

Affordable Housing in the World's Cities

Urban 20 White Paper

A contribution from Ondina Rocca y Giuliana de Mendiola
to the Urban 20 (U20)



About Urban 20

Urban 20 (U20) is a new city diplomacy initiative developed under the leadership of Horacio Rodríguez Larreta, Mayor of the City of Buenos Aires and Anne Hidalgo, Mayor of Paris and Chair of C40 Cities Climate Leadership Group (C40). Launched on December 12, 2017 at the One Planet Summit in Paris, the initiative is chaired by the cities of Buenos Aires and Paris, and convened by C40, in collaboration with United Cities and Local Governments (UCLG).

What U20 seeks, is to highlight the expertise of cities in a range of global development challenges and to raise the profile of urban issues within the G20. U20 will offer solutions and clear recommendations to national leaders for their consideration ahead of the 2018 G20 Summit. The first year of the U20 initiative will culminate in the inaugural U20 Mayors Summit in Buenos Aires, October 29-30. With this event, U20 will remain a stepping stone toward ensuring an ongoing dialogue between cities and the G20.

In 2018, 26 cities have participated in Urban 20: Barcelona, Beijing, Berlin, City of Buenos Aires, Chicago, Durban, Hamburg, Houston, Jakarta, Johannesburg, London, Los Angeles, Madrid, Mexico City, Milan, Montreal, Moscow, New York, Paris, Rio de Janeiro, Rome, São Paulo, Seoul, Sydney, Tokyo, and Tshwane.

For more information, please visit: www.urban20.org

About the White Papers

Urban 20 is proud to present a series of White Papers from our Strategic and Advisory Partners that highlight the most relevant topics on the cities development agenda and the forthcoming urban trends. These papers define the challenges that local governments are currently facing and offer open recommendations supported by relevant, up-to-date research and data. The intention of this work is to broaden the understanding and perspective of decision makers and stakeholders as to enhance their ability to tackle these most pressing issues. The White Papers also represent the hard work and dedication of these agencies and organizations to keep the public well informed about the ongoing efforts to address the present and future challenges we share as humankind.

Image: Orbon Alija

Affordable Housing in the World's Cities is a White Paper prepared by subject matter experts from U20 Strategic Advisory Partners as a voluntary contribution to enrich the discussions of the Urban 20 process.

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Executive summary

Housing is an essential part of cities and a key driver of urbanization because it determines urban form and density, provides access to employment opportunities and services, and contributes to economic growth. But over the past few decades national and local government policies have failed to promote adequate and affordable housing for the growing urban population. Cities around the world are experiencing an affordability crisis, with rising house prices, low incomes, and barriers to supply. The scarcity of affordable housing in turn contributes to unsustainable expansion of urban areas, which brings significant social, environmental, and economic consequences. Among them are constraints to the productivity and efficiency of cities, which limits the economic development potential of entire countries.

Providing adequate housing to millions of households—and doing so in ways that guarantee sustainable development—requires shifting housing policy and practice. And while cities face significant housing challenges that affect residents' quality of life and productive potential, they are also at the center of the solution. Designing comprehensive strategies at both the national and local levels, tailored to the needs of a city, can increase affordable housing and promote sustainable growth. Important actions include:

- Ensuring effective land and real estate management and regulations.
- Implementing diversified and targeted housing solutions that meet the various needs of households.
- Leveraging private capital to finance infrastructure.
- Fostering efficient and innovative information systems and data management.

Glossary

GDP

Gross domestic product

G20

Group of Twenty

OECD

Organisation for Economic Co-operation and Development

PPP

Public–private partnership

US

United States

U20

Urban 20

Introduction

Housing is an essential component of cities. It typically accounts for 70 percent of urban land use, determines urban growth and density, provides employment and access to opportunities for urban residents, and contributes to livability and prosperity (UN-Habitat 2016b).

Access to adequate housing has been recognized as a development problem since the adoption of the Universal Declaration of Human Rights in 1948. From Habitat I (1976) to Habitat III (2016) there was significant progress in how governments addressed housing. The 2030 Agenda for Sustainable Development recognizes the right to adequate housing and slum upgrading as critical elements for inclusive and sustainable urbanization through Sustainable Development Goal 11 (to “make cities and human settlements inclusive, safe, resilient and sustainable”) and specifically Target 11.1 (“by 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums”). Following UN-Habitat’s “Housing at the Centre” approach, the New Urban Agenda has introduced a paradigm shift aimed at putting housing at the center of sustainable urban development. As countries and cities implement Agenda 2030 and the New Urban Agenda, they can integrate housing in the concerted efforts to develop human rights-based, strategic, and globally aligned approaches to inclusive and sustainable urban development.

Indeed, the housing sector is critical to the economy of countries and of households, as well as to the development and well-being of citizens. For most countries housing accounts for a large portion of GDP, around 30 percent of household consumption, and 20–33 percent of gross fixed capital formation (Malpezzi 2012). It can unlock a country’s productivity by shaping growth in cities and improving worker mobility (Hsieh and Moretti 2015). It is closely linked with economic development, through the construction industry, and can create numerous direct and indirect jobs. And it can have positive fiscal impacts on local budgets through revenue from fees for permitting, zoning, and utilities or from taxes generated by construction-related economic activity.

Housing is also the main form of household wealth and the biggest investment households typically make in their lifetime. Housing can provide livelihood opportunities, as a place to set up a small enterprise or, when a house title is accessible, as collateral that can be used to access financing for economic activities (particularly in low- and middle-income countries, where banks rely more on real estate collateral) (Beck, Demirgüç-Kunt, and Martinez Peria 2007; Cheng et al. 2016; De Soto 2000). The social effects of access to housing are also well documented and include education and health outcomes. Living in small and overcrowded dwellings can affect children’s development by reducing their performance at school (Goux and Maurin 2005). Mexico’s Piso Firme housing program, which provides grants for cement floors to poor households, improved child health and cognitive development (Cattaneo et al. 2009). For all these reasons access to housing is a core concern of national and city government officials.

Acknowledging these issues, cities from countries in the Group of 20 (G20) instituted a parallel initiative, the Urban 20 (U20) to help cities develop collective messages and inclusive solutions to global issues. U20 partners and multilateral agencies are developing notes on the most relevant topics for cities and countries to guide discussions with national governments on the most pressing issues, such as the future of work, mobilizing infrastructure and private capital, and achieving food security for a growing population.

This paper highlights the trends in the housing sector. Recognizing that the structure and characteristics of housing markets vary across countries and cities, it focuses on urban areas and on providing solutions to low- and middle-income households, which typically require government support to access housing solutions. The housing sector is complex and diverse, and thus this paper does not provide specific or comprehensive policy guidance on how governments and cities should provide affordable housing to all citizens. Instead, it offers options for cities and government officials to consider by highlighting examples and interesting approaches that could advance the conversation.

Trends in the housing sector

Housing markets are complex, and several factors interact to affect housing affordability. On the demand side income per capita (and access to and conditions of financing), demographic trends, and housing prices are key; on the supply side developers and construction firms use inputs such as land, materials, finance, infrastructure, and labor to produce houses (Malpezzi 2012).

This section looks at the literature on the main trends in the housing sector globally. While housing environments vary, some trends and challenges exist across countries and cities. Among the trends, an affordability crisis is observed, with rising house prices, low incomes, and barriers to supply. Thus, this section explores how cities react to rising prices, the expansion patterns of cities, and the social, environmental, and economic consequences of those patterns. Finally, this section examines the effect these trends are having on cities' and countries' productivity and efficiency.

(Un) Affordability

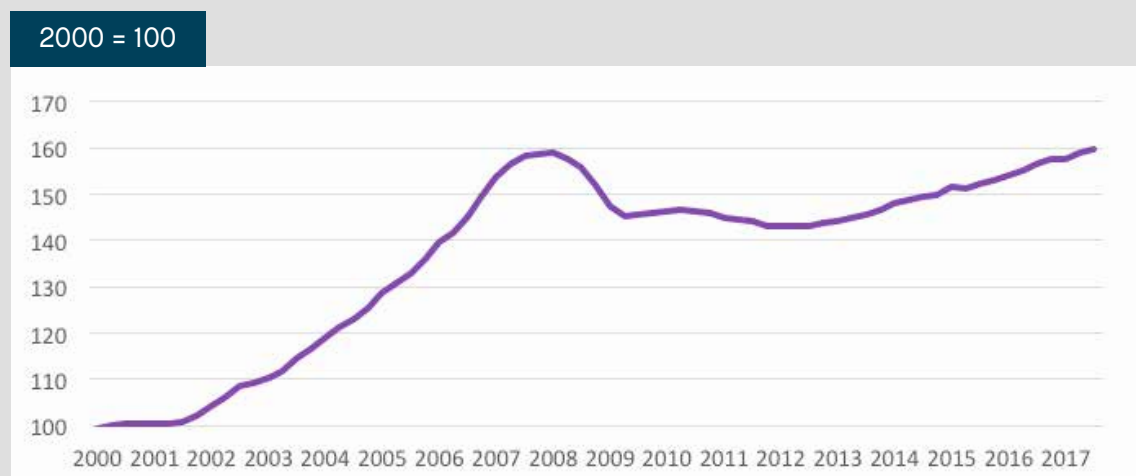
“Housing is getting more expensive in many countries, driven mainly by price surges in metropolitan areas”.

