




Global Cities
Business Alliance

Housing for Inclusive Cities: the economic impact of high housing costs

Discussion paper | April 2016

A stylized, light gray graphic of a city skyline is positioned at the bottom of the page. It features several buildings of varying heights and widths, represented by simple outlines and small square windows. The buildings are arranged in a way that creates a sense of depth and perspective.

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London, April 2016



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Foreword



The Global Cities Business Alliance was launched in June 2015 in recognition of the growing importance of cities to business and the shift of power from national to city level. It is a forum for leaders from the private and public sector to engage, collaborate and find ways to help cities thrive.

The alliance shares knowledge between cities and focuses on the role businesses can play in urban development. It will work to understand and address urban challenges through public-private collaboration and will hold an annual Global Cities Symposium to set priorities for action.

High on the agenda at 2015's launch was a discussion about a fundamental challenge for businesses in many world cities - how to house their workforce. Business leaders around the world recognise that in many growing urban economies junior and mid-tier employees are struggling with housing, often face long commutes and spend increasing proportions of their salaries on accommodation. This in turn drives up the wages employers need to offer to attract the best staff.

Our Housing for Inclusive Cities project aims to explore this issue more fully. This initial report looks at the economic impact of these housing challenges across a range of global cities. Later this year we'll publish further analysis based on a survey of our alliance partner and other employees working in these global cities. We're also looking towards solutions and interviewing city and business leaders to find out what steps they are taking locally to address housing affordability challenges.

This report finds that 1.3 million new jobs and \$30 billion-worth of additional spending power could be created if housing were more accessible in these leading global cities.

We're proud to release this report and hope it provides a basis for productive debate. If cities can learn from and support each other on these issues, and get sufficient backing from business, national governments and other key stakeholders, we all stand to benefit.

A handwritten signature in black ink, appearing to read 'L. Saville'.

Lesley Saville
Chief Executive
Global Cities Business Alliance





Executive summary

This report explores the economic implications of high housing costs for global cities. It draws on a wide range of international datasets to quantify housing costs and the economic benefits that could be realised from better housing provision. The key findings of the report are:

- Out of the 15 focus cities examined, in 2015 San Francisco had the most expensive average monthly rents of \$2,824. This was closely followed by New York and Abu Dhabi at \$2,629 and \$2,460 respectively. The cheapest housing was available in Mexico City and São Paulo at \$385 and \$480 respectively.
- Although Mexico City and São Paulo have the cheapest housing out of the focus cities, even these two cities have seen a rapid rise in the cost of accommodation. The average monthly cost of housing in São Paulo was 33.8% higher in 2015 than it was in 2009, while the comparable figure for Mexico City is 44.2%. Hong Kong and San Francisco are also among the cities with the highest growth rates with 49.7% and 66.7% respectively.
- Only one of the 15 focus cities – Boston – has normal rents taking up no more than 30% of average net income. Although the average cost of housing in the city is still relatively high compared to much of the world, wages are correspondingly high.
- On the opposite end of the spectrum are Beijing, Abu Dhabi and Hong Kong. Although the average amount spent on housing in these cities is lower than in some of the other considered locations, average wages are also lower which creates significant affordability issues for residents.
- Rising house prices have dramatically pushed up company wage bills. Compared to a hypothetical situation where housing costs rose in line with inflation since 2010, wages in New York City in 2015 could have been as much as \$12 billion higher, or 3.8% of the total wage bill. This is because higher housing costs lead to greater wage demands from workers. Firms may need to pay employees more in order to retain staff and attract top talent.
- High housing costs may be contributing to longer commutes. At 113 minutes per round trip, people from Mexico City have the longest average commute among the cities studied. Second and third places are taken by Beijing and Shanghai, with daily commutes running to 104 and 101 minutes respectively.
- One way in which economies in key global cities miss out due to high housing costs is through unrealised spending which is instead spent on accommodation. We estimate that compared to a situation where housing costs had risen by around 2% per annum since 2010, unrealised spending is as high as \$7 billion in New York City and \$6 billion in Hong Kong.
- Acknowledging the negative economic impact of housing shortages, both private and public sectors have devised remedial strategies. We explore these ideas, which include curbing demand, stimulating supply and direct market intervention, in a follow-up report to published in June 2016.



Introduction





High housing costs are a feature of many economically successful cities across the globe, creating challenges for individuals, families, governments and businesses. The social problems are well documented – with rising rent and house prices leading to social change as lower earners are pushed out of cities. Longer commutes, a result of individuals relocating to cheaper areas, can have a negative impact on wellbeing, especially if journeys are overcrowded.

The business impacts of the global housing crisis are multi-dimensional. Rising housing costs place upward pressures on wages as businesses attempt to retain top talent in expensive cities. Staff retention becomes more challenging. Businesses also lose out as rising housing costs lead to an erosion of household spending power, with family finances sucked up by rising rents and mortgages. In addition, longer commuting times can lead to employee fatigue and lower productivity.

Some of these costs are avoidable – they are not an inevitable feature of a successful city economy. Often, rising housing costs are a result of poor planning policy, property bubbles and resistance from existing homeowners towards new developments. Policymakers have a strong role to play in addressing housing crises across the globe; there are measures that can be undertaken to increase housing supply and curb speculative demand.

This report examines the economic impact of high housing costs in global cities, the effect on businesses and social wellbeing, and the potential economic gains from affordable housing provision. A follow-up report will explore housing policy across the globe, and successes and failures of initiatives designed to deliver inexpensive housing.

The structure of this report is as follows:

- **Section 2** examines the cost and affordability of housing across a range of global cities.
- **Section 3** explores the impact of high house prices on businesses in terms of wage pressures and lost consumer spending power.
- **Section 4** considers trends in commuting times across global cities as a result of high housing costs.
- **Section 5** examines the economic gains that could be achieved through provision of more affordable housing.
- **Section 6** previews our follow-up report which explores remedial strategies across the globe.
- **Section 7** draws conclusions from the preceding analysis.



The cost of housing in key global cities



One of the key struggles for many people wishing to relocate to a world-leading business city is finding housing that is satisfactory and appropriately priced. For some, this may mean a long commute to work. Some choose to accept lower-quality housing which may entail smaller spaces, lack of common living areas and more people sharing facilities such as bathrooms.

This section of the report looks at the average monthly cost of housing in 15 of the world's key cities in order to establish a baseline to discuss affordability implications and to explore the impact of high-cost housing on businesses' wage bills, spending and job creation. The 15 cities were chosen as they are all important global and regional business hubs and as a result have seen a growth in the size of their workforces with associated pressures on housing.

In this and subsequent sections we focus on the following 15 key global cities:

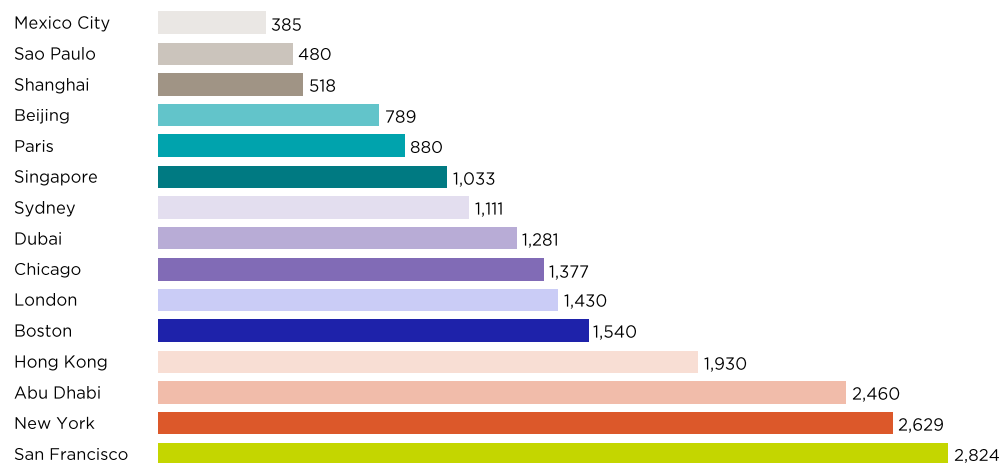


Throughout the report local housing cost figures rely on rental prices instead of on a combination of rents and mortgage payments. We assume that rents and average new mortgage costs are broadly in line with each other - if this were persistently not the case, then one would expect some substitution from renting to homeownership, or vice versa. However, Section 3 of this report, which analyses the impact of housing market developments on businesses, does consider homeownership rates in each city when estimating the wage premium figures. This is done in order to adjust for the fact that those employees who own their home outright do not face monthly housing costs in the same way that someone facing a monthly rent or mortgage payment does.

