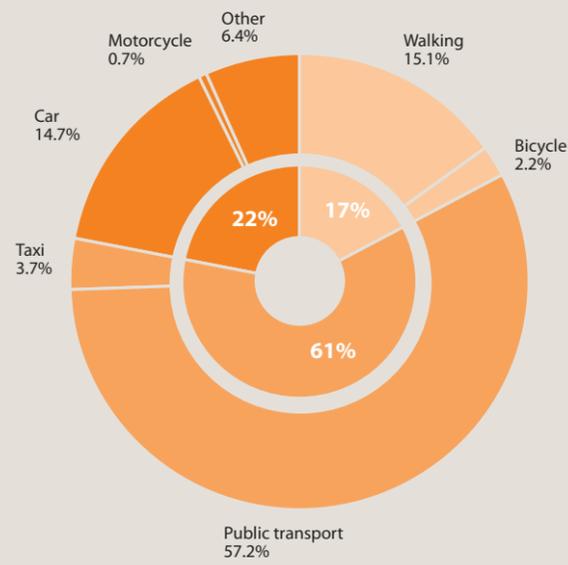
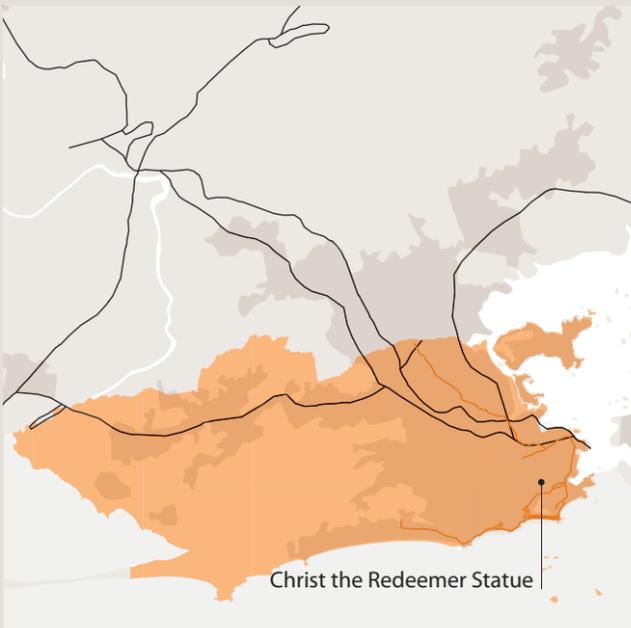
METRO TICKET PRICE (US\$)



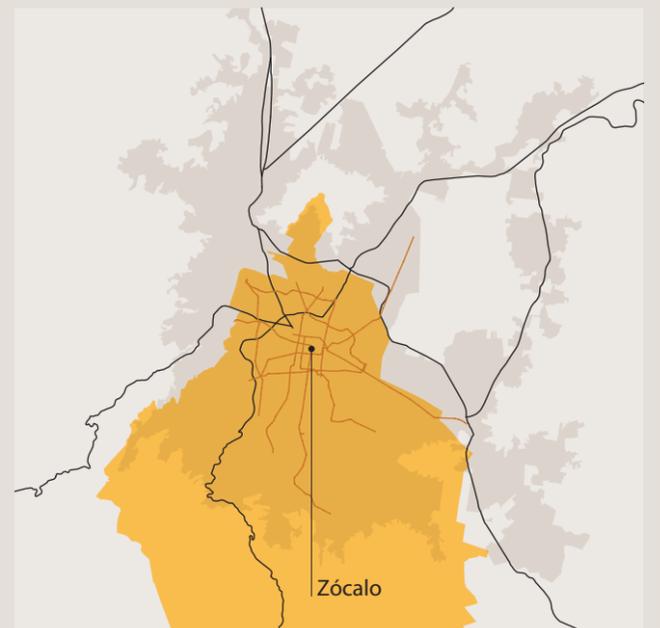
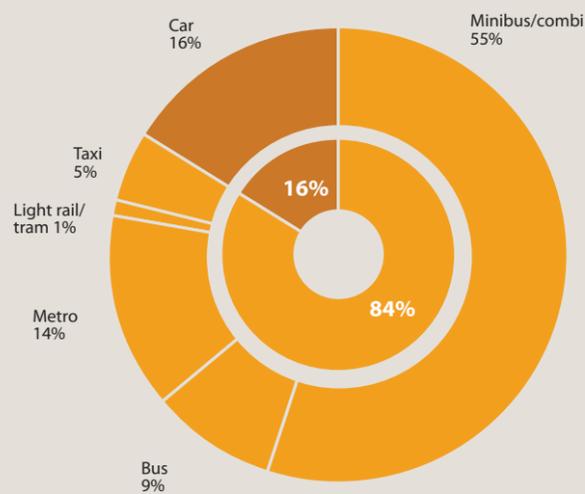
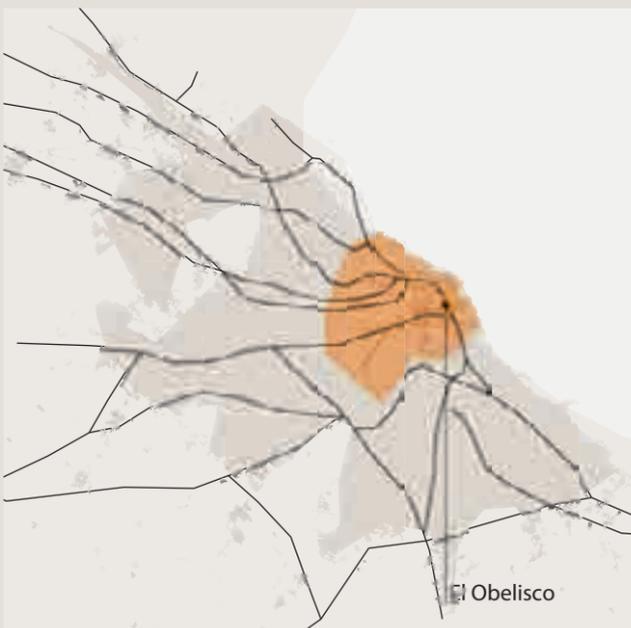
The above figures refer to the prices for similar single metro tickets. In Mumbai, the price is for a general class rail ticket and in Johannesburg for a rail ticket. London has by far the most expensive metro tickets (US\$ 7) amongst the twelve cities. Tickets in Buenos Aires, Mumbai and Mexico City are 10 to 30 times cheaper than in London and reflect the importance of the metro systems as an inclusive mode of transport there. Prices range from US\$ 0.70 to US\$ 1.10 in São Paulo, Rio de Janeiro, Shanghai and Johannesburg, while in New York and Berlin they are respectively US\$ 2.00 and US\$ 3.30.