Housing prices are a local issue and vary from city to city—and even within cities. But national and global trends are apparent, particularly in “hot” markets. Average housing prices around the world have been increasing steadily and have returned to pre-2008 economic crisis levels (figure 1). China saw staggering price increases between 2004 and 2017, with land value appreciating over 685 percent in real terms, a compounded annual growth rate¹ of 16 percent (box 1). In Colombia housing prices in the three main cities (Bogota, Cali, and Medellin) rose 110 percent in real terms between 2005 and 2016 (Roch 2017). In Australia housing prices in the eight largest cities rose 50 percent between 2012 and 2017, driven mainly by an increase of 80 percent in Sydney and 60 percent in Melbourne (IMF 2018). High prices in the largest metropolitan areas often contrast with trends in the rest of the country: between 2008 and 2018 house prices grew 153 percent in real terms in Sao Paulo and 148 percent in Rio de Janeiro but fell 14 percent on average at the national level². Thus, different areas need different actions and interventions to tackle the affordability challenge.

¹ The compound annual growth rate is the mean annual growth rate of an investment over a period of time. It is typically used to show annual growth when it is not linear over several time periods.

² Data are from the Fipezap index, which is calculated by the Brazilian Institute of Economic Research using offered prices on the Fipezap website since December 2007. The data were accessed through the Housing Finance Information Network and compare the Fipezap Locacao index for Sao Paulo with the National Wide Consumer Price Index (IPCA) index.

Figure 1. Global real housing price index, 2000–17



Source: International Monetary Fund Global Housing Watch.

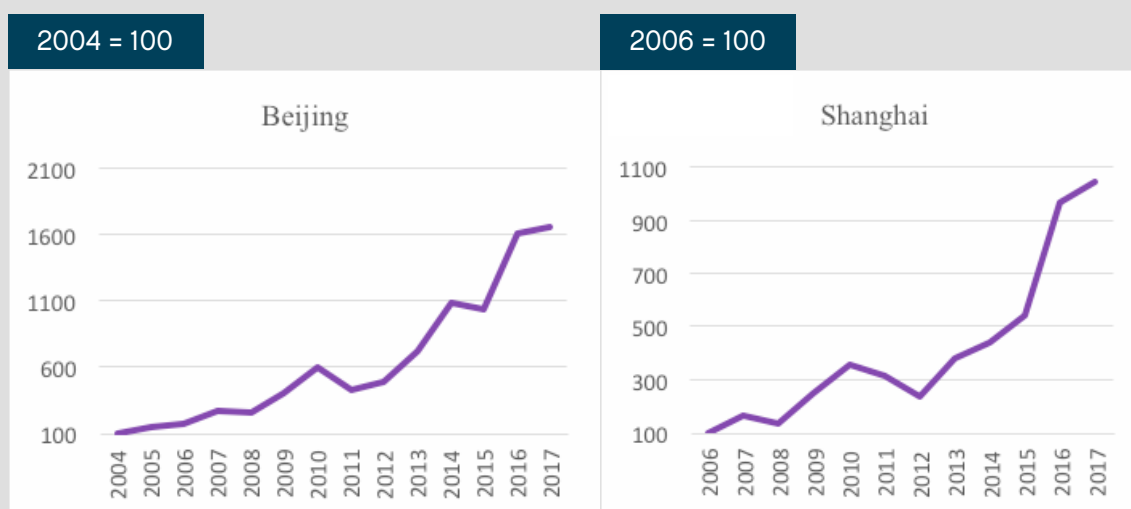
Box 1. Housing markets and prices in China

In China the government owns all land, so land prices can be analyzed separately from housing prices (Wu, Gyourko, and Deng 2012). When China was established in 1949, the government nationalized existing residential housing, and state-owned residential developments were managed by work units that assigned housing to households through subsidized rent. The system began to change in the 1990s, first with a constitutional amendment that separated land use rights from land ownership, which allowed land use rights to be privatized and tradable. State council regulations permitted individuals to purchase the right to use land for urban residential purposes for up to 70 years. This change, together with other reforms introduced through the 1990s, brought greater legal security over land use and opened a private housing market. A booming market has since developed based on leasehold transactions. Income from leasehold transactions is the largest source of income for local governments after budget transfers. In 2009 leasehold income accounted for about half of local governments' total budgetary income (Wu, Gyourko, and Deng 2012).

Land prices in 35 of the largest Chinese cities increased 685 percent in real terms between 2004 and 2017³. Land prices appreciated 1,559 percent in real terms in Beijing between 2004 and 2017 (24.1 percent compound annual growth) and 948 percent in Shanghai between 2006 and 2017 (22.8 percent compound annual growth) (figure B1.1).

³ Data from The Wharton/Tsinghua Chinese Residential Land Price Indexes (CRLPI): <http://real.wharton.upenn.edu/~gyourko/chineselandpriceindex.html>

Figure B1 1. City-level real land price index, Beijing and Shanghai, constant quality series, 2004–17 and 2006–17



Source: Wu, Gyourko, and Deng 2012 (updated data).

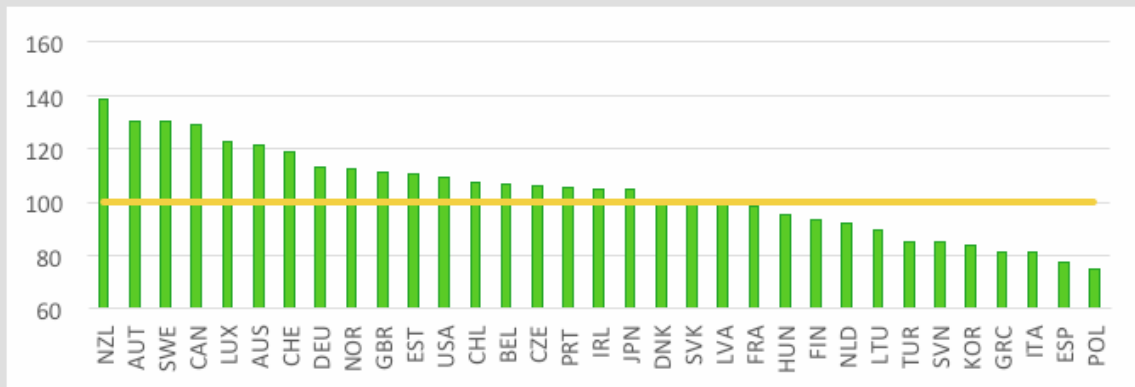
Incomes have not kept up with housing prices. The house price to income ratio⁴ is typically used to monitor housing market sustainability. Ratios are increasing, signaling that in many countries—including more than half of Organisation for Economic Co-operation and Development (OECD) countries—housing prices are rising faster than income (figure 2). Several cities have extremely high ratios, and households in high-wage cities spend more on housing as a proportion of their income (Davis and Ortalo-Magne 2011). The median sale price was 9.5 times the median income in Los Angeles, 12.9 times the median income in Sydney, and 9.9 times the median income in Melbourne (Demographia 2018).

In metropolitan areas high inequality further undermines poor people’s ability to access affordable housing. Income inequality tends to be higher in cities and increases with city size (Hoek-Smit 2015). Because housing demand patterns tend to be inelastic with income (indicating that housing is a basic need), many low-income households spend the same or a larger share of their income on housing than high-income households do (Ikeda and Washington 2015; Malpezzi and Mayo 1987). For example, increasing the income of the top quartile in San Francisco would affect housing prices in prime areas but would also affect consumption of housing across the whole income distribution (Bayer, McMillan, and Rueben 2004).

Source: <https://www.flickr.com/photos/worldbank>

⁴ The ratio is calculated by dividing the median house price by the median household income; it shows the number of annual median salaries it takes to buy a median-priced house.