Normal local rent figures are taken from the UBS Prices and Earnings report and refer to average rent prices (monthly gross rents) paid by local households. The normal rent figures take into account local standards, specifically typical size and amenities. The use of normal rents rather than a price per square metre or a standardised apartment size (e.g. a one-bedroom) property helps account for differences in the size of an average property in each city. The alternative approach of using a property of a standard size (e.g. a one-bedroom apartment) across all cities would have distorted the international affordability comparison as a one-bedroom property is considered an average accommodation in some cities, but luxury or sub-par in others. For the cities not included in this dataset (Abu Dhabi, Boston, San Francisco and Singapore) comparable figures from alternative sources were used.

Out of the 15 focus cities, in 2015 San Francisco had the most expensive average monthly rental costs of USD 2,824. This was closely followed by New York and Abu Dhabi at USD 2,626 and USD 2,460 respectively. The cheapest housing was in

Figure 1
Normal local monthly rental costs per household, 2015
 USD¹



¹ The figures from the UBS Prices and Earnings report have been adjusted to reflect not just inner city areas, but the entire city
 SOURCE: Cebr analysis

Mexico City and São Paulo at USD 385 and USD 480 respectively.

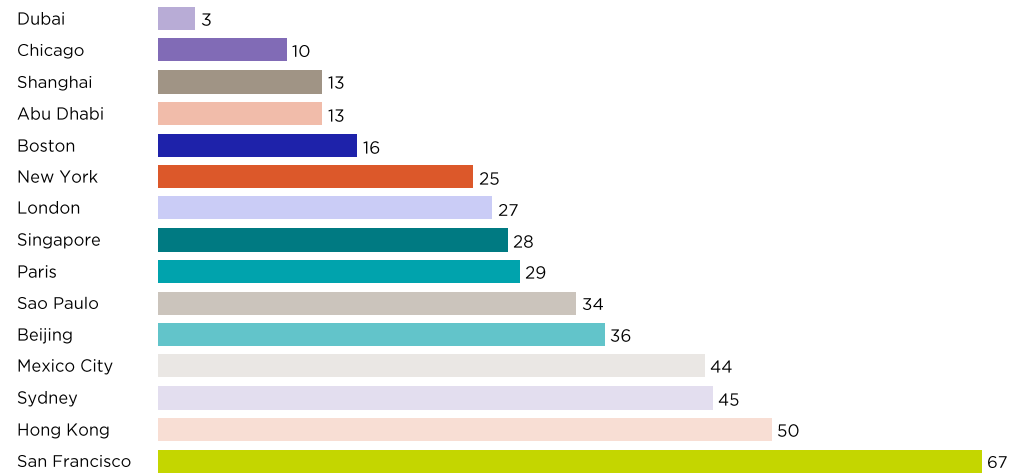
Although Mexico City and São Paulo have the cheapest housing among the focus cities, even these two cities have seen a rapid rise in the cost of accommodation. The average monthly cost of housing in São Paulo was 33.8% higher in 2015 than it was in 2009, while the comparable figure for Mexico City is 44.2%. Hong Kong and San Francisco are also among the cities with the highest growth rates with 49.7% and 66.7% respectively. Dubai is the city with the lowest price increase between 2009-2015. This was due to a particularly turbulent period in the city's housing market which saw price rises in some years, but sharp declines in others.



Figure 2

Normal local monthly rental costs in local currency

Percentage change 2009-2015



SOURCE: Cebr analysis

Overview of housing affordability

In addition to the average cost of housing, an equally important gauge of the housing market across key global cities is affordability. In this instance affordability is defined as the share of an average annual net income that goes towards housing expenses. We define affordability in this way as it takes account of differences in salaries in different global cities, and because a money ranking of affordability would vary according to exchange rate movements, thus distorting the figures. A common definition of affordable housing and also a benchmark in numerous affordable housing regulations around the world is housing that takes up no more than roughly 30%-40% of your net income.¹

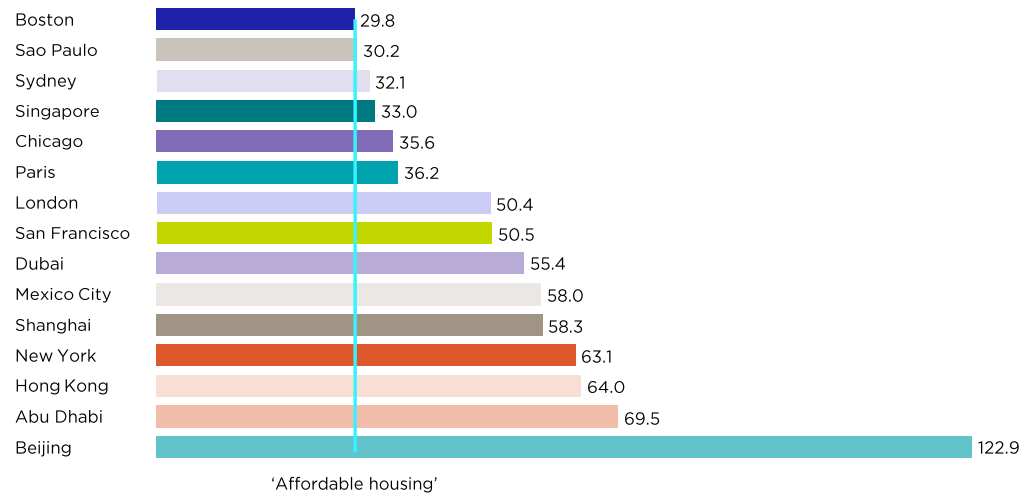
When considering the findings in Figure 3 it is important to remember that we are talking about mean, as opposed to median, housing costs. This means that the overall housing cost figures could be pushed up by a relatively small number of very expensive properties. Looking at median rather than mean housing costs would probably produce a lower housing cost figure in some of the cities on our list as the high-priced outliers would not have an impact on the median. However, due to the lack of consistent median housing cost data across the focus cities, our analysis considers means.