LIMA



BOGOTÁ



MEXICO CITY

MOVING IN THE CITY

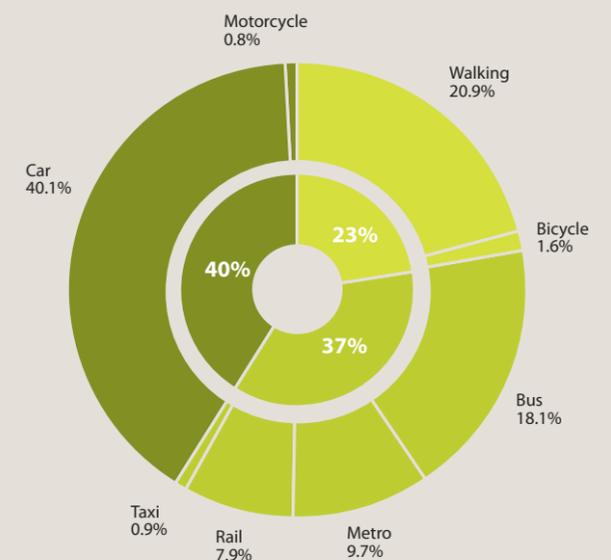


How people travel within cities – the ‘modal split’ – reflects public transport infrastructure, but also economic development, climate and urban form: walking may dominate as a form of transport not only in cities designed to be pedestrian-friendly, but also in cities where many residents do not have access to private motorised transport or do not have the means to pay for public transport. Walking therefore accounts for a massive 56 per cent of journeys in Mumbai and around 30 per cent of journeys in Johannesburg and Shanghai, but also accounts for a relatively high modal share in London and Berlin. Cycling, on the other hand, is limited in cities like Mumbai and Rio de Janeiro, where hilly terrain, a tropical climate or poor road safety make the experience unpleasant.

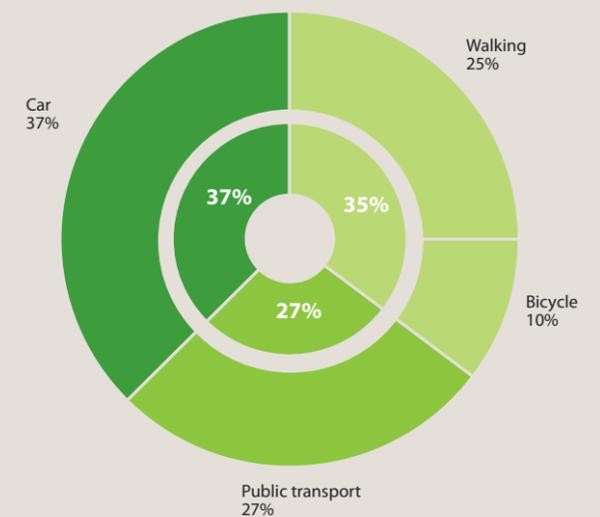
Car ownership has increased rapidly in many South American cities, particularly in the São Paulo Metropolitan Region (which added more than one million cars to its streets in the last five years), but remains highest among all

Urban Age cities in Buenos Aires, reflecting the city’s status (until recently) as the richest city in South America. Buenos Aires also has a very high density of car ownership, though this is not fully reflected in modal split: car ownership does not necessarily imply car use.

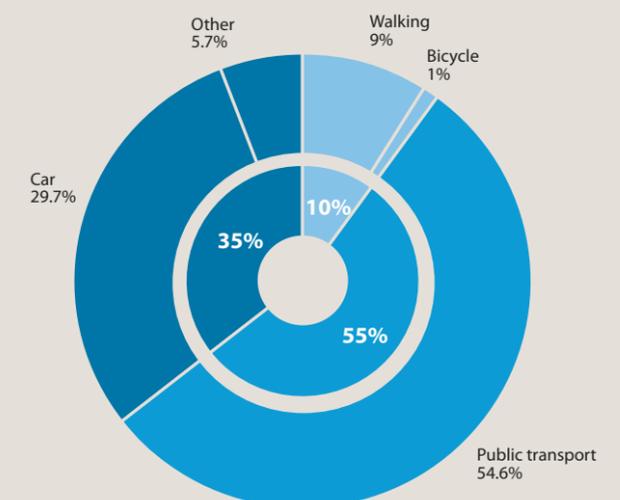
Around 40 per cent of residents in New York’s midtown Manhattan walk to work and over 90 per cent of affluent business workers use public transport to go to London’s financial hub. Shanghai has experienced rapid growth in public transport use, while cycling remains prevalent. While Berlin has high rates of cycling, its relatively uncongested roads also allow high levels of car use (despite the presence of a high-quality public transport system). In some other cities, even where there is a good metro system (like Mexico City’s), informal transport by mini-bus often dominates, reflecting a mismatch between commuting patterns and infrastructure as well as the relatively high cost of public transport.