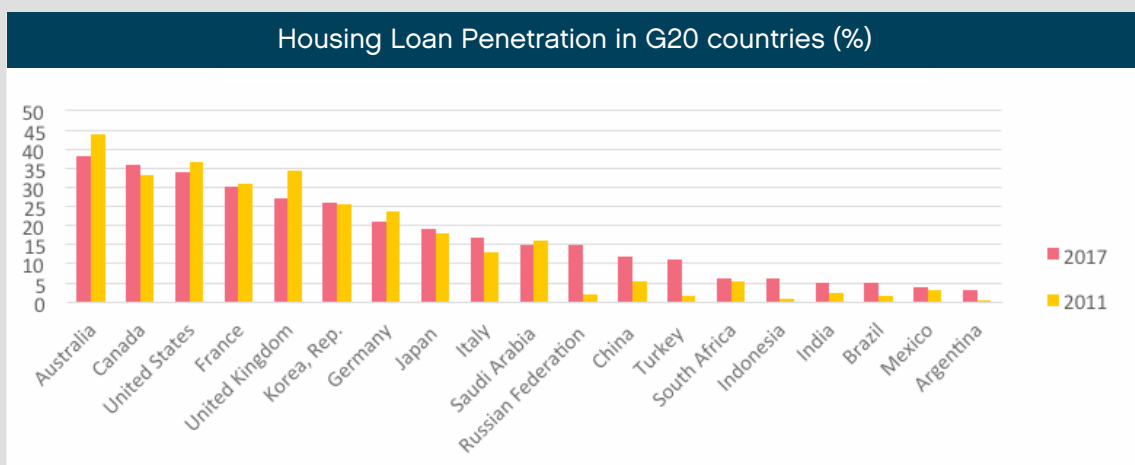
Figure 2. Price-to-income ratio, Organisation for Economic Co-operation and Development countries, 2017



Source: International Monetary Fund Global Housing Watch, based on OECD data.

Access to housing finance is a key component of housing demand but remains limited. Housing is typically the largest investment that households make in a lifetime, and it costs several times their annual income. Most families rely on long-term finance to acquire housing, paying in monthly installments over multiple years. But access to long-term finance for housing remains limited, particularly for low- and middle-income households in low- and middle-income countries. The share of people with an outstanding mortgage with any financial institution, formal or informal, (referred to as the breadth of access to finance) varies widely across 148 countries: from close to zero in several African countries to 60 percent in Sweden (see figure 3 for the proportion of the population with an outstanding mortgage in G20 countries) (Badev et al. 2014). Similarly, mortgage loans outstanding as a percentage of GDP (referred to as mortgage depth) remains low in many low- and middle-income countries.

Figure 3. Share of population with an outstanding mortgage, G20 countries, 2011 and 2017 (%)



Note: Refers to population ages 15 and older.

Source: World Bank calculations, Badev et al. 2014, based on data from Global Findex.

Lack of tenure security hinders affordable housing supply. Property rights and security of tenure have a profound impact on the housing sector as whole. The less protected and documented these rights are, the more housing becomes scarce, costly, and inaccessible, triggering a buoyant informal land and housing market and propagating slum formation and informal settlements. Less than 30 percent of low- and middle-income countries have some form of land registration (UN-Habitat 2015). And even when a country has a registration system, it might be ineffective at ensuring tenure security. In Sub-Saharan Africa, for example, more than five land rights systems can overlap, leading to confusion and conflict. Uncertainty over tenure transforms housing into a risky investment, compelling financial institutions and potential investors to move to other sectors or apply very high interest rates on loans and mortgages.

As a result, more and more households are overburdened by housing costs. Housing affordability is often measured by housing-related expenditures—mortgage installments, bills, maintenance, and so on—as a proportion of household total income. A proportion of 30–40 percent is generally considered acceptable; while a higher proportion suggests that a household is overburdened, struggling to meet other basic needs with a lower standard of living. In low-income countries households need to save eight times their annual income to be able to afford a standard house in their town or city ⁵. An estimated 330 million low-income households worldwide are overburdened with housing costs or living in inadequate housing (Woetzel et al. 2014). And by 2025 the number of overburdened households is expected to reach 440 million—1.6 billion people, or a third of the global population.

“The unaffordability crisis is not limited to cities in low- and middle-income countries”.

Even among OECD members, 39 percent of low-income households spend over 40 percent of their disposable income on housing (OECD 2017). In 2016 nearly a third of U.S. households spent more than 30 percent of their income on housing, and more than 11 million renters and 7.5 million owners paid at least half their income for housing (JCHS 2017). The challenge is more severe in large metropolitan areas, where demand-side pressures, highly restrictive land use regulations, and limited supply of available land drive prices up. Over two-thirds of the global economic affordability gap in absolute terms is concentrated in 100 cities, led by New York, Tokyo, and Beijing (Woetzel et al. 2014), and cities with more than 2 million inhabitants generally have lower affordability than cities with fewer inhabitants ⁶. The 10 least affordable housing markets in the world include large metropolitan areas such as Sydney, Melbourne, Los Angeles, and London (Demographia 2018). In 2010 private renters spent an average of 60 percent of their gross income on rent in London, compared with 39 percent in other urban areas and 32 percent in rural areas (House of Lords 2010).

In many cities the lack of formal affordable options pushes low-income households to informal housing or to the periphery of cities, where land is cheaper. Given the high prices of real estate, private housing supply often caters to upper income households for which housing

⁵ Data are from the UN Global Sample of Cities based on research carried out by New York University in cooperation with UN-Habitat and the Lincoln Institute of Land Policies. The UN Sample of Cities includes 200 cities selected from 4,231 cities with more than 100,000 inhabitants in 2010. Its findings were published in *The Fundamentals of Urbanisation*, which was launched during the Habitat III Conference in October 2016 in Quito, Ecuador.

⁶ In these large metropolitan cities, households whose income is 80 percent of the median or less typically cannot afford a standard unit provided by the market. In other cities, only households whose income is 50 percent or less of the median are priced out.

production is profitable. By contrast, most low-income households must rely on the informal sector or on subsidized housing, often developed on the periphery of cities and/or with limited access to basic services, to fulfill their housing needs. In Indonesia only the richest 20 percent of households can afford housing in the formal market, the middle 40 percent cannot afford formal housing⁷ without a government subsidy, and the bottom 40 percent have no access to formal housing and thus build their own homes and improve them incrementally over time (World Bank 2018)⁸. These dwellings are often in urban slums or informal settlements, which typically lack basic services, adequate roofs, and pavement and can be located in disaster-prone areas. In 2014 about 881 million urban residents worldwide—one in three urban residents—lived in a slum, an increase from 2000 (though a decrease in the share of population) (UN-Habitat 2016a). In Rio de Janeiro 1.4 million people (22 percent of the population) live in favelas (slums), and in Sao Paulo 1.3 million people (11 percent of the population) do (Cavalieri et al. 2012). Slums are one of the most extreme forms of deprivation and exclusion, remain a critical factor in the persistence of poverty, and present a major challenge for sustainable and inclusive urbanization.