¹ See, for example: <http://www.census.gov/housing/census/publications/who-can-afford.pdf>

Figure 3

Average annual cost of housing as a share of net earnings, 2015

Annual normal rent as % net earnings



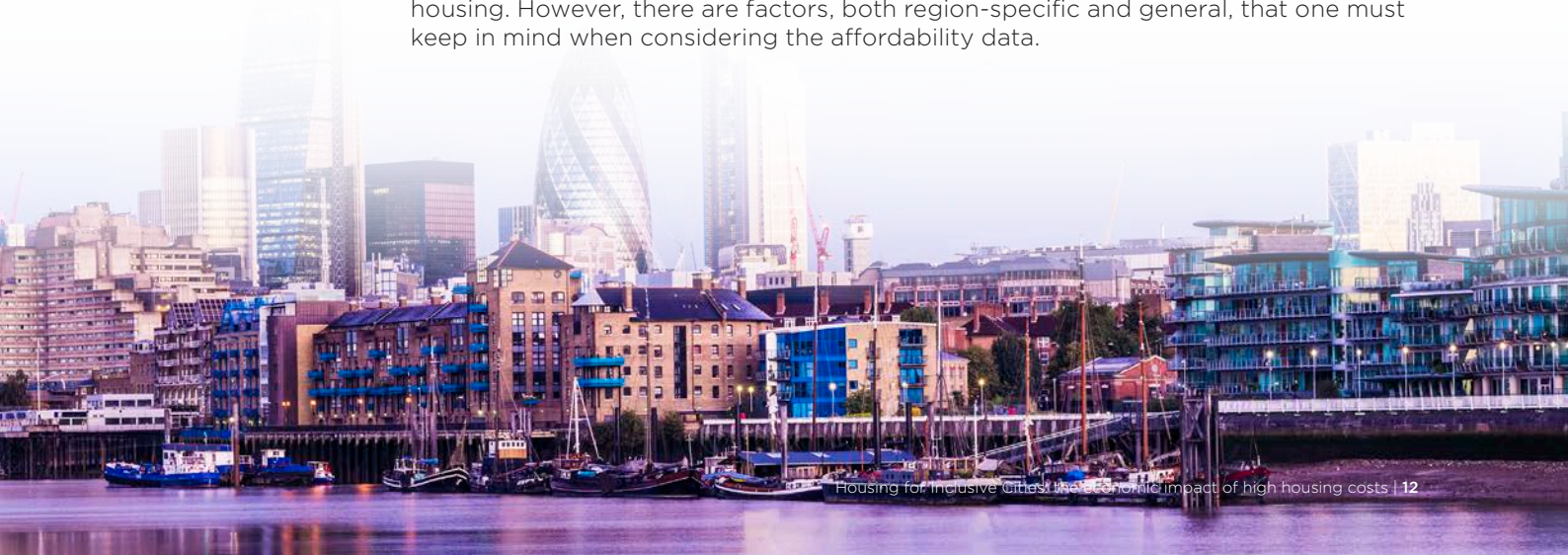
SOURCE: Cebr analysis

Likewise it is important to keep in mind that access to the housing market depends not only on income, but also on other factors such as the savings ratio and access to finance. Our affordability comparison focuses on income as it is a measure which can be considered consistently across cities and as it has an impact on the other relevant factors. For example, those with higher incomes tend to have a greater capacity to borrow.

At the opposite end of the spectrum we find Beijing, Abu Dhabi and Hong Kong. Although the average amount spent on housing in these cities is lower than in some of the other considered locations, average wages are also lower which creates affordability challenges for residents. In the case of Beijing, average housing costs actually account for more than 100% of net earnings which suggests that a worker on an average salary cannot live alone in typical city accommodation. However, some employees in Beijing's lower-paid sectors benefit from employer-secured housing meaning they are not subject to market rents.²

Affordability issues become more obvious when we consider affordability in various cities for specific occupations. The results of this analysis are presented in Figure 4. Employees in lower-paid sectors in some of the considered cities, such as Dubai, Mexico City and Beijing, receive annual earnings lower than the average cost of housing. However, there are factors, both region-specific and general, that one must keep in mind when considering the affordability data.

² See How Migrant Workers Find Housing in Beijing, available at <http://static1.squarespace.com/>

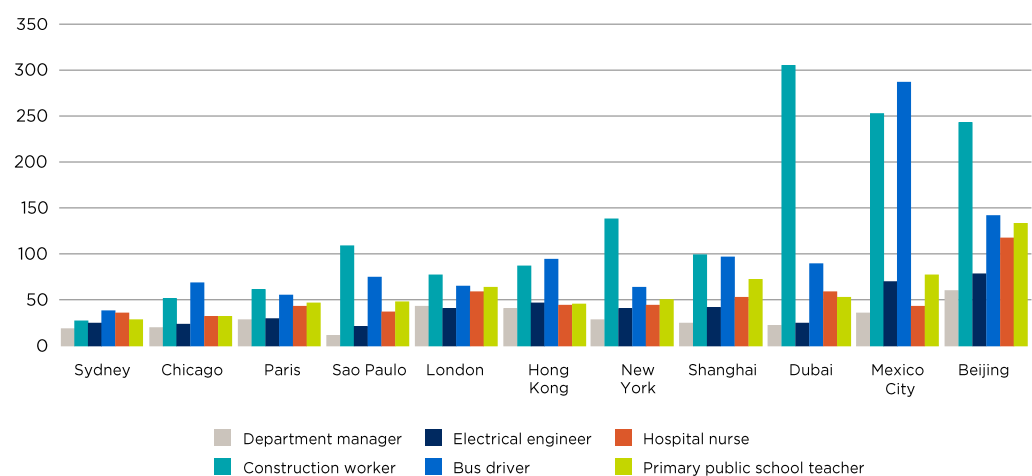


Firstly, the affordability measure assumes single occupancy. In other words, it looks at the average cost of a normal local apartment/house as a share of one person's earnings. However, in many instances there is more than one working adult living in a household, meaning that the cost of housing is divided across multiple individuals. Secondly, in some parts of the world, mainly China and the Middle East, employers in certain sectors secure housing for their workers. For example, construction firms will provide their workers with housing for the duration of a particular project. One example is large Dubai-based construction firms building camps to house workers from their building sites. Although some such initiatives have come under fire for poor quality accommodation, this does mean that workers in these industries are not subject to market housing costs, in which case our affordability estimates may be exaggerated.

Another factor which may exaggerate the affordability estimates in the below figure is the provision of housing benefits or social housing by government. Our analysis takes into account the cost of housing as set by the market, but some households, for example the unemployed, very ill or disabled, will receive state help to bring housing costs below market rates. Finally, those households that own their home outright would not face monthly housing costs in the same way that someone with a monthly mortgage or rent payment would, therefore the following analysis does not necessarily apply to those households.

Figure 4

Average annual cost of housing as a share of net earnings, by occupation, 2015



SOURCE: Cebr analysis

The occupations shown above were selected as they cover a wide range of economic sectors, skills and public and private sector employment. However, issues associated with the lack of inexpensive housing will be present for many other occupations as well. The problem is especially pronounced among lower-paid occupations as well as in cities such as Beijing where average labourers live on relatively low salaries. In other cities such as Dubai the disparity between pay for different occupations means that those in some jobs, for example department managers, can afford the average cost of housing easily, but other occupations are priced out of the regular housing market entirely.

This has implications not just for the employees that struggle to find accommodation, but also for businesses in the city that find it difficult to attract and retain workers. This is especially a challenge for industries that rely on workers in lower-paid occupations.





3

The impact on businesses
and employees



High housing costs in some of the world's key cities act as a deterrent for some potential employees considering relocating to the city and may be a financial burden for current residents. In order to compensate for this and be able to draw in top talent, businesses in these cities need to offer a wage premium. In fact higher wages are one of the factors that draw so many workers to these global cities and there is some overlap between the cities analysed in this report and the world's best paid locations³. This wage premium is on top of the already higher wages in major global cities which, in part, reflect very competitive talent drawn to these business centres and other factors, such as scarcity of supply, that also have an impact on wages. In countries with a system of housing benefits, part of the wage premium may also be the government having to distribute more benefits to individuals – either in monetary terms or through provision of housing directly.

³http://www.forbes.com/2009/08/24/best-paid-cities-lifestyle-real-estate-worlds-income-salary_slide_2.html?thisspeed=25000

In this report, the aggregate wage premium can be thought of as the cost to businesses and government of retaining and attracting workers that results from the high cost of housing. The aggregate wage premiums in the 15 global cities in this report on are shown in Figure 5.