LONDON

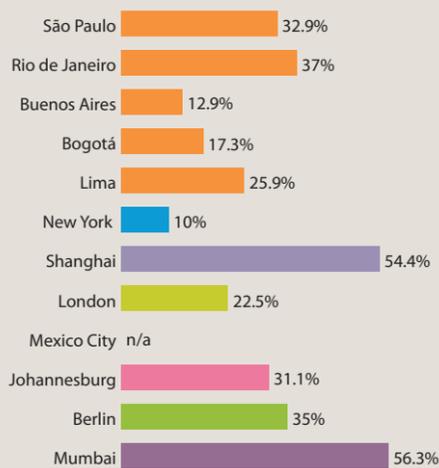


BERLIN



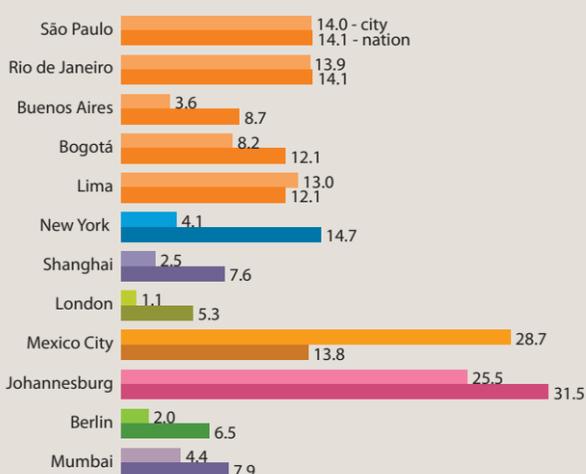
NEW YORK CITY

NON-MOTORISED TRANSPORT



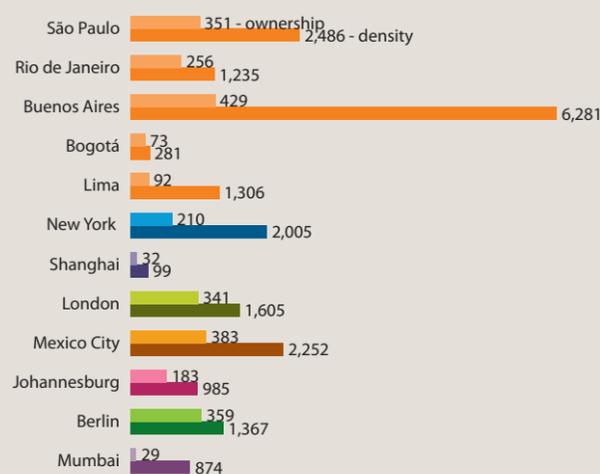
The twelve cities exhibit varying degrees of non-motorised transport use, a crucial factor influencing urban quality of life. While in Shanghai and Mumbai walking and cycling make up more than 55 per cent of all trips, in New York and Buenos Aires it is 10 and 13 per cent respectively.

ROAD FATALITIES

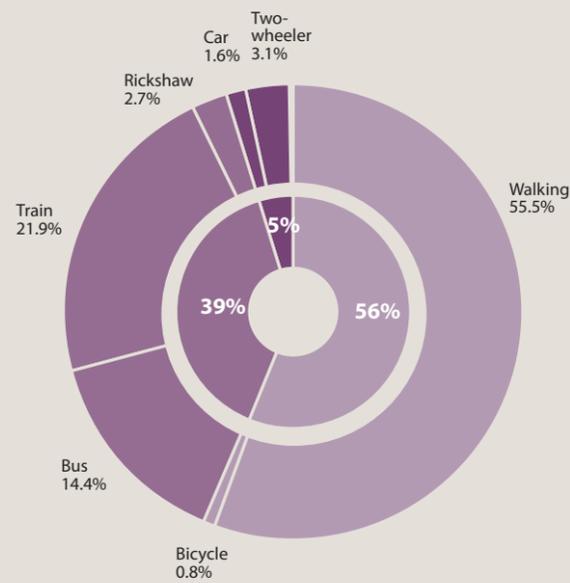


Road deaths per 100,000 residents are extremely high in Mexico City (29) and Johannesburg (26). They are lowest in London, Berlin, Shanghai, Buenos Aires, New York and Mumbai, with figures ranging between 1 and 4.4. São Paulo, Rio de Janeiro, Bogotá and Lima fall somewhere between these two extremes with figures between 8.2 in Bogotá and 14 in São Paulo. With the exception of Lima and Mexico City, road fatalities are lower than the national average in all cities.

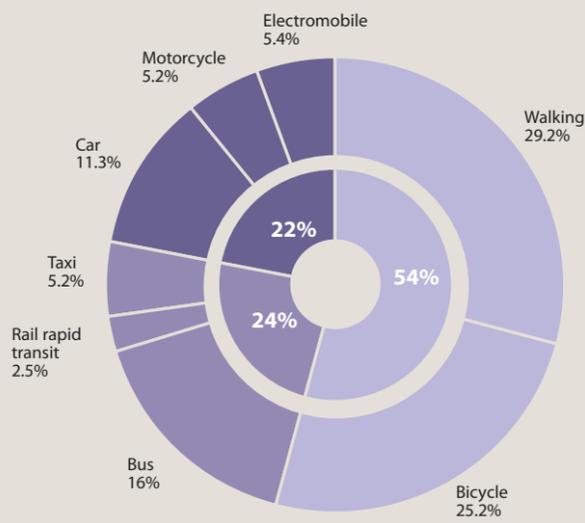
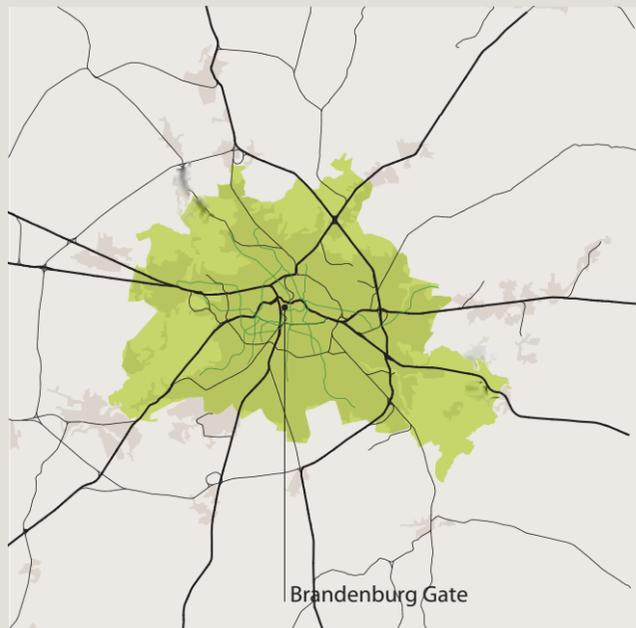
CAR OWNERSHIP AND CAR DENSITY