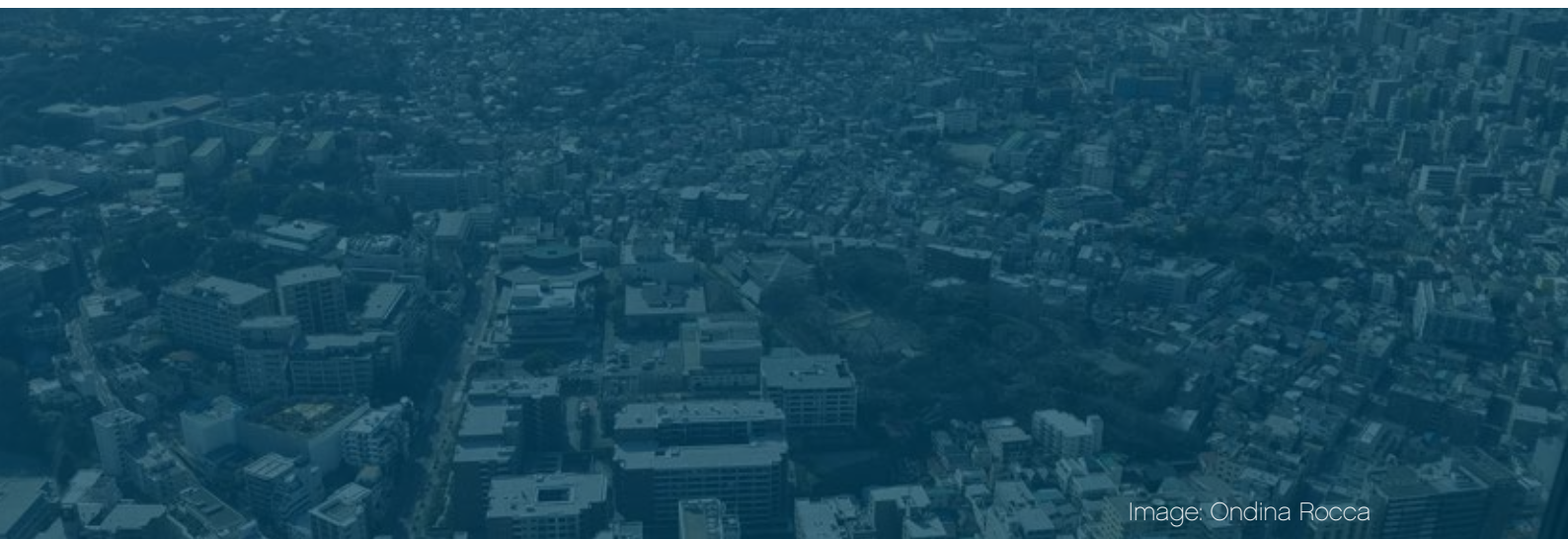


Image: Ondina Rocca

Unsustainable expansion

Rapid urbanization and rising housing prices have led to the horizontal expansion of urban areas. In recent decades more and more people have settled outside the main cities or satellite cities and suburban neighborhoods, resulting in dispersed and low-density patterns of urbanization in the form of suburbanization, peri-urbanization, or urban sprawl. Between 1990 and 2014 the total area occupied by cities in more developed countries grew 55 percent, while the total urban extent of cities in less developed countries grew 176 percent, nearly tripling (Angel 2016).

“At the same time, population density has declined in almost every city around the world (Angel 2012)”.

In 1920 Chicago squeezed 59 people into each hectare of land; now there are approximately 16. Mexico City is about half as densely populated as it was in 1940. And Beijing’s population density has dropped from 425 people per hectare in 1970 to just 65 in 2014.

⁷ A house with a value of 140–300 million rupiah (\$10,000–\$22,500).

⁸ A house with a value of 440 million rupiah (\$33,000).

Fast urbanizing cities often see expansion of peripheral areas. Many large cities have peri-urbanization, in which urban poor people reclaim massive rural land in the outlying fringes of cities to build their dwellings, often with informal and illegal land use and largely ignored by both public and private investment. These areas are typically far from employment hubs, lack access to basic services, and present significant environmental challenges, including deforestation, pollution of rivers and streams, and exposure to natural hazards (Bhata 2010). India and Brazil are just some of the countries where slums have consistently grown in the outskirts of large metropolitan areas, disconnected from city centers and with poor infrastructure. For example, in Sao Paulo, evidence shows that the growth of slum areas from 2000 to 2010 occurred in the western zone, while existing slums in the capital and adjacent areas showed persistent or low growth (Marulanda et al. 2015).

Suburban sprawl is another common growth pattern. In many high-income cities sprawl is driven by the development of residential zones for high- and middle-income groups. They tend to be well-connected to city centers by individual transport, incentivizing private vehicle use. Additionally, in many low- and middle-income cities, including many Latin American cities, sprawl has also been driven by the development of single-use mass subsidized housing in the periphery of cities (De Duren 2017). In Mexico rapid expansion of housing finance facilitated the development of mass-produced homes on inexpensive, peri-urban land. Much of the urban growth occurred without clearly demarcated planning guidelines or boundaries for growth, design, and zoning clusters (SEGOB 2013), so the urban periphery consists of pockets of housing developments that are isolated and often lack access to basic services and transport infrastructure to connect to city centers. In South Africa large publicly funded housing projects have provided low-income residents with homes—but at the cost of pushing them to the city’s edge. Workers in large metropolitan areas such as Durban and Johannesburg find themselves far from jobs and other social and economic opportunities, while racial segregation remains an issue (D’Aoust and Lall 2018).

“Low-density urban expansion can be attractive in the short term but can cause a variety of negative externalities in the longer term, including substantial and long-standing fiscal, social, and environmental challenges”.

In the short term sprawl can be attractive because of the savings associated with lower costs of land, construction, and parking and lower permitting and design fees for developments in outlying areas. And in many cases developers assume capital infrastructure costs, while infill redevelopment projects can incur high capital costs and strong community opposition. But in the long term urban sprawl often translates into increased costs for transport, public infrastructure, and service delivery, in addition to considerable social costs. Inefficient sprawled development at least doubles land used per housing unit, increases the costs of providing utilities and public services 10–30 percent, and increases commuting costs 20–50 percent (Litman 2014). In the United States sprawl adds an estimated \$400 billion a year in infrastructure, public service, and transport costs. About 45 percent of those costs are due to increased public services such as water and waste, 20 percent are due to increased capital investment for infrastructure such as roads, and 35 percent are due to increased congestion, accidents, and pollution not borne directly by private individuals (Floater et al. 2014).

Developing housing on the edge of cities also has major impacts on the environment. Urban form and land use policies can have long-lasting effects on the sustainability of cities, and low-density expansion often carries negative environmental externalities. It uses up land that

once was farmland or forest; it is characterized by longer distances between residences, jobs and other services which promotes car use and increases car-related air pollution and greenhouse gas production; and it is resource exhaustive because sprawling cities need more resources to provide basic services (OECD 2018). Empirical analyses have shown the relationship between urban form and environmental quality (Cardenas et al. 2015). For every 10 percent increase in sprawl, per capita carbon dioxide emissions increase 5.7 percent and per capita hazardous pollution increases 9.6 percent—both of which can have major economic and health repercussions (UN 2016). In Beijing, for example, the total social costs of motorized transport, including air pollution and congestion, are estimated at 7.5–15 percent of GDP (Creutzig and He 2009).



Image: Ondina Rocca

Socially, dividing housing locations along economic lines creates spatial inequalities and segregated cities. Urban sprawl exacerbates socio-spatial segregation and fragmentation, leading to residential segregation and lower social mobility. Rapidly sprawling cities present a larger expansion of slums and gated communities, associated with increasing poverty and inequality. There is a negative correlation between commuting time (a proxy for sprawl) and upward mobility in the United States (Chetty et al. 2014). And upward mobility is much higher in compact areas, which have better job accessibility, than in sprawling ones (Ewing et al. 2016). Moreover, sprawling cities face increasing difficulty integrating low-income groups, including migrants and refugees, to allow them equitably access opportunities.

Excessive regulations can make land scarcer, increasing its price. This is evident particularly in high-income metropolitan regions, where excessive regulation can dampen housing development (Glaeser and Gyourko 2012; Ilkeda and Washington 2015; The White House 2016). For example, zoning restrictions that forbid vertical building turn important central areas, which often have low population density and ample infrastructure, into very expensive housing options. This kind of building norm produces highly desirable neighborhoods (such as Polanco in Mexico City and Jardins in São Paulo) but induces horizontal spread of the rest of the city, inevitably leading to peri-urban settlements.

Too stringent regulation can even constrain housing supply. Housing stock increased 20 percent between 1980 and 2010 in cities with high regulation such as Los Angeles and San Francisco, compared with 54 percent for all U.S. metropolitan areas (LAO 2015). But not all regulation is bad—for example, containment tools (box 2), maximum lot sizes, construction limits, minimum density requirements, and impact fees can reduce sprawl (Gyourko and Molloy 2015).

Box 2. Containment tools to limit urban sprawl

Given the institutional mechanisms of urban sprawl and the negative effects of urban sprawl on urban form and development, the government has a key role in promoting more compact urban development.

Containment tools have proved successful in limiting sprawl, though in some cases they have also increased the price of land and reduced the elasticity of land supply (Bertaud 2015). Urban growth boundaries, greenbelts, urban service boundaries, and nodal location of economic activity centers promote compact city form. Compact city policies trace their origins to the United Kingdom in the early 20th century and have been widely used in recent years. In 2002 Melbourne adopted the Melbourne 2030 plan to contain low-density urban expansion through an urban growth boundary, promotion of activity centers, and a series of land use regulatory changes. A 2007 evaluation of the plan suggests that it has led to 300 million fewer vehicle trips per year. Another example is Seoul, which adopted a greenbelt policy in 1971 after a protracted spell of substantial population growth (more than 7 percent a year). The policy aimed to preserve agricultural land, control urban sprawl, promote food security, and enhance national security. The 10 kilometer-wide greenbelt has stemmed development within its boundaries and promoted sustainability, though it has increased housing prices. Similar instruments have also significantly increased land prices and should thus be carefully evaluated on a case by case basis.