The figures are calculated using a benchmarking approach. The benchmark is a hypothetical figure where the cost of housing in each city rises 10% between 2010 and 2015, corresponding to roughly 2% annually, aligned with common inflation targets.⁴

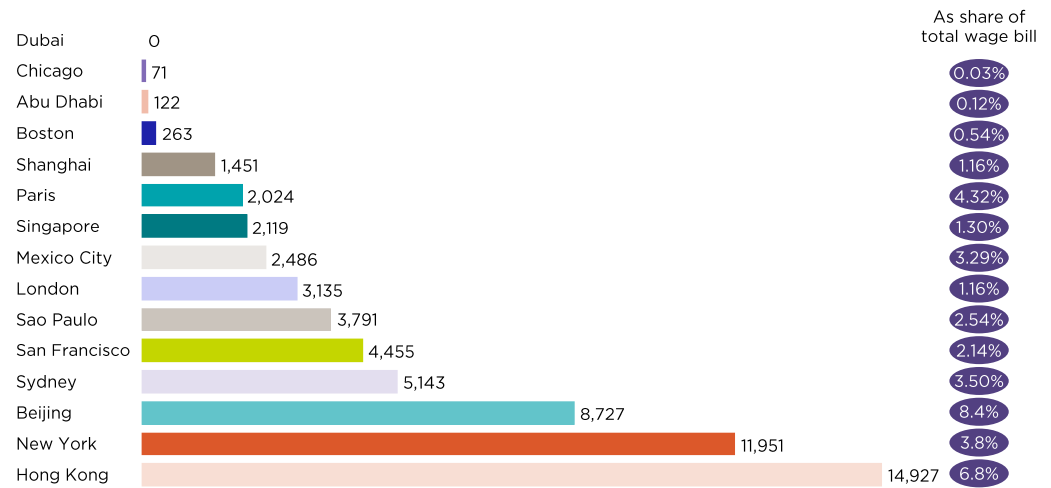
This section of the report considers how wages would be affected if the cost of housing grew at this modest rate rather than above it. Specifically, we sought out data on how much an average household was actually spending annually on housing in 2015 and calculated how much they would be spending under the counterfactual scenario. We then took the difference between the actual amount spent on accommodation across the cities and what would have been spent if costs rose just 10% in the five years between 2010-2015 and multiplied it by the number of households in order to arrive at the aggregate figure.⁵

⁴ This counterfactual scenario explores how the cost of housing would be different if rents rose in line with desired price rises across the whole economy

⁵ Due to the lack of detailed household level data for many of the cities, the total number of households is not adjusted to account for unemployed households. This should not have a drastic impact on the wage premium figures

Figure 5

Aggregate wage premium resulting from high housing costs, 2015 USD million



NB: the figure for Dubai is zero because in the 2010-2015 period the average increase in housing prices was lower than the counterfactual i.e. the cost of housing grew by less than 10%
SOURCE: Cebr analysis



Among the 15 focus cities, only businesses in Dubai did not face a housing-related wage premium. Of the cities where employers did face a premium, Chicago and Abu Dhabi had the lowest ones of USD 71 million and USD 122 million respectively. This respectively accounted for 0.03% and 0.12% of the total wage bill in each city. Hong Kong was at the opposite end of the scale with USD 15 billion, while in New York City the housing-related wage premium was USD 12 billion or 3.8% of the total wage bill.

The economic pressure created by high-cost housing is evident from the above figures and from numerous examples of businesses going to greater lengths to attract top talent by tackling the issue head on. For example, in London some large firms are ensuring that their employees can either access relatively inexpensive rented accommodation or are making it easier for them to get onto the property ladder. One such firm is the consulting house, Deloitte UK, which has reserved apartments in a property development in east London and made them available to employees in the firm's graduate programme. The fact that businesses are noticing the need to intervene and secure housing for their employees suggests a need to reconsider how inexpensive housing can be provided for the population as a whole.

London is by no means the only city where employer-assisted housing has become a more common feature of the job market. Employers across US metropolitan areas, including the University of Chicago and Citizens Financial Group, have decided to assist their employees' access to affordable housing as they find this gives them an edge in attracting and retaining a skilled workforce. Overall, beyond the need to pay wage premiums, employers across the globe have chosen to adapt to the lack of inexpensive housing by offering a variety of housing access schemes which either offer below market rents or help prospective buyers onto the housing ladder.





4

The economic and social cost of long commutes

In most cities housing costs are lower in areas that are less central and further away from offices and business headquarters. As cities grow, new residential zones are often created on the periphery, where land is not (yet) as costly. Houses and apartments in these areas are usually more affordable for employees. This, however, leads to an increase in the average distance between homes and workplaces and to longer commuting times.

While some people accept longer commutes in order to benefit from a better quality of life – such as a bigger home and more green space – for others this is an undesirable consequence of high house prices and expensive rents close to work. But long commuting times, too, come with additional costs. This section of the report examines commuting patterns in global cities and the associated economic and social costs in detail.

Commuting patterns in global cities

Travel distances and commuting times in many global cities are on the rise. For example, the average distance Londoners travelled to work increased from 10.4 kilometres in 2001 to 11.2 kilometres in 2011.⁶ Similarly, in American metropolitan areas people are living further away from employment centres.⁷ Figure 6 shows commuting times to and from work for key global cities. It should be noted that few cities regularly publish data on commuting times. Most of the data in this report is therefore taken from censuses and population surveys. However, in some cases such as Beijing and Hong Kong, surveys from official statistical bodies were not available and therefore secondary sources had to be consulted. Data refer to metropolitan areas, that is the urban core and the less densely populated surrounding areas which are economically closely linked to the core. This reflects the fact that many commuters do not actually live in the city but commute from surrounding suburbs. For example, numbers for New York in this section refer to the Tri-State area of New York-Newark-Jersey City.

The top four places in the chart are occupied by urban centres with populations exceeding 10 million. At 113 minutes, people from Mexico City have the longest average daily commute. Close behind are Beijing at 104 minutes for an average round-trip, Shanghai at 101 minutes and São Paulo at 86 minutes. All are emerging economy cities that have expanded rapidly: Figure 7 displays their relative population growth between 1995 and 2015. Beijing and Shanghai have expanded particularly quickly as rural residents seek out more prosperous urban livelihoods, while Mexico City and São Paulo have been major urban agglomerations for decades.

Section two also identifies São Paulo, Mexico City and Beijing as among those cities with the steepest increase in monthly housing costs between 2009-2015, only behind the well-established property markets of Sydney, Hong Kong and San Francisco.

But the housing markets are not the only places where the pressure is felt. Population increases have also put a strain on infrastructure and public transport networks, particularly as more people commute longer distances. Overcrowded buses

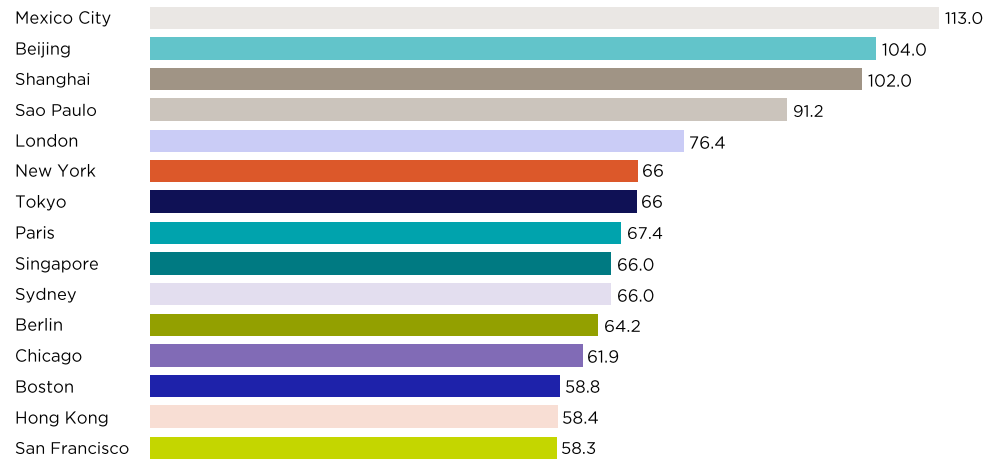
⁶ Based on ONS census data

⁷ Kneebone and Holmes (2015) - The growing distance between people and jobs in metropolitan America