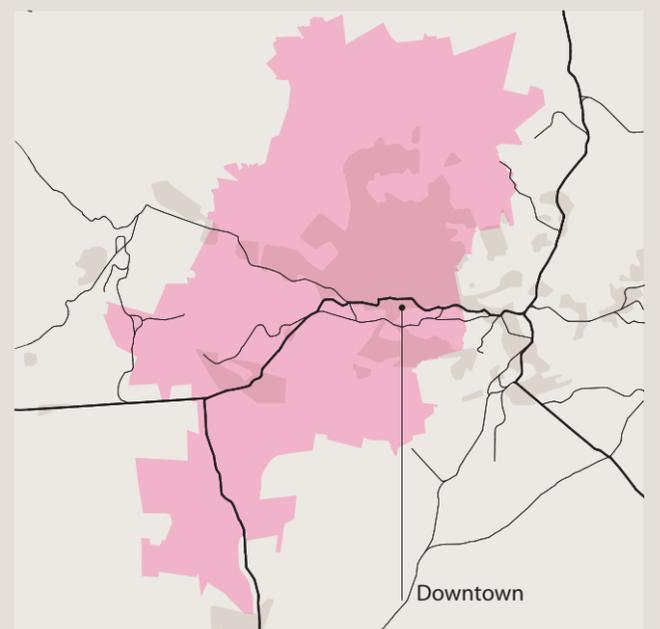
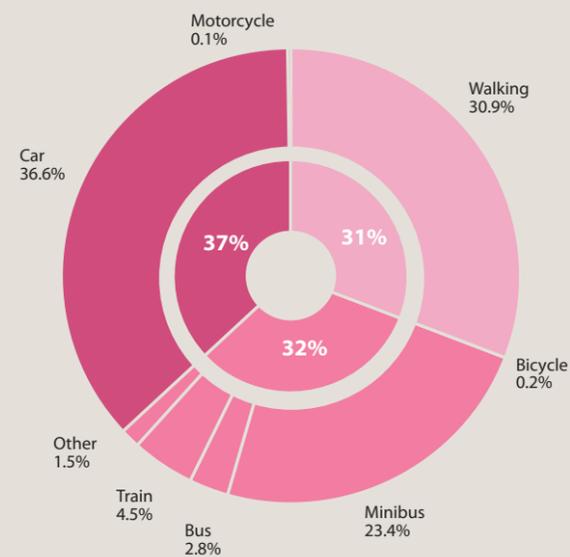
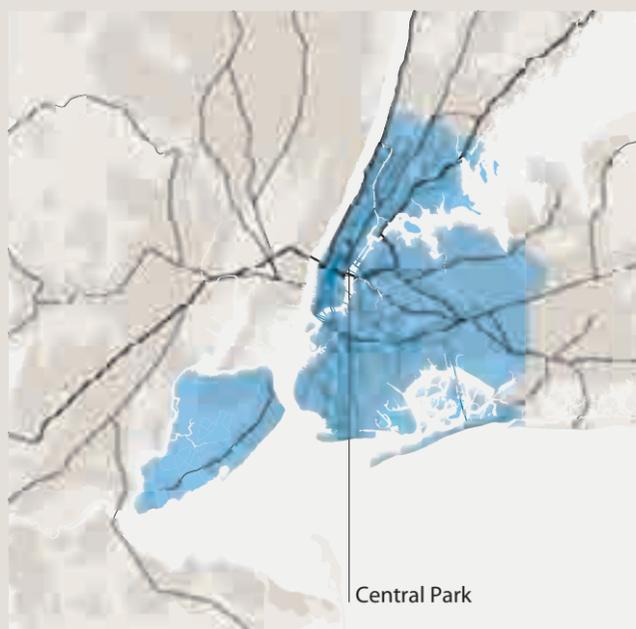
The above chart shows car ownership, expressed as the number of cars per 1,000 residents, and car density, the number of cars per km². The data for Johannesburg refers to the Gauteng Province. Mumbai and Shanghai have the lowest levels of car ownership with respectively 29 and 32 cars per 1,000 residents. This is in stark contrast to 429 in Buenos Aires, 383 in Mexico City and 351 in São Paulo. All South American cities except Bogotá have very high numbers of cars per km². Car density is by far the highest in Buenos Aires, where it is three times higher than in New York.



MUMBAI



SHANGHAI



JOHANNESBURG

THE URBAN WORKFORCE



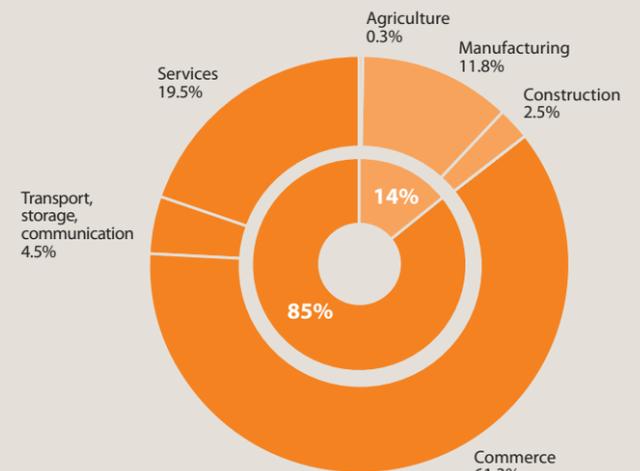
Urbanisation was originally a product of the industrial revolution. Cities are now at the forefront of a new transformation, the shift to a more knowledge-based service economy, though different Urban Age cities are at different stages of this transition. The employment figures presented here show that London and New York are the cities that have moved furthest in this economic transformation, though neither city has an economy exclusively based on financial and business services; retail, leisure, personal and social services continue to be major sources of employment in both cities.