Source: OECD 2018.

Impact on cities' and countries' productivity

The positive relationship between economic development and urbanization is strong: cities are the best places to match jobs with skilled people. With 54 percent of the world's population, cities account for more than 80 percent of global GDP⁹. Metropolitan areas such as Brussels, Copenhagen, Dublin, Helsinki, and Seoul account for nearly half their national GDP, while Auckland, London, Paris, Prague, and Tokyo account for around a third (OECD 2006).

Economic benefits from urban growth come from exploiting economies of scale and agglomeration economies. The link between urbanization and economic growth is based on the propensity of firms and people to concentrate in urban areas, thus reducing transport and communication costs (Turok 2011). Large cities can attract global corporate headquarters, offer a wide range of choice in resources, and concentrate more specialized business services and infrastructure. Further, large cities provide the advantages of both specialization and diversity and have greater endowments of human and physical capital. As such, the economic gains from agglomeration can be summarized in three pillars: matching, sharing, and learning (Venables 2010).

While cities provide density for agglomeration economies, this by itself is not a recipe for success. Cities need to effectively connect and integrate people and opportunities through access to basic services including transport infrastructure and affordable housing in

⁹ <http://www.worldbank.org/en/topic/urbandevelopment/overview>.

well-connected areas. Failure to do so can result in negative externalities such as traffic congestion, increased housing prices, pollution, urban sprawl, rising costs of urban infrastructure, social tensions, and higher crime rates. A well-performing housing sector can also act as a development multiplier, benefiting complementary industries and contributing to economic development, employment generation, and poverty reduction. For every job in house building an additional 1.5–2 jobs are created in construction materials and other input industries (UN Habitat 2016b).

However, the lack of well-located affordable housing and the sprawling patterns of many cities have hindered their productivity.

“Housing development can harm urban productivity: the location of affordable housing can drift people farther from city centers, creating a spatial mismatch between housing and jobs”.

The suburbanization and segregation of cities can thus reduce the social mix and exacerbate income inequality (Ganong and Shoag 2015). In addition, the lack of affordable housing can hinder labor mobility, taking a toll on countries' economic growth (Hsieh and Moretti 2015). In Latin American cities productivity lags have been linked to poor urban infrastructure management and urban planning, which have not curbed road congestion, basic urban services, and land and housing markets (Ferreyra and Roberts 2018). In the United Kingdom more than a third of jobs created since the recession have been based in London. Although the city has the potential to create more jobs, the lack of housing pushes people out of the city, many times into less productive jobs (The Economist 2015). Even though the productivity dispersion among formal sector workers has fallen in recent decades, Brazil remains far from an efficient allocation of workers (Bastos and Silva 2017). One possible explanation is the shortage of affordable housing in the most productive cities, which has kept potential migrants “trapped” in less productive cities.

Limited transport infrastructure further limits productivity. For workers to access jobs and for businesses to access suppliers and markets, a reliable and affordable transport system is needed. Limited transportation options can turn daily commutes into long journeys and often force people to live in substandard housing and slums to be close to jobs. Multisectoral planning and infrastructure investment are thus essential to achieve cities' productive potential.

OPPORTUNITIES

A nighttime photograph of a cityscape, likely Washington D.C., featuring the Washington Monument prominently in the center. The scene is filled with light trails from traffic on a multi-lane highway, creating a sense of motion and activity. The sky is dark, and the city lights provide a strong contrast.

Countries face numerous housing challenges that affect their productive potential and quality of life. Both national and local governments need to devote serious attention to these issues.

Cities are increasingly at the center of the solution. While national governments are key in promoting access to housing finance, delivering subsidy programs, and designing adequate policies, these interventions have limits. Local governments are starting to take responsibility and seeking creative solutions to improve access to affordable housing. But housing systems are complex, and comprehensive solutions need to be designed to meet the needs of the city. This section provides some options that are gaining relevance globally to improve affordable housing and promote sustainable growth.

Proactive land and real estate management and regulation

Effective land management is crucial because land is often the main driver of cost. In large metropolitan areas, where land is usually scarce, strong institutional structures are needed to improve land management and, if possible, free up public land for housing development. Examples of successful institutional schemes can be seen in many cities around the world. In South Africa the Housing Development Agency was created in 2009 to accelerate the acquisition and release of state, private, and communally owned land for housing development and delivery. Thanks to its success, in 2014 it became a fully-fledged property development agency whose role is not only to acquire and prepare land but also to be a developer and project manager of housing projects¹⁰. London is following suit, with the London Land Commission identifying brownfield land in public ownership for development and coordinating and accelerating the release of land for housing. Further, these institutional structures can have important economic benefits. A study developed in Merida, Mexico, showed that having a public trust fund purchase the land, instead of private investors, would yield an additional 11.5 million Mexican pesos for the project (about 6.3 percent of the total project cost). The money could be used to increase the share of affordable housing units in the project (box 3) (World Bank 2018).

Streamlining processes and managing risks can make affordable housing more attractive to developers. In many countries the uncertainty and risk related to housing project development are high—even more so for the low-income housing sector. But cities can make affordable housing projects more attractive by proactively managing the risks through transparent and efficient processes. In many cities developers need to go through large amounts of paperwork, including environmental studies, design approvals, and public hearings which, when managed inefficiently, can add significant development costs and uncertainty. Cities can thus simplify their processes to fast-track land use approval and permitting, particularly for affordable housing. Examples include the “single-window” clearance systems and digital permit applications developed in cities from Singapore to Nairobi.

Another option is to expand administrative approval processes for developments that comply with current zoning requirements (by-right development) instead of discretionary approval processes (such as public hearings, local legislative processes, and the like). This allows for more expedited processes and less uncertainty, reducing project risk and associated costs (White House 2016). In 2017 California passed a legislation, which allows administrative (“by right”) approval for those developments that conform with the local zoning rules and include affordable housing, as long as the project is not located in dangerous or environmentally sensitive areas¹¹.

Local land use regulations can play an important role in enabling well-located housing development. Regulations such as inclusionary planning require developers to supply affordable housing or land on which affordable housing can be built. Under inclusionary principles, in return for higher revenue per square meter of land (a density bonus), the developer must set aside a certain portion of a project for affordable units to be sold or rented to lower income residents. Other regulations that can have a powerful effect on housing supply are:

- Taxing vacant land to reduce speculation and incentivize infill development.
- Eliminating off-street parking requirements.

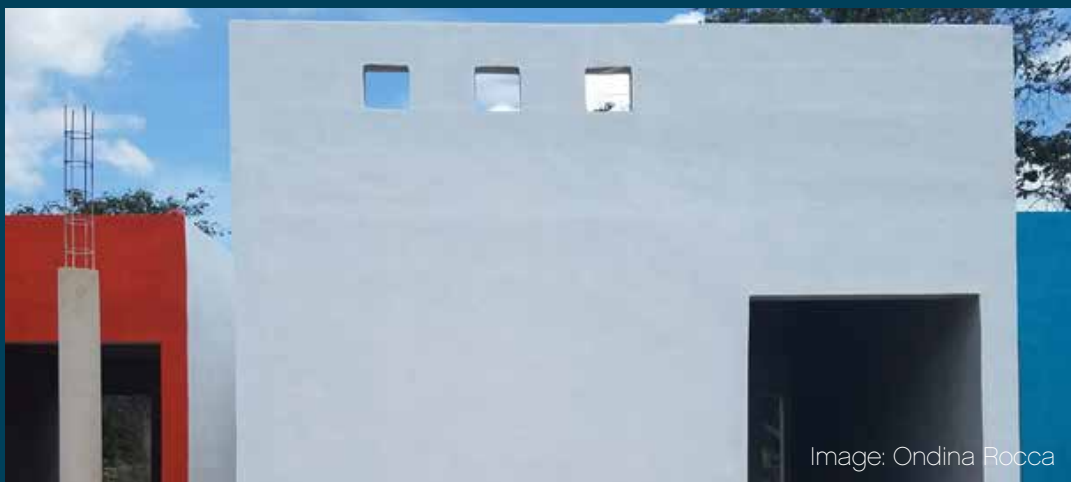
¹⁰ <http://www.worldbank.org/en/topic/urbandevelopment/overview>.

¹¹ <https://www.gov.ca.gov/news.php?id=19979>.

- Enacting multifamily and high-density zoning, particularly in areas close to transportation.
- Setting realistic habitability standards and allowing for accessory dwelling units. Particularly in low- and middle-income countries, standards for the minimal adequate unit are often too costly for a large share of the population.
- Establishing density bonuses, allowing higher densities when the project includes a number of affordable housing units.
- Offering tax breaks and other development incentives for affordable housing (The White House 2016).