Figure 6

Average commuting times per roundtrip¹

In minutes



¹ Data as per: London: 2014; Chinese cities: 2014; US cities: 2013; São Paulo: 2013; Sydney: 2012; Mexico City: 2011; Tokyo: 2011; Hong Kong 2011; Singapore: 2010; Europe: 2009

SOURCE: Office of National Statistics (ONS), Toronto Board of Trade, Baidu, Regus, Department of Statistics Singapore, De la Riva Group, INEGI, IPEA, Cebr Analysis

⁸ Credit Suisse (2013) - The Brazilian Infrastructure

and trains are part of the daily commute for millions and as city dwellers become more prosperous, many try to escape the discomfort of public transport by using their own car. In São Paulo for example, the motorisation rate, measured as vehicles per 100 inhabitants, rose by almost 40% between 2000 and 2010.⁸ But more cars on the streets lead to even more congested roads and longer travel times. The remainder of this section will analyse the potential economic costs and adverse health effects associated with long commuting times.

Figure 7

Population in Selected Metropolitan Areas

In millions



SOURCE: United Nation Populations Division, World Urbanization Prospects 2014



Urban sprawl and public transport – The case of Mexico City’s “golden line”

Mexico City is a prime example of how urbanisation – the large-scale migration from rural areas to metropolises – can cause transport problems in global cities. As more and more people move to cities, demand for housing often exceeds supply. Workers who lack the skills for high-paying jobs can find themselves being forced to the fringes. As a consequence, cities sprawl, especially in the absence of enforceable planning regulations, as is the case in the remote suburbs of Mexico City. So with jobs clustered in the city centre, long commutes become an unavoidable part of everyday life.

One possible way to alleviate this problem is to provide better transport links. Mexico City’s line 12 – dubbed the ‘golden line’ – is an example of how investing in an efficient public transport infrastructure can improve the commuter experience. Before the line’s inauguration, workers travelling across the city from south-east to west, where the majority of businesses reside, needed to catch a series of public buses, including the notorious ‘peseros’ minibuses.

This way of commuting was expensive – as travellers had to pay for every bus they took – tiring and sometimes dangerous, with reports of harassment and assaults common. According to city authorities, the Metro’s new line has slashed the two hour-plus commute from south-east to west to just 78 minutes. This gives these workers an additional 84 minutes a day to work, study, relax or spend time with families – a significant gain in life quality. Besides the savings in time, commuters also benefit from safer, more comfortable and more affordable travel.

Commuting and the effects on individuals' wellbeing

The rising costs of housing in global cities is one reason for an increasing number of people travelling considerable distances between home and workplace. The associated economic and personal costs of these commutes can vary. In particular, it's not just the length of a commute that matters, but also the quality of a commute. Technology and the widespread use of portable devices such as smartphones and laptops have enabled some employees to use their commuting time more productively in recent years. Answering emails, reading documents and taking phone calls are parts of the daily business routine that can be dealt with on the way to work or back home. This, however, is not possible for all commuters. Generally speaking, the more attention the commute requires and the less space and comfort it offers, the unlikelier it is that employees can use their commuting time in a productive way.

While employees coming to work by train are often able to get some work done before arriving at the office, those driving to work by car will at best be able to make just a few phone calls. People using buses and underground lines could potentially perform more demanding tasks, but crowded carriages during rush hour often prevent effective working. A technology with a high potential to change the way people spend their commuting time is the driverless car. If autonomous cars become a viable alternative for commuters, drivers – or rather passengers – could direct their attention away from the traffic towards work or entertainment.

For many, the daily commute is an opportunity to combat stress and improve general health. Commuters often listen to music or read a book to unwind. Workers who walk or bike to work relish the chance to integrate physical activity into their daily routine. We are also seeing the advent of the 'run commuter' – people who run either one or both ways between home and work. Proponents of this mode of transportation say that stress relief and the opportunity to include a workout in their day are the main motivations for running to work.

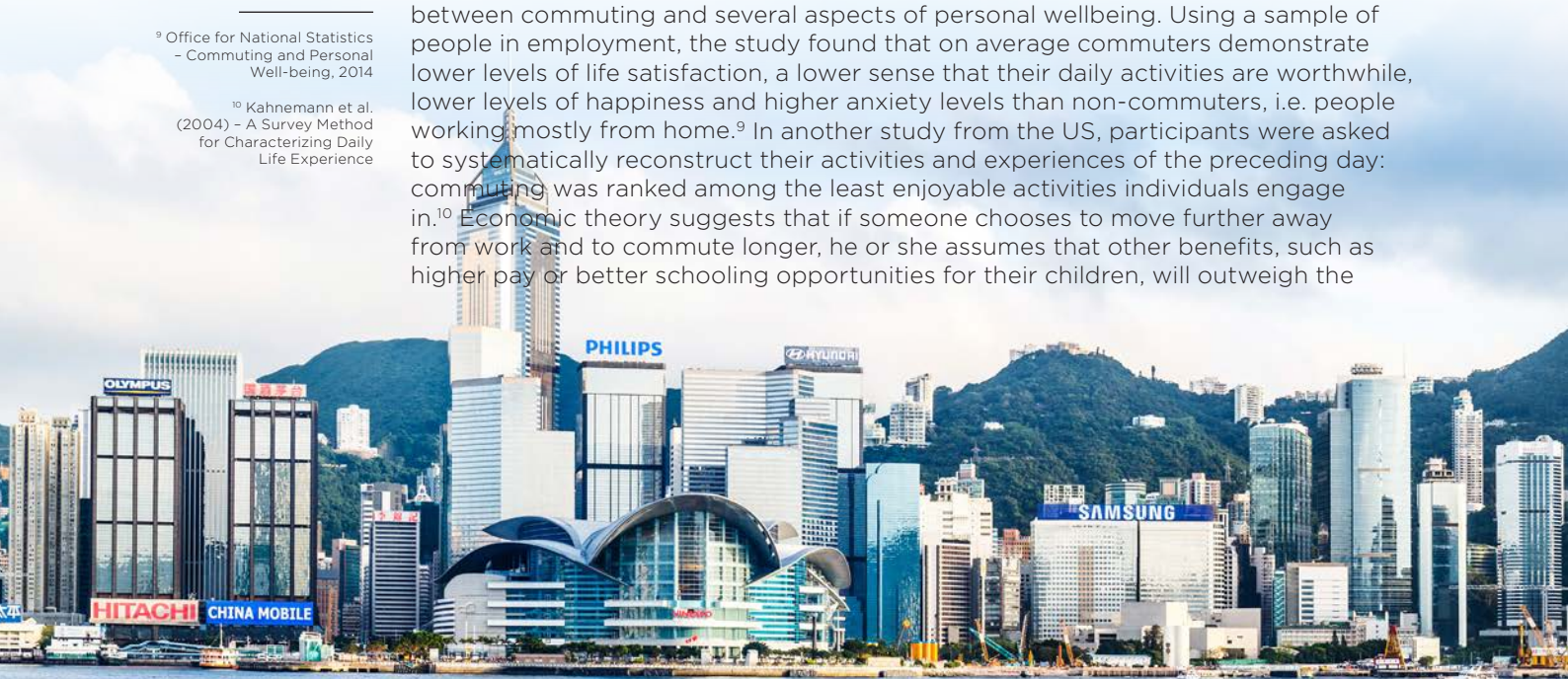
Having said that, many commuters around the globe still depend on a mode of transport that leaves little room for work or recreation, whether it be a car, crammed bus or underground carriage. For these people, the commute is an unavoidable part of daily life, taking up precious time in an already busy schedule. In the following sections we will take a look at the negative effects commuting may have on individual wellbeing.