Most other Urban Age cities retain 10 to 20 per cent of their secondary sector employment – dominated by manufacturing, industry, and construction. In some cases, a small agricultural sector also remains. Within the South American cities, Lima and Bogotá remain the most industrialised, while São Paulo and Rio de Janeiro have significant financial services and real-estate sectors. Shanghai retains an extensive manufacturing base, but the relatively high proportion of agricultural employment indicates that this can partly be attributed to the wide territorial definition of the city, which includes rural and outlying areas.

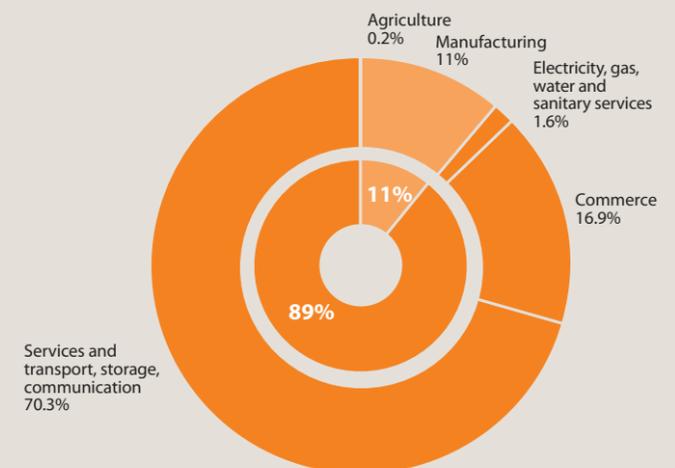
Buenos Aires, São Paulo and Rio de Janeiro have the highest GDP per capita among the Urban Age cities after London, Mexico City, New York and Berlin, although of the other South American cities, Bogotá and Lima contribute more to their national economy, respectively 25 per cent and 50 per cent of their country's wealth.

The shift towards a service-based economy has far-reaching implications for urban government. New office development has created new urban districts (often away from the traditional city centre) in London (Canary Wharf), Buenos Aires (Puerto Madero), Mexico City (Santa Fe) and Johannesburg. In some cases, these new developments have been criticised for their lack of public infrastructure, for engendering social segregation and for draining life from the traditional central business district.

In addition, highly-paid service sector jobs are also knowledge-intensive, placing a premium on high quality education. Without more accessible education, cities may increasingly operate two parallel economies: one populated by a highly mobile, highly educated elite, the other dominated by people whose skills do not allow them to share in the prosperity that the knowledge economy can bring.

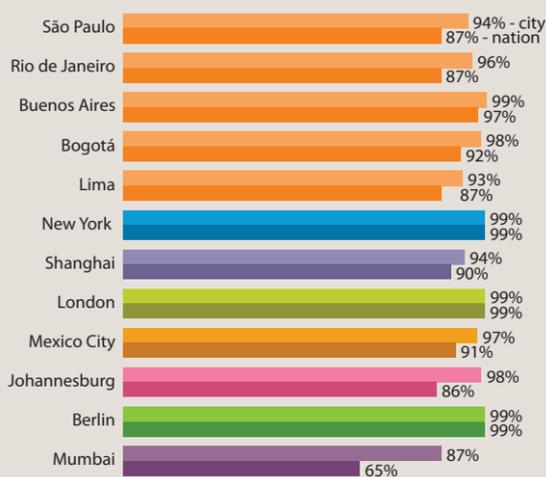


SÃO PAULO



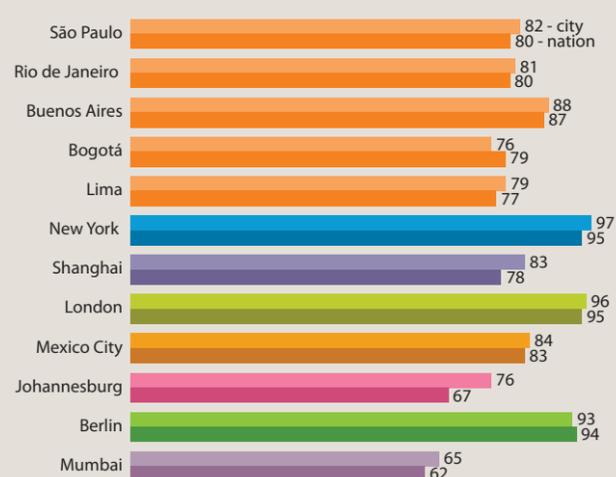
RIO DE JANEIRO

LITERACY RATE OF POPULATION

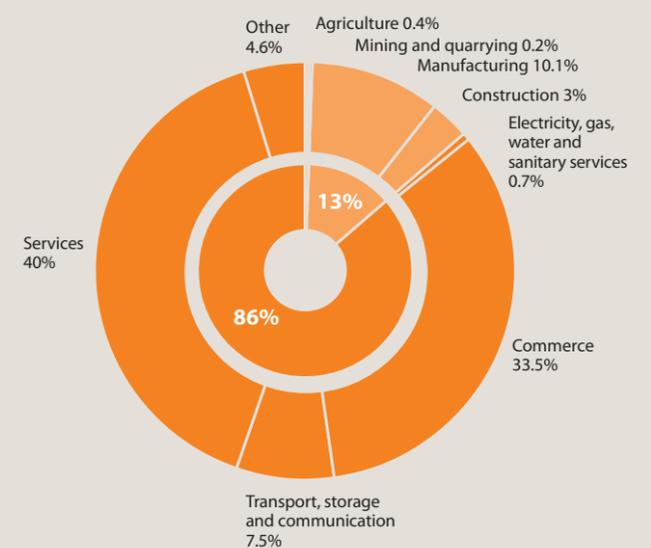


The literacy rate represents the percentage of the population above the age of 14 who can read or write. In the case of Mumbai, this figure refers to those above the age of six years. The data for Johannesburg refers to Gauteng Province. All cities have higher literacy rates than their respective countries and only Mumbai has literacy rates under the 90 per cent mark.