Integrating land use and infrastructure investment, such as transit-oriented development, can yield benefits for households and cities. Housing development around rapid-transit routes enhances labor mobility through better connected and integrated growth and funding for affordable housing and transportation infrastructure. Hong Kong SAR, China, provides a good example. It has added 1.4 million homes in the New Territories, most of them oriented to transportation infrastructure: 43 percent of residents and 56 percent of jobs are within 500 meters of rail and a metro station. In cities where new transit facilities have been built, land values in the surrounding areas have risen 30–60 percent (Salat and Ollivier 2017). Capturing a share of that increase (through land sales or betterment assessments, a form of land value capture) have allowed governments to pay for infrastructure investment and affordable housing. Sao Paulo followed a similar practice, using its control over densities to pay for infrastructure. The revenues from building rights are deposited in a common Urban Development Fund that carries out drainage and sanitation works and housing projects.

Box 3. Developing affordable housing in the center of Merida, Mexico



Under a business-as-usual scenario, where no normative changes were introduced, developing low-income housing as part of a particular mixed housing project in Merida, Mexico, was not financially feasible (scenario 1 in table B3.1). But reducing the number of parking spaces required from 1 per house to 0.5 and from 1 per 30 m² of commercial space to 1 per 50 m², increasing the permitted densities from 77 houses per hectare to 153, and providing minor exemptions on the property tax during construction and on permitting costs made the project viable, with 36 percent of housing classified as affordable (scenario 2). Having an existing municipal trust fund (which was created as a municipal provident fund for housing

and capitalized but never used) purchase the land would require lower expected returns than private investors would, freeing up an additional 11.5 million Mexican pesos (about \$600,000) and increasing the share of affordable housing to about 42 percent (scenario 3). This case study shows how local governments can proactively manage the resources in their hands to better achieve public objectives as well as the potential of local regulation in unlocking supply.

Box Table 3.1 Scenarios for a mixed housing project in Merida, Mexico

Project	Scenario 1: no incentives or normative changes	Scenario 2: reduced parking requirement, higher density, property tax exemption during construction, reduced permitting costs ^a	Scenario 3: incentives from scenario 2 + land is purchased by a public trust fund
Project feasible?	No	Yes	Yes
Benefits	None	Introduction of affordable housing units in the city center	Introduction of a larger share of affordable housing in the city center. Additional external infrastructure to the project.
Total housing	208	420	420
Share of affordable housing (%)	33	36	42
Parking required	515	267	267
Leveraged returns (%)	2	18	18

Source: Steer Davies Gleave, Andean Partners, and Urbanistica 2018.

a. The property tax exemption and reduced permitting costs total about 252,000 Mexican pesos.

Diversified and targeted housing solutions

Housing programs should be designed to address needs across all income segments and household preferences. Housing policies often focus largely on increasing access to ownership for the formal sector. But this approach does not accommodate the needs of the poorest households, informally employed individuals, or households with different needs. A better approach might be a menu of housing solutions that cater to the diverse needs and preferences.

Rental housing is particularly relevant in metropolitan areas. In large cities, where high inequality undermines poor people's capacity to own housing, renting has proved a good policy option for improving access. Renting is a flexible option that allows for mobility and can be particularly suitable for the young and the elderly, as well as the informally employed, which typically have little access to long-term finance. Indeed, renting is typically more prevalent in cities than in countries as a whole (table 1). Cities are also best positioned to improve the supply and quality of rental housing because they better understand their inhabitants' rental needs. They can, for example, evaluate whether to target specific groups such as students, tourists, or

the elderly and establish in which areas rental housing is most needed, for what income levels, and so on. But rental programs need to be part of a comprehensive approach that considers regulation, balances tenant protection with effective eviction policies, includes a fiscal policy that takes into account the financials of renting and provides fiscal incentives if needed, and ensures the availability of long-term investors, such as pension funds, that can finance the sector.

Governments typically offer rental support to low-income households through social rental housing or housing allowances, including various forms of means-tested allowances for rental accommodation. For social rental housing countries are increasingly moving away from public ownership toward greater participation of the nonprofit, and even the for-profit, sector, with support from the central or local governments. This is typically provided as supply-side subsidies, such as public low-interest loans, guarantees, interest-rate subsidies, or direct subsidies. By contrast, housing allowances are demand-side subsidies offered to households that meet required conditions (typically low income) (Salvi del Pero et al. 2016). Hybrid approaches can complement rental markets. In shared ownership schemes households can either build equity gradually through rent payments (a rent-to-own model) or own only the structure and lease the land (which is often owned by a land trust), thereby removing the cost of land from the unit purchase price.

Table 1. Housing tenure in selected countries and cities, various years (%)

Country	Owned	Rented	City	Owned	Rented
Germany	45	55	Berlin	20	85
The Netherlands	57	43	Amsterdam	30	70
United States	62	37	New York	49	50
United Kingdom	63	37	London	47	52
China	84	16	Beijing	59	40
Brazil	74	17	Sao Paulo	70	20
South Africa	77	22	Johannesburg	55	42
Uruguay	62	17	Montevideo	58	23
France	57	40	Paris	48	49

Source: Adapted from UN-Habitat 2003 with 2014 data on OECD countries and cities from the OECD Affordable Housing Database, 2015. Data on the United States and New York from the American Housing Survey, 2016. Data on Berlin from <https://www.firstcitiz.com/about-berlin/berlin-property-prices.html>, 2015. Data on Amsterdam from ABF Research, 2016–17. Data on London from the English Housing Survey, 2014–15. Data on Brazil from Brazilian Institute of Geography and Statistics (IBGE) and Statistical Yearbooks based on 1940–2010 Demographic Censuses. Figures might not add to 100 due to rounding or other tenure types.

Incremental building is another important option for improving housing supply, particularly in low- and middle-income countries. Enabling more efficient incremental building and extensions through small loans (\$500–\$5,000), repaid over one to three years, is one of the most effective housing supply strategies available to assist poor people. Incremental housing is also a good solution for the informal sector. In Mexico, only programs for housing self-construction and improvement are available to households with informal income or informal housing because only smaller finance institutions are willing to issue micro-credits to these sectors with

no formal income or collateral. Additionally, in-situ upgrading strategies allow slum dwellers to improve their living conditions while maintaining their existing social networks and economic activities and without increasing their transport time and costs.

Leveraging private capital to finance infrastructure

Infrastructure financing is at the core of the housing discussion. How cities expand has significant implications for the cost to local governments of bringing basic infrastructure to all citizens, as discussed above. In Latin America lack of infrastructure (especially water and sanitation) was one of the main deficits of housing in urban areas in 2012. Around 21 million households lived in dwellings without at least one basic service: nearly 17 million households (13 percent) had inadequate sanitation, and roughly 8 million (6 percent) lacked running water (IDB 2012). Worldwide the qualitative deficit (the number of houses that require improvements, access to services, and so on) is much higher than the quantitative one: in Latin America, for example, the qualitative deficit accounts for two-thirds of the total housing deficit (Fay et al. 2017).

Infrastructure represents an enormous cost to local governments, more so in sprawling cities. Infrastructure accounts for over 70 percent of the costs of slum upgrading projects (Abiko et al. 2007). The cost to upgrade a slum is 2–8 times greater than the cost to develop regular land, depending on the complexity of the project (Marulanda et al. 2015). In Merida and Tijuana a compact, transport-oriented development would reduce capital infrastructure costs 90 percent and service provision expenses for the local governments by 23 percent and 24 percent in each city respectively compared with the trend scenario through 2030 (Capital Sustentable 2018)¹².

Creative instruments such as land value capture can finance infrastructure. Cities around the world are increasingly leveraging their most precious asset—land—to finance infrastructure (table 2). Land value capture refers to the calculation and distribution, among the government and landowners, of the increases in land value due to government action. Value can be captured through:

- Publicly financed investments, such as basic infrastructure, transport systems, and the like, which by their proximity to or their direct impact on a given area, increase the value of the land and generate revenues that can be used to finance additional infrastructure.
- Regulation—that is, administrative actions such as land use conversion, which involves a change of use from rural to urban, for plots of land located in the periphery of the city; allowing higher densities, greater floor area ratios, or modifications to other building norms, which increase the value of the land because of potential financial returns as the land is developed; and zoning changes—for example, from residential to commercial (Marulanda et al. 2015).

Among high-income countries, Germany has experience in land readjustment to produce land for affordable housing, and France and the Netherlands have strong regulatory frameworks to promote inclusionary housing.