Lower Life Satisfaction

A study by the UK's Office for National Statistics has examined the relationship between commuting and several aspects of personal wellbeing. Using a sample of people in employment, the study found that on average commuters demonstrate lower levels of life satisfaction, a lower sense that their daily activities are worthwhile, lower levels of happiness and higher anxiety levels than non-commuters, i.e. people working mostly from home.⁹ In another study from the US, participants were asked to systematically reconstruct their activities and experiences of the preceding day: commuting was ranked among the least enjoyable activities individuals engage in.¹⁰ Economic theory suggests that if someone chooses to move further away from work and to commute longer, he or she assumes that other benefits, such as higher pay or better schooling opportunities for their children, will outweigh the

⁹ Office for National Statistics
– Commuting and Personal
Well-being, 2014

¹⁰ Kahnemann et al.
(2004) – A Survey Method
for Characterizing Daily
Life Experience



¹¹ Such as Stutzer and Frey (2008) – Stress that doesn't Pay: The Commuting Paradox

¹² Oswald et al. (1997) – Happiness and Productivity

¹³ See for example: Frederick et al. (2002) – Time Discounting and Time Preference: A Critical Review

negative effects of longer commutes. However, the cited studies from the UK and the US among other countries¹¹ suggest that the negative effects of commuting on wellbeing and life satisfaction are persistent – with potentially negative effects for workplace productivity.¹² This implies that the mentioned benefits do not make up for the increase in commuting time. One explanation from the field of behavioural economics suggest that people generally have difficulties when comparing short-term benefits and long-term costs and therefore end up taking a decision that leaves them – eventually – unhappier.¹³

Loss of Disposable Time

For those unable to use their commuting time for business or recreation, the daily journey to and from work is lost time. Some of those commuters would increase their working hours if it they did not need as much time to get to work. Others would be happy to spend more time with friends and family. Maintaining social relationships requires time and effort, both resources sapped by long commutes. In extreme cases this may have serious repercussions for the social life of commuters. One study found that long-distance commuters with single journeys of 45 minutes or longer are 40% more likely to get a divorce compared to non-commuters.¹⁴

¹⁴ Sandow (2013) – Till work do us part: The social fallacy of long-distance commuting

One way to compensate for the loss of disposable time is to cut back on sleep. Indeed studies have found that commuters get less sleep during the week compared to people who mainly work from home – and as distances between home and work place increase, so does their lack of sleep. Sleep deprivation in turn is related to low productivity at work. The cost of lost productive work time due to fatigue in the USA has been estimated at USD 330 million.¹⁵ For jobs involving heavy machinery, sleep deprivation may lead to an increased rate of accidents and therefore poses a serious safety risk.

¹⁵ Ricci et al. (2007) – Fatigue in the US Workforce: Prevalence and Implications for Lost Productive Work Time

Health Risks

With the exceptions of walking, cycling and running to work, commuting is a predominantly sedentary and therefore unhealthy activity. A study conducted in the US found that symptoms like increased blood pressure and cholesterol, higher levels of blood sugar and an increase in anxiety and stress levels are associated with long commuting times.¹⁶ Other health risks associated with sitting for too long are back and neck pains as well as an increased risk of being overweight. It is therefore not surprising that longer commutes are associated with a reduction in productivity due to an increase in sick leave. A survey of more than 800 UK residents who cycle to work revealed that they had taken only 2.5 sick days in the last year – compared to 4.4 days for the average UK employee.¹⁷

¹⁶ Hoenher et al. (2013) – Commuting Distance, Cardiorespiratory Fitness, and Metabolic Risk

¹⁷ ONS (2014) – Sickness Absence in the Labour Market, Sustrans (2013)



The economic cost of commuting

From society's perspective the large distances between residential areas and commercial areas create another problem: large numbers of commuters travelling in the same direction during rush hour cause disruptions in the flow of traffic leading to congestion and delays – and thereby further increasing economic costs. Traffic information provider INRIX estimated the cost of congestion in the USA to have reached \$160 billion in 2014 – up from \$42 billion in 1982.¹⁸ The most obvious costs incurred are time and fuel wasted while in gridlock. For the US, INRIX estimated that in 2014 people travelling during the peak period spent an average of 42 hours in gridlock and burnt 3.1 billion gallons of extra gasoline.¹⁹ Uncertainties about delivery times, missed meetings and late arrival of employees to work further increase the costs of congestion associated with commuting.

¹⁸ In constant 2014 US Dollars

¹⁹ Schrank et al. (2015)
– 2015 INRIX Urban
Mobility Scorecard

These costs are likely to increase as commuting times and distances in some global metropolitan areas grow. A study by the Brookings Institution found that between 2000 and 2012 jobs as well as people have increasingly moved towards the suburbs in the US, thereby decreasing the average number of jobs available within the typical commute distance.

Employees can react in two ways to these developments: either they will have to accept the increase in commuting cost and time spent on the road or they will have to change jobs. A survey among senior managers and owners in service businesses examined the link between commuting time and employee defection. The study found that extremely long journeys to work of over an hour significantly increase the likelihood of employees considering quitting their job because of their commute.²⁰ This means that the implicit cost of commuting has a direct effect on staff retention rates. Furthermore, prohibitively high commuting costs – in terms of money or time – could limit the pool of talent from which businesses can choose in the first place.

²⁰ Regus (2009) – Too long,
I'm Gone

Summarising, it can be said that a shortage of inexpensive housing close to work means that more people need to commute longer distances. The commuting experience itself depends on a lot of factors, the most important one being the mode of transportation as it has a big influence on the quality of the commuting time. While there are certainly individuals who are able to use their daily commute in a productive way, for recreation or even to exercise, a lot of commuters around the globe are stuck in their cars or overcrowded buses and trains. For these groups commuting negatively affects their lives in a number of ways – from health problems caused by a lack of physical activity, to sleep loss and decreased overall life satisfaction and wellbeing.

Apart from the effects on individuals, an increase in commuting times and distances is also associated with wider social costs. Gridlock is a phenomenon that can be observed in virtually every major city leading to unnecessary wastage of time and fuel. Ultimately, a stressful, expensive and potentially unhealthy commute might be a significant factor when assessing a current role, a new job opportunity or working out whether to change jobs – with implications for staff turnover rates.





**Economic gains from
lower housing costs**





As the previous section describes, the lack of inexpensive housing across global cities has contributed to a great change in the nature of commuting. However, high housing costs across the world have an indirect impact on various other aspects of daily life and the economy as well. We now focus on the economic gains that could be realised if more inexpensive housing options were available in major global cities.

One way in which businesses in key global cities miss out due to high housing costs is through unrealised revenue which is instead spent on accommodation. If the cost of housing were lower, consumers would have additional discretionary income (the amount of money left after the purchase of essentials) to spend on other goods and services. This is assuming that, because wages are sticky²¹, companies would not reduce their employees' salaries if the costs of housing fell.

In order to calculate the boost to spending estimates in

Figure 8 we also make a few other simplifying assumptions. Firstly, in an indirect way, high property prices encourage spending among existing property owners by boosting consumer confidence. High property prices have a similar impact on individuals working in sectors that tend to thrive when property prices are high, such as estate agents and property developers. Our estimates assume that these individuals would not reduce their spending if property prices became more moderate.