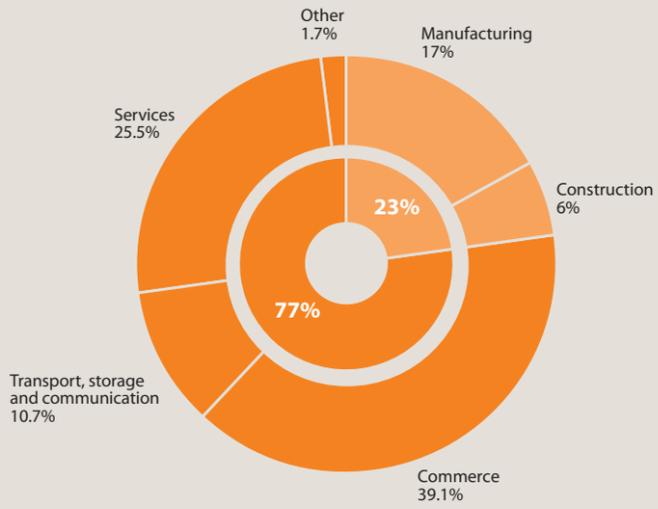
HUMAN DEVELOPMENT INDEX



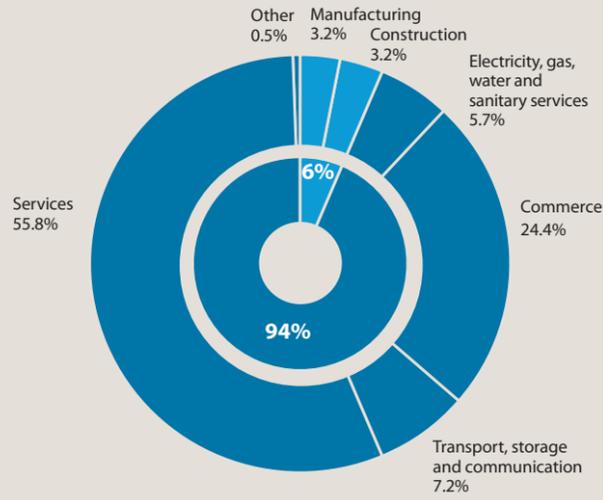
In all cases, with the exception of Bogotá and Berlin, each of the Urban Age cities has a higher score for the Human Development Index (which combines life expectancy, literacy, educational attainment and GDP per capita) than their national hinterlands. New York, London and Berlin have the highest scores, followed by Buenos Aires, Mexico City, Shanghai and São Paulo.