Public–private partnerships (PPPs) can also leverage private financing for infrastructure and housing. Particularly when the city owns land, the public sector can enter into agreements with the private and nonprofit sectors to develop that land. PPPs for housing have been used

¹² The compact development scenario prioritized development areas based on proximity to jobs and public transport. The model filled up to 50 percent of the permitted densities under the current Municipal Development Plan.

extensively in many U.S. cities and in cities around the world. Under the typical PPP arrangement for housing development, the private sector is responsible for designing, financing (all or part), and constructing the housing units, and the public sector contributes the land, provides part of the funding (if necessary), and determines the housing typology and the selling price. But these responsibilities can vary by place and project. Mumbai is using PPPs as a key tool to achieve housing for all by 2022¹³. Eight PPP models have been provided for the private sector to invest in affordable housing.

Table 1. Housing tenure in selected countries and cities, various years (%)

Instrument	Description
Tax or fee based	
Property and land tax	Tax that is levied on the estimated value of land or land and buildings combined. Revenues usually go into budgets for general purposes.
Betterment levies and special assessments	Surtaxes imposed on estimated benefits created by public investments to require property owners who benefit directly from public investments to pay for their costs.
Tax increment financing	A surtax on properties within an area that will be redeveloped by public investment to be financed by municipal bonds, against the expected increase in property tax, which is pledged.
Exactions and impact fees	Fees (or in-kind contribution) collected from private developers to pay for the cost of providing additional public infrastructure and services and to accommodate additional population generated by their new development projects.
Development based	
Land sale or land lease	Governments sell developers land for payment or the land use right in return for either an upfront leasehold charge or payments of annual land rent through the term of the lease.
Air right sale	Governments sell development rights extended beyond the limits specified in land use regulations (such as floor area ratios) or created by regulatory changes to raise funds to finance public infrastructure and services.
Land readjustment	Landowners pool their land together for reconfiguration and contribute a portion of their land for sale to raise funds to partially defray public infrastructure development costs.
Urban redevelopment financing	Landowners together with a developer establish one cooperative entity to consolidate piecemeal land parcels into a single site that they then develop (for example, a high-rise or mixed-use building) with new access roads and public open spaces. The local government then modifies zoning codes and increases maximum floor area ratios in the targeted redevelopment district (typically around rail transit stations).

Source: Suzuki et al 2015.

¹³ <https://economictimes.indiatimes.com/news/economy/policy/government-announces-new-ppp-policy-for-private-investments-in-affordable-housing/articleshow/60777583.cms>.

Efficient and innovative information and data management

Cities should foster robust information systems that serve as depositories of reliable, up-to-date, publicly available housing and real estate data. This includes everything from basic geo-referenced data on the location and characteristics of slums to supply and demand data on residential housing markets. Improved data and an assessment of the housing sector and slum conditions can clarify the institutional framework, roles, and responsibilities as a first step in designing evidence-based reforms and policy. Better information systems will strengthen the knowledge of the housing market and household profiles and needs, which in turn will improve affordable housing program design and implementation. More transparent, reliable, and up-to-date information will also help remove market failures and uncertainties by reducing room for patronage and corrupt practices, reducing costs, and removing barriers to new entrants or smaller actors with limited ability to manage data uncertainty. For example, Mexico's Sistema Nacional de Información e Indicadores de Vivienda aggregates a wealth of information collected by various actors in a single platform¹⁴.

Analyzing the housing sector and slum conditions is a good way to unpack the opportunities for and identify the efficiencies in and bottlenecks to improving housing delivery and upgrading and the link with housing's fundamental inputs (land, finance, and infrastructure) (UN-Habitat 2011b)¹⁵. Data on socioeconomic and demographic conditions are also essential to formulating policies and housing responses.

¹⁴ <http://sniiv.conavi.gob.mx/>

¹⁵ UN-Habitat has adopted this methodology in helping countries undertake housing sector analysis to support housing reforms and policy making and implementation.

Bibliography

Abiko, A., A. Cardoso, R. Rinaldelli, and C. Riogi Haga. 2007. "Basic Costs of Slum Upgrading in Brazil." *Global Urban Development* 3 (1).

Angel, S. 2012. *Planet of Cities*. Cambridge, MA: Lincoln Institute of Land Policy.

Angel, S., A. M. Blei, J. Parent, P. Lamson-Hall, N. Galarza Sánchez, D. L. Civco, R. Qian Lei, and K. Thom. 2016. *Atlas of Urban Expansion—2016 Edition, Volume 1: Areas and Densities*. New York, NY: Atlas of Urban Expansion.

Badev, A., T. Beck, L. Vado, and S. Walley. 2014. "Housing Finance across Countries." Policy Research Working Paper 6756, World Bank, Washington, DC.

Bastos, P., and J. Silva. 2017. "The Origins of High-Growth Firms: Evidence from Brazil." Washington, DC: World Bank.

Bayer, P., R. McMillan, and K. Rueben. 2004. "An Equilibrium Model of Sorting in an Urban Housing Market." NBER Working Paper 10865, National Bureau of Economic Research, Cambridge, MA.

Beck, T., A. Demirgüç-Kunt, and M. S. Martinez Peria. 2007. "Reaching Out: Access to and Use of Banking Services across Countries." *Journal of Financial Economics* 85 (1): 234–66.

Bertaud, A. 2015. "The Spatial Distribution of Land Prices and Densities: The Models Developed by Economists." Working Paper 23, New York University, Marron Institute of Urban Management, New York, NY.

Bertaud, A., and S. Malpezzi. 2013. *The Spatial Distribution of Population in 54 World Cities*. University of Wisconsin Center for Urban Land Economics Research: Madison, WI.

Bhatta, B. 2010. "Causes and Consequences of Urban Growth and Sprawl." In *Analysis of Urban Growth and Sprawl from Remote Sensing Data*. Advances in Geographic Information Science. Berlin, Germany: Springer.

Brueckner, J. K. 2000. "Urban Sprawl: Diagnosis and Remedies." *International Regional Science Review* 23 (2): 160–71.

Cattaneo, M. D., S. Galiani, P. J. Gertler, S. Martinez, and R. Titiunik. 2009. "Housing, Health, and Happiness." *American Economic Journal: Economic Policy* 1 (1): 75–105.

Capital Sustentable. 2018. "Metropolitan Urban Planning Tool (version 2) and Application to Mexican Cities." Unpublished draft. Mexico City, Mexico.

Cárdenas Rodríguez, M., L. Dupont-Courtade, and W. Oueslati. 2015. "Air Pollution and Urban Structure Linkages: Evidence from European Cities." OECD Environment Working Paper No. 96, OECD Publishing, Paris.

Cheng, Z., S. P. King, R. Smyth, and H. Wang. 2016. "Housing Property Rights and Subjective Wellbeing in Urban China." *European Journal of Political Economy* 45 (1): 160–74.

Chetty, R., N. Hendren, P. Kline, and E. Saez. 2014. "Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States." *Quarterly Journal of Economics* 129 (4): 1,553–1,623.

- Creutzig, F., and D. He. 2009. "Climate Change Mitigation and Co-Benefits of Feasible Transport Demand Policies in Beijing." *Transportation Research Part D: Transport and Environment* 14 (2): 120–31.
- Davis, M. A., and R. Ortalo-Magne. 2011. "Household Expenditures, Wages, Rents." *Review of Economic Dynamics* 14 (2): 248–61.
- D'Aoust, O., and S. Lall. 2018. "Jobs to People or People to Jobs? Levering Public Housing Programs to Support the Formation of Economic Sub Centers in South Africa." *South Africa Urbanization Review Paper*, World Bank, Washington, DC.
- De Duren, N. R. L. 2017. "Why There? Developers' Rationale for Building Social Housing in the Urban Periphery in Latin America." *Cities* 72 (B): 411–20.
- De Soto, H. 2000. *The Mystery of Capital*. New York, NY: Basic Books.
- Demirgüç-Kunt, A., L. Klapp, D. Singer, S. Ansar, and J. Hess. 2018. "The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution." Washington, DC: World Bank.
- Demographia. 2018. "14th Annual Demographia International Housing Affordability Survey." Belleville, IL: Demographia.
- Doling J., P. Vandenberg, and J. Tolentino. 2013. "Housing and Housing Finance—A Review of the Links to Economic Development and Poverty Reduction." *Economics Working Paper 362*, Asian Development Bank, Manila, Philippines.
- The Economist. 2015. "How Cheaper Housing Can Boost Productivity." July 20. <https://www.economist.com/the-economist-explains/2015/07/19/how-cheaper-housing-can-boost-productivity>
- Ewing, R., S. Hamidi, J. Grace, and D. Wei. 2016. "Does Sprawl Hold Down Upward Mobility?" *Landscape and Urban Planning* 148 (1): 80–88.
- Fay, M., L. A. Andres, C. Fox, U. Narloch, S. Straub, and M. Slawson. 2017. "Rethinking Infrastructure in Latin America and the Caribbean: Spending Better to Achieve More." *Directions in Development—Infrastructure*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/27615>.
- Ferreira, M. M., and M. Roberts. 2018. "Raising the Bar for Productive Cities in Latin America and the Caribbean." *Latin America and Caribbean Studies*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/29279>.
- Floater, G., P. Rode, B. Friedel, and A. Robert. 2014. "Steering Urban Growth: Governance, Policy and Finance." *New Climate Economy contributing paper*, London School of Economics and Political Science, London, UK.
- Ganong, P., and D. Shoag. 2015. "Why Has Regional Income Convergence in the U.S. Declined?" Cambridge, MA: Harvard University.
- Glaeser, E., and J. Gyourko. 2012. "The Impact of Zoning on Housing Affordability." *NBER Working Paper 8835*, National Bureau of Economic Research, Cambridge, MA.
- Goux, D., and E. Maurin. 2005. "The Effect of Overcrowded Housing on Children's Performance at School." *Journal of Public Economics* 89 (5–6): 797–819.