Secondly, we assume that the revenue going to property owners as a result of high housing costs is largely lost to the economy. In reality a portion of this revenue may be reinvested in the property market or spent in other ways, which would entail an economic benefit in itself. However, the reason we make this assumption is that tenants outnumber landlords and therefore lower rents would provide an economic benefit to greater numbers of people.²²

We estimate that compared to a situation in which the cost of housing in each city rose 10% in the 2010-2015 period, unrealised spending in 2015 was as high as USD 7 billion in New York City and USD 6 billion in Hong Kong. A substantial portion of this money is essentially unrealised consumer spending which is trapped in the housing market. Additionally, some of it is government spending dedicated to providing housing benefits and social housing to ameliorate high housing costs in the first place. If more inexpensive options were provided by the housing market, a portion of this government spending could go towards other causes.

The figures are calculated based on the aggregate housing spending data from section three and the marginal propensity to consume (MPC) for each country. MPC represents the share of additional income that one would spend as opposed to save and can vary country to country based on demographics, the average level of earnings, the strength of financial institutions and other factors. As the MPC estimates produced by various academics and institutions vary somewhat, the exact figures used to obtain the estimates in this report are shown in Footnote 23.

²¹ The term sticky wages refers to the concept that when economic or company circumstances change, the change is not reflected in the pay of existing employees for an extended period of time

²² Additionally, people on lower incomes, who are more likely to be a part of the tenant rather than the landlord group, tend to spend rather than save a higher share of their income. This suggests that the economic benefits of lower house prices and rents would exceed the economic costs

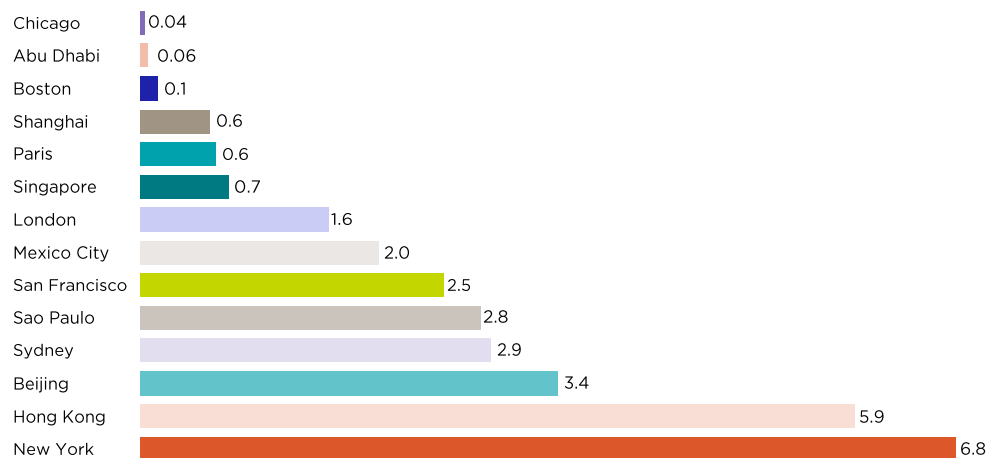
²³ The unrealised consumer spending figures are calculated using the following marginal propensity to consume (MPC) assumptions: US 0.57, China 0.40, UAE 0.52, Hong Kong 0.40, UK 0.50, Mexico 0.80, France 0.31, Brazil 0.75, Singapore 0.35 and Australia 0.57



Figure 8

Potential boost to spending if housing was more affordable¹, 2015

USD billion



¹ 'More affordable' refers to the counterfactual scenario outlined at the beginning of the report i.e. if the cost of housing in each city rose 10% in the 2010-2015 period, rather than at actual rates

SOURCE: UBS Prices and Earnings, Marginal Propensity to Consume estimates from a range of literature, Cebr analysis

Another way in which businesses and the economy could benefit if the cost of housing in key global cities were lower is through a higher level of employment. Additional spending would boost business revenue, enabling firms to support more jobs. This would assist the businesses themselves as it would enable them to increase output and would help the economy as a whole by lowering unemployment and increasing the income of households.

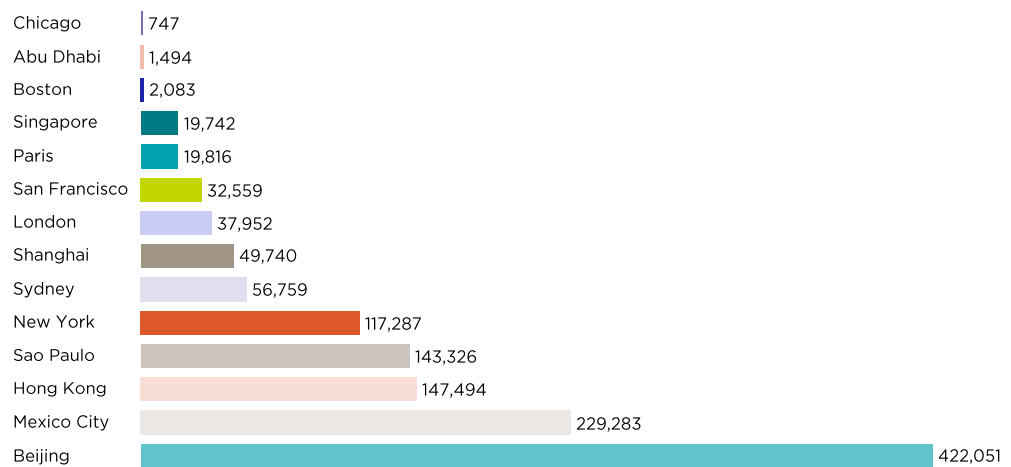
The figures presented in Figure 9 assume that all of the additional consumer spending would be channelled into creating new jobs. The estimates do not take into account the possibility that some firms may choose to hold on to added earnings instead or put them towards other purposes such as R&D or facilities improvement.



Figure 9

Potential employment boost if housing was more affordable, 2015

Number of new jobs



The number of additional jobs that could be supported from the increase in consumer spending depends on the extent of the consumer spending boost as well as on average salary in the city²⁴. Some of the cities which top the list, such as Beijing and Mexico City, could see a more significant employment boost because the average wage in those cities is relatively low compared to the other global cities and therefore companies can hire more employees for less money. On the other hand, cities with higher wages and lower potential consumer spending gains such as Chicago and Abu Dhabi would see a smaller employment boost.

²⁴ It also depends on employee and employer taxes. While the calculations do take into account employee taxes, they do not consider employer taxes which certain countries may impose, such as NICs in the UK



How do we deliver inexpensive housing in a thriving city?



Policymakers, employers and the private sector alike are increasingly cognisant of the negative effects of rising housing prices on economic growth and wellbeing. Many of the world's biggest business capitals are now attempting to tackle the problem. Through our research, we've discovered that no two cities are exactly alike: each has its own unique set of supply-side and demand-side conditions and challenges; each is drawing on its own resources and policies to fashion possible solutions.

In one of the forthcoming reports in this Housing for Inclusive Cities project, we explore some successes and failures of initiatives designed to combat the problem in global cities from Berlin to Beijing. Assembling these case studies is a first step in creating a flexible urban housing 'toolkit' to help global cities continue to expand and thrive.

A few of the cities and schemes we explore include:

- **Hong Kong** — taxing foreign buyers and property investors
- **Sydney** — controlling foreign investment
- **Abu Dhabi and Dubai** — limiting foreign investment
- **Beijing and Shanghai** — purchase limits for non-residents
- **Boston** — zoning for smart growth
- **New York City and Berlin** — rent controls and rent price brakes
- **London** — starter homes and micro-housing
- **Singapore** — public housing programmes
- **Paris** — mitigating the effects of gentrification through public housing
- **San Francisco** - affordable housing bond
- **Chicago** — employer-assisted housing





Conclusion

High house prices and rents can have a significant impact on individual wellbeing. Prohibitive costs can cause individuals to move away or put up with accommodation that is inadequate for their needs or preferences.