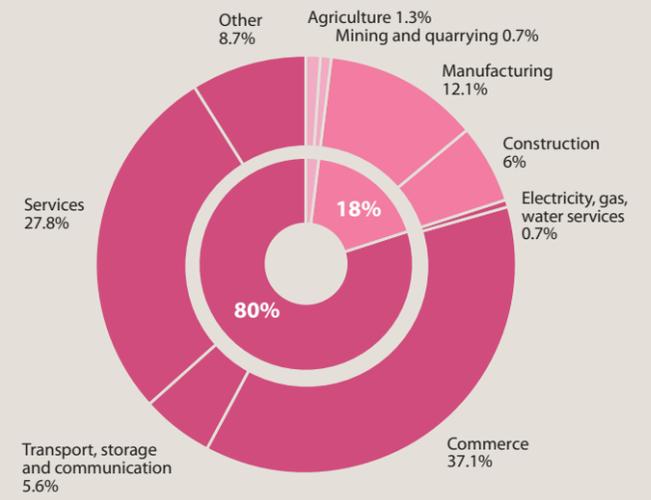
BUENOS AIRES



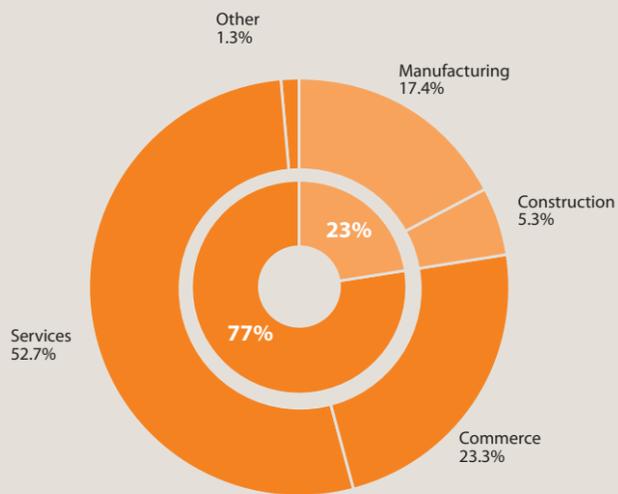
BOGOTÁ



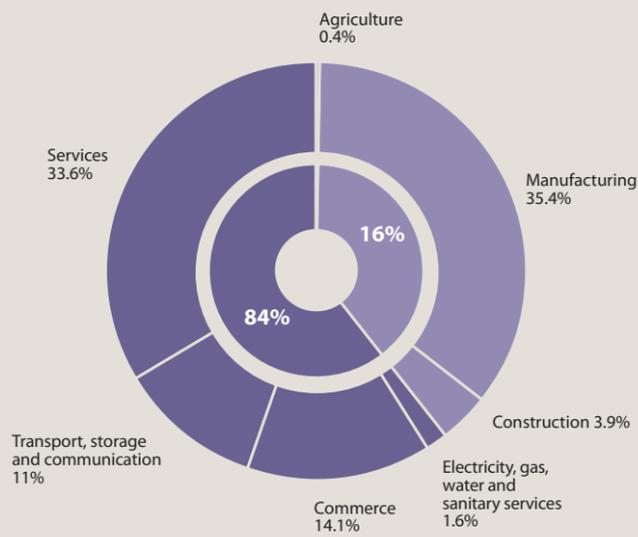
NEW YORK CITY



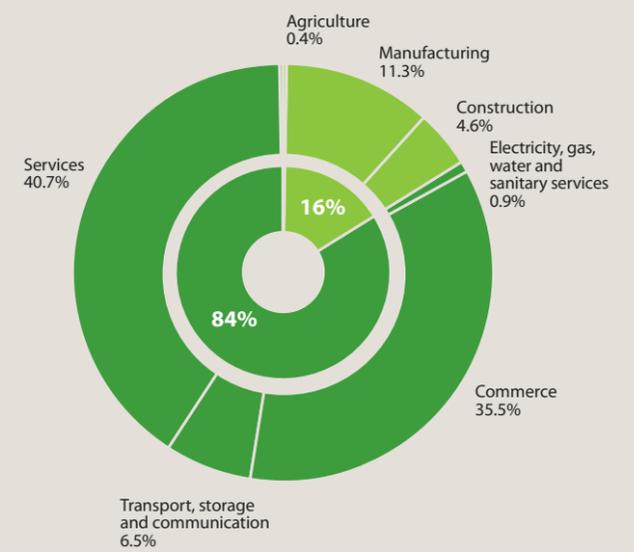
JOHANNESBURG



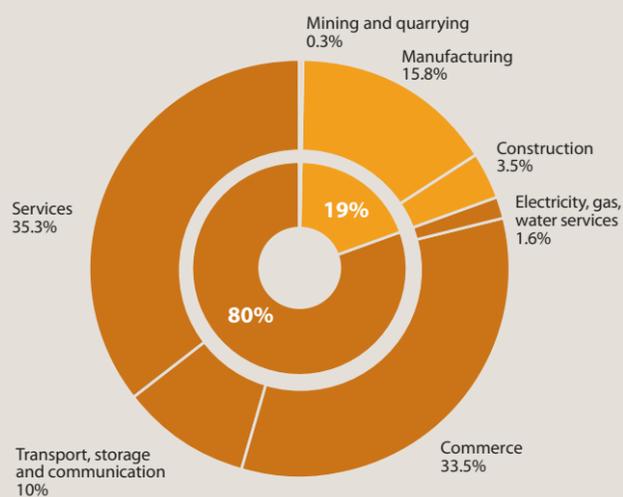
LIMA



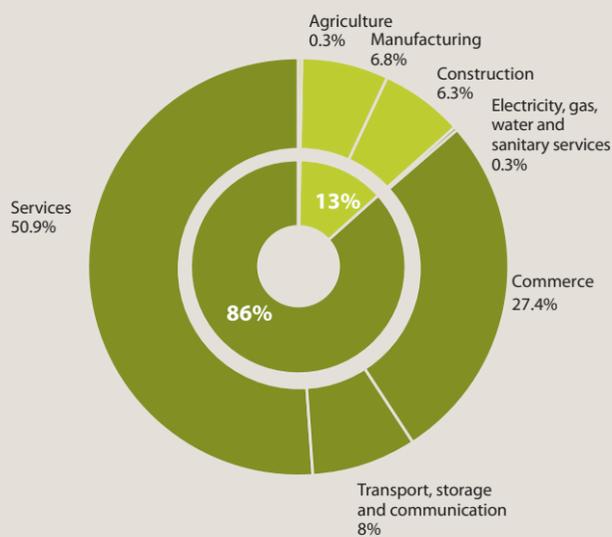
SHANGHAI



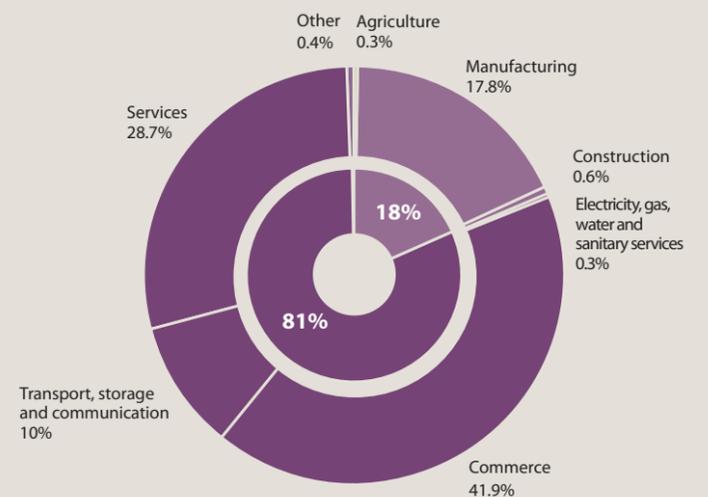
BERLIN



MEXICO CITY



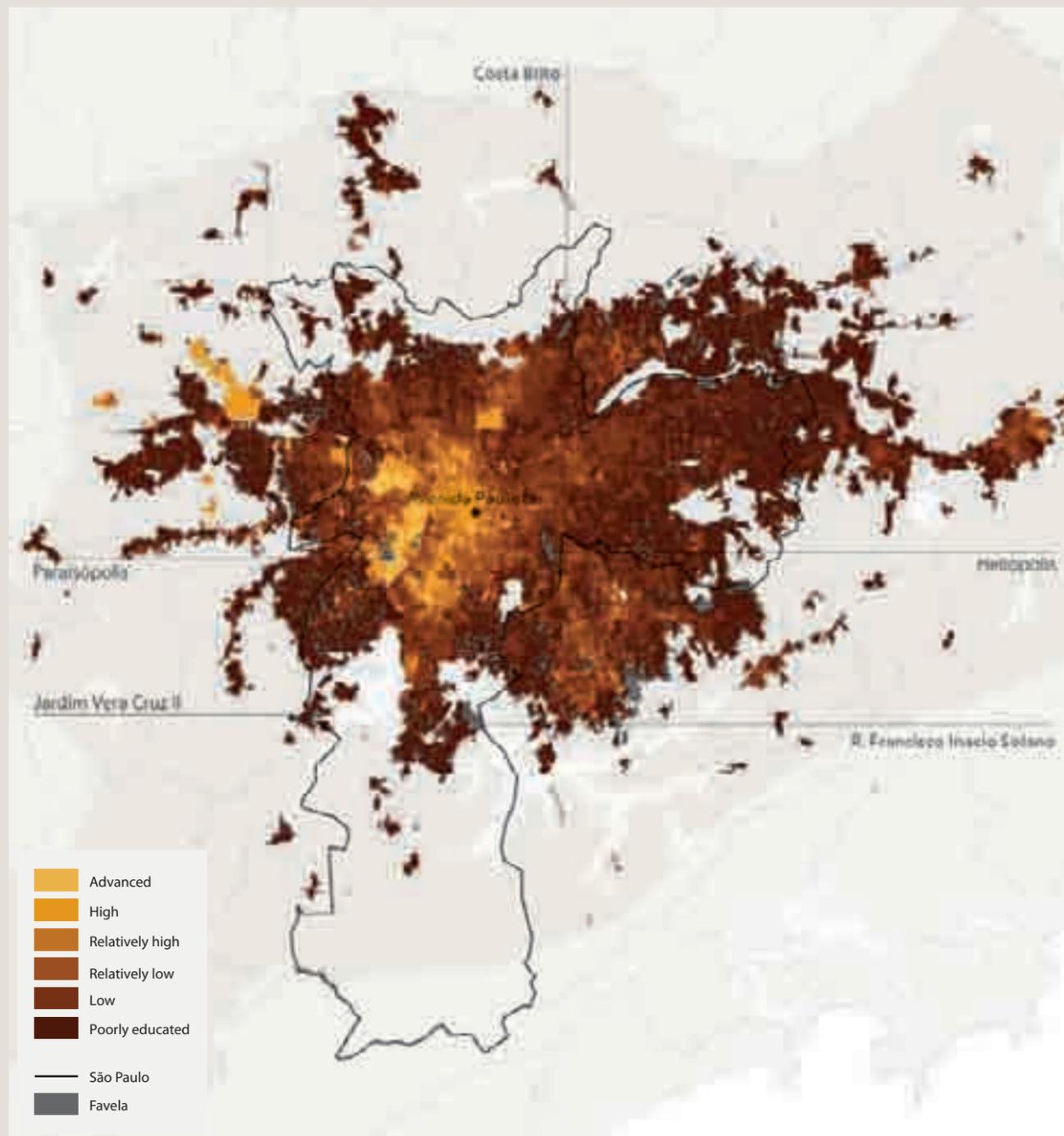
LONDON



MUMBAI

METROPOLITAN SCALE IN SÃO PAULO

EDUCATION LEVELS AND INFORMAL SETTLEMENTS WITHIN THE BUILT-UP AREA



São Paulo was designated as a metropolitan region by the Federal Government in the 1970s under its Metropolitan Action Program. The São Paulo Metropolitan Region (SPMR) not only accommodates the largest urban population in the country, it also has the highest residential density at 2,420 people/km². The city is at the centre of a radius of 100 km regional hinterland that encompasses the SPMR's nearly 19 million inhabitants and extends southwards to the Santos Coastal Metropolitan Region (1.7 million inhabitants), northwards to the Campinas Metropolitan Region (2.7 million inhabitants) and includes the city of Sorocaba and cities in the Paraíba Valley.

The extended Metropolitan Region covers less than 6 per cent of the area of the State of São Paulo and has a total population of 24 million inhabitants, which amounts to 59 per cent of the state's population. It generates 63 per cent of the state's GDP and nearly 20 per cent of the national GDP. The SPMR covers an area of 7,944 km² and includes 39 municipalities, with the city of São Paulo (1,525 km²) at its centre. In the region, 95.7 per cent of the population is urban, with 10.9 million people concentrated in the municipality of São Paulo, and only 8 of the 39 municipalities not integrated in the continuous built-up area.

Between 1990 and 2002, the built up area of the SPMR increased from 1,765 km² to 2,208 km², due mainly to the growth of illegal housing, often in environmentally protected areas surrounding the city's peripheral water basins where there has been little or no investment by public and private sectors. The conflict between social and environmental forces is at the centre of informal growth patterns in these vulnerable areas which put natural resources and new residents at risk.