- Gyourko, J., and R. Molloy. 2015. "Regulation and Housing Supply." In G. Duranton, J. V. Henderson, and W. C. Strange (eds.), *Handbook of Regional and Urban Economics*. Oxford, UK: Elsevier.
- Hoek-Smit, M.C. 2015. "Inclusive Housing Finance: Affordable Housing." UN-Habitat, Global Expert Group Meeting.
- House of Lords, Select Committee on Economic Affairs. 2016. *Building More Homes*. London, UK.
- Hsieh, C., and E. Moretti. 2015. "Why Do Cities Matter? Local Growth and Aggregate Growth." Working Paper No. 36, Kreisman Working Paper Series in Housing Law and Policy.
- Ilkeda, S., and E. Washington. 2015. "How Land-Use Regulation Undermines Affordable Housing." Fairfax, VA: George Mason University Mercatus Center,.
- IMF (International Monetary Fund). 2018. "Australia: Selected Issue." Washington, DC. <https://www.imf.org/~media/Files/Publications/CR/2018/cr1844.ashx>.
- IDB (Inter-American Development Bank). 2012. *Room for Development: Housing Markets in Latin America and the Caribbean*. Washington, DC.
- JCHS (Joint Center for Housing Studies of Harvard University). 2017. *America's Rental Housing* 2017. Cambridge, MA. <http://www.jchs.harvard.edu/sites/default/files/americasrentalhousing-2017-factsheet.pdf>.
- . 2018. *The State of the Nation's Housing 2018*. Cambridge, MA.
- Kofowolora, O., and S. Gheewala. 2008. "An Input–Output Analysis of Thailand's Construction Sector." *Construction Management and Economics* 26 (1): 1227–40.
- LAO (Legislative Analyst's Office of California). 2015. "California's High Housing Costs Causes and Consequences." Sacramento, CA.
- Litman, T., 2014. "Analysis of Public Policies that Unintentionally Encourage and Subsidize Urban Sprawl. New Climate Economy contributing paper." Victoria Transport Policy Institute, commissioned by London School of Economics and Political Science, London, UK.
- Marulanda, C., B. Eraso, E. Monteiro, and P. Gluzmann. 2015. "LAC Infrastructure Gap—A Territorial Development Perspective." Background paper for GSURR, World Bank, Washington, DC.
- Malpezzi, S. 2012. "Global Perspectives on Housing Markets." Unpublished paper. Madison, WI: University of Wisconsin.
- Malpezzi, S., and S. Mayo. 1987. "The Demand for Housing in Developing Countries: Empirical Estimates from Household Data." *Economic Development and Cultural Change* 35 (4): 687–721. <http://www.jstor.org/stable/1153889>.
- OECD (Organisation for Economic Co-operation and Development). 2006. "OECD Territorial Reviews: Competitive Cities in the Global Economy." Paris, France. <http://www.oecd.org/cfe/regional-policy/oecdterritorialreviewscompetitivecitiesintheglobaleconomy.htm>.
- . 2015. "The Metropolitan Century: Understanding Urbanization and Its Consequences."

Paris, France. <http://www.oecd.org/greengrowth/the-metropolitan-century-9789264228733-en.htm>.

———. 2017. “HC1.2. Housing Costs over Income.” Paris, France. <https://www.oecd.org/els/family/HC1-2-Housing-costs-over-income.pdf>.

———. 2018. “Rethinking Urban Sprawl: Moving Towards Sustainable Cities.” Paris, France.
Roch, F. 2017. “Housing Finance and Real Estate Markets in Colombia.” Working Paper WP/17/190, International Monetary Fund, Washington, DC. <https://www.imf.org/~media/Files/Publications/WP/2017/wp17190.ashx>.

Salat, S., and G. Ollivier Gerald. 2017. “Transforming the Urban Space through Transit-Oriented Development: The 3V Approach.” Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/26405>.

Salvi del Pero, A., W. Ademai, V. Ferraro, and V. Frey. 2016. “Policies to Promote Access to Good-Quality Affordable Housing in OECD Countries.” OECD Social, Employment and Migration Working Paper 176, Paris, France.

SEGOB (Secretaría de Gobernación). 2013. “Programa Nacional de Vivienda.” Mexico City, Mexico.

Steer Davies Gleave, Andean Partners, and Urbanistica, 2018. “Roadmap and Business Model: Affordable Housing Project in Urban Center of Merida.” Unpublished study commissioned by the World Bank for the government of Merida, Washington, DC.

Suzuki, H., J. Murakami, Y. Hong, and B. Tamayose. 2015. “Financing Transit-Oriented Development with Land Values: Adapting Land Value Capture in Developing Countries.” Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/21286>.

The Wharton/Tsinghua Chinese Residential Land Price Indexes. n. d. Philadelphia, PA. <http://real.wharton.upenn.edu/~gyourko/chineselandpriceindex.html>.

The White House. 2016. “Housing Development Toolkit”. Washington, DC. https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Housing_Development_Toolkit%20f.2.pdf.

Turok, I. 2011. “Deconstructing Density: Strategic Dilemmas Confronting the Post-Apartheid City.” *Cities* 28 (5): 470–77.

UN-Habitat (United Nations Human Settlements Programme). 2003. *Rental Housing: An essential option for the urban poor in developing countries*. Nairobi, Kenya.

———. 2011a. *Global Report on Human Settlements 2011*. London, UK: Earthscan. <https://unhabitat.org/books/cities-and-climate-change-global-report-on-human-settlements-2011/>.

———. 2011b. *A Practical Guide for Conducting Housing Profiles: Supporting Evidence-Based Housing Policy and Reform*. Nairobi, Kenya.

———. 2015. *Land Tenure Security in Selected Countries: Global Report*. Nairobi, Kenya.

———. 2016a. *Slum Almanac 2015/2016: Tracking Improvement in the Lives of Slum Dwellers*. Nairobi, Kenya. https://unhabitat.org/wp-content/uploads/2016/02-old/Slum%20Almanac%202015-2016_EN.pdf.

———. 2016b. *World Cities Report 2016: Urbanization and Development: Emerging Futures*. Nairobi, Kenya.

United Nations. 2016. *Progress towards the sustainable development goals 2016*. New York, NY. <https://unstats.un.org/sdgs/files/report/2016/secretary-general-sdg-report-2016--en.pdf>

———. 2017. *World Population Prospects 2017: Data Booklet*. New York, NY.

Venables, A. J. 2010. "New Economic Geography." In S. N. Durlauf and L. E. Blume (eds.), *Economic Growth*. London, UK: Palgrave Macmillan.

Woetzel, J., S. Ram, J. Mischke, N. Garemo, and S. Sankhe. 2014. "A Blueprint for Addressing the Global Affordable Housing Challenge." New York, NY: McKinsey Global Institute. http://www.mckinsey.com/insights/urbanization/tackling_the_worlds_affordable_housing_challenge.

World Bank. 2018. "Indonesia InfraSAP: Role of SOEs in Infrastructure." Internal document. Washington, DC.

Wu, J., J. Gyourko, and Y. Deng. 2012. "Evaluating Conditions in Major Chinese Housing Markets." *Regional Science and Urban Economics* 42 (3): 531–43.

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