High-cost housing can also have a direct impact on the competitiveness of businesses in global cities. Companies must either pay higher salaries and benefits to compensate for high housing costs or accept that only a limited pool of prospective employees will be available. Staff turnover rates may also be greater in expensive cities as employees may be more likely to relocate. Longer commutes, sometimes a consequence of high housing costs, can increase worker fatigue and lead to lower staff productivity.

Cities that become too expensive for many to live in will change their social composition, with individuals on lower incomes displaced to more affordable areas. This process can lead to social and political unrest. Governments also face additional fiscal pressures, having to provide financial support for households struggling with high housing costs.

At the same time some individuals benefit from high housing costs – such as segments of the population who are homeowners. This creates political difficulties in attempting to reduce the cost of housing – while some may gain, others will lose out. Making policy intervention in this area is a sensitive topic, particularly given that housing is often the greatest source of wealth for individuals.

The economic success of a city attracts businesses which in turn attract new employees. A growing population needs more services and products so that more businesses are created which further propels economic and population growth. This virtuous economic circle characterises many of the global cities analysed in this report. It is therefore not surprising that many of these cities struggle with rising housing costs as a result of their economic success.

While it may be impossible to point out a single city that simultaneously boasts abundant affordable housing opportunities and a dynamic economic environment, some lessons can be learned from the set of strategies used by policymakers. These initiatives will be explored in one of the forthcoming follow-up reports in the Housing for Inclusive Cities series. Ultimately, supply shortages need to be addressed and government can play a significant role here – for example through reducing planning restrictions or directly getting involved in house building.

Our analysis shows that the global cities examined in this report could see 1.3 million new jobs created and USD 30 billion dollars of additional spending power through the provision of more inexpensive housing. This additional spending benefits not only individuals and businesses, but also governments, in the form of higher tax receipts and reduced need for housing benefits.

Data appendix

The following is a list of all the data sources which were used as inputs into the analysis presented in this report.

Section 2

- Average Rents in Boston, article from Jump Shell, available at <https://www.jumpshell.com/posts/average-rent-in-boston>
- Brazilian Foundation Institute of Economic Research, consumer price index, housing
- Department of statistics Singapore, consumer price index, housing
- French National Institute of Statistics & Economic Studies, consumer price index, rent of primary residence
- Global Living Report, report from CBRE, commentary available at <http://www.thenational.ae/business/property/abu-dhabi-rents-are-second-highest-in-the-world>
- How Migrant Workers Find Housing in Beijing, available at <http://static1.squarespace.com/static/5589b7e6e4b012e9e31f5e89/t/558a0c78e4b04804de57ee23/1435110520123/chanthesis.pdf>
- Mexican National Institute of Geography & Statistics, consumer price index, housing
- OECD, UK consumer price index, housing excluding imputed rents
- Prices & Earnings Report, 2015 report from UBS
- Who Can Afford To Live in a Home?, available at <http://www.census.gov/housing/census/publications/who-can-afford.pdf>

Section 3

- Department of statistics Singapore, available at <http://www.singstat.gov.sg/statistics/latest-data#20>
- Household size and demographic dividend in Brazilian housing market, available at <http://iussp2009.princeton.edu/papers/93199>
- The Abu Dhabi Analysis, December 2014 report from Colliers
- The World's Best-Paid Cities, available at http://www.forbes.com/2009/08/24/best-paid-cities-lifestyle-real-estate-worlds-income-salary_slide_2.html?thisspeed=25000
- US Bureau of Labor Statistics, consumer price index, housing, Chicago-Gary-Kenosha, IL-IN-WI
- US Bureau of Labor Statistics, consumer price index, housing, New York-Northern New Jersey-Long Island, NY-NJ-CT-PA
- United States Census Bureau, available at <http://quickfacts.census.gov/qfd/states/36/3651000.html>

Section 4

- 2011 Census Analysis – Distance Travelled to Work, Office for National Statistics
- The growing distance between people and jobs in metropolitan America – available at the Metropolitan Policy Programme at Brookings

- The Brazilian Infrastructure: It's "Now or Never" – Credit Suisse
- The Labour Force Survey, 2014 – Office for National Statistics
- Baidu - My 2014 Work Commute, commentary available at: http://shanghaiist.com/2015/01/28/commuters_in_beijing_have_it.php
- Commute Time in Brazil – IPEA, available at: <http://infograficos.oglobo.globo.com/economia/tempo-de-deslocamento-nas-regioes-metropolitanas.html>
- Toronto as a global city: Scorecard on prosperity 2014 – Toronto Region Board of Trade
- Regus employee survey – commentary available at: <http://enterpriseinnovation.net/content/traffic-congestion-top-cause-employee-stress-declining-productivity>
- Census of Population 2010 – Department of Statistics, Singapore
- Los Workkilometers – De la Riva Group
- Encuesta Nacional de Origen y Destino - INEGI
- Commuting and Personal Well-being, 2014 – Office for National Statistics, available at: <http://www.ons.gov.uk/ons/rel/wellbeing/measuring-national-well-being/commuting-and-personal-well-being--2014/art-commuting-and-personal-well-being.html>
- A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method, available at: <http://science.sciencemag.org/content/306/5702/1776.full>
- Stress that doesn't pay : The commuting paradox, available at <http://www.iew.uzh.ch/wp/iewwp151.pdf>
- Happiness and Productivity, available at <https://www2.warwick.ac.uk/fac/soc/economics/staff/eproto/workingpapers/happinessproductivity.pdf>
- Time Discounting and Time Preference: A Critical Review, available at <https://www.aeaweb.org/articles.php?doi=10.1257/002205102320161311>
- Till work do us part - the social fallacy of long-distance commuting, available at <http://econpapers.repec.org/paper/wiwwiwsa/ersa10p732.html>
- Fatigue in the US workforce: prevalence and implications for lost productive work time, available at <http://www.ncbi.nlm.nih.gov/pubmed/17215708>
- Commuting Distance, Cardiorespiratory Fitness, and Metabolic Risk, available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3360418/>
- Sickness Absence in the Labour Market, 2014 – Office for National Statistics, available at <http://www.ons.gov.uk/ons/rel/Imac/sickness-absence-in-the-labour-market/2014/index.html>; commentary available at <http://www.sustrans.org.uk/press-releases/cycling-halves-sick-days-boosting-productivity-%C2%A313-billion>
- Urban Mobility Scorecard, 2015 - INRIX
- Too Long, I'm Gone! - What effect are commuting times having on key employee loyalty? , available at http://www.regus.co.uk/images/Commuting_Defection%20study_FINAL_designed_tcm294-21552.pdf

Section 5

- Estimating Marginal Propensities to Consume in Australia Using Micro Data, available at <http://www.rba.gov.au/publications/rdp/2009/pdf/rdp2009-07.pdf>
- Influences on household spending: evidence from the 2012 NMG Consulting survey, available at <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/qb120403.pdf>
- Learn from UAE's low income workers, available at <http://www.thenational.ae/business/personal-finance/lead-us-not-into-temptation-learn-from-uaes-low-income-workers>
- Macroeconomic Impacts of an Employer of Last Resort Policy in Brazil, available at http://www.levyinstitute.org/pubs/conf_june10/Dantas_Rezende.pdf
- The aggregate consumption puzzle in Singapore, available at https://courses.nus.edu.sg/course/ecstabey/apc_04.pdf
- The Distribution of Wealth and the Marginal Propensity to Consume, available at <http://www.econ2.jhu.edu/people/ccarroll/papers/cstwMPC/>
- The Evolving Role of China in the Global Economy, available at https://www.cesifo-group.de/portal/pls/portal/!PORTAL.wwpob_page.show?_docname=1156042.PDF
- The Making of National Economic Forecasts, extract available at <https://books.google.co.uk/books?id=Eyd7>

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