The last decade has witnessed the construction of shopping malls, supermarkets, hypermarkets and fast-food outlets in the city's and the state's outlying areas. At the same time, approximately 900,000 inhabitants in the SPMR live in public housing complexes, called areas of 'social interest'. Since the 1970s, the state and municipal governments have built approximately 210,000 dwellings that fall under this category, but the government's limited capacity to produce housing for low-income families and the limited availability of financing has meant that the deficit between supply and demand has grown. In 2000, it was 529,000 dwellings, while by 2005 the deficit had increased to 738,300, affecting around 86 per cent of the most deprived families in the area.

It is now clear that specific aspects of the city's current organization must be discussed, since the metropolitan scale

STATE MUNICIPALITIES



METROPOLITAN REGION



has been thus far considered only in reference to *surface*. Nothing has been added as to the way the new organism is understood, nor has any evaluation been made of the mobility impacts of recent major projects. Among other complex phenomena, the exact functioning of the metropolitan gears must also take into account that the conventional forms of industrial activity have been replaced with new types of labour arrangements. The attributions of metropolitan areas in this new stage of the Brazilian and international economies are expanding, largely due to the presence of organisations that are better able to perform new services and different industrial functions. The result is an important characteristic phenomenon in which services have become more important than industry.

Regina Meyer is a member of the Faculty of Architecture and Urbanism at the University of São Paulo (FAU/USP) and currently coordinates the Laboratory of Metropolis Urbanism (LUME).