

# Performance Urban Planning

## 9<sup>th</sup> Annual Demographia International Housing Affordability Survey: 2013

Ratings for Metropolitan Markets

Australia • Canada • China (Hong Kong) • Ireland  
New Zealand • United Kingdom • United States

*With Introduction by  
Hon. Bill English  
Deputy Prime Minister of New Zealand*

(Data for 3<sup>rd</sup> Quarter 2012)



# 9<sup>th</sup> Annual Demographia International Housing Affordability Survey

## INTRODUCTION

By Hon. Bill English,  
Deputy Prime Minister of New Zealand

Housing affordability is an important focus for the New Zealand Government. Last year's New Zealand Productivity Commission report on housing affordability, relying in part on Demographia affordability data, showed a substantial worsening in housing affordability in New Zealand in the last thirty years. In 1980, the ratio of the median house cost to median income was around 2. By 1990 it was around 3 and today Demographia shows the median house in New Zealand costs 5.3 times median income.



In its response to the Productivity Commission, the Government agreed with the Commission's analysis that supply side factors explain the deterioration in New Zealand's housing affordability. The Government's response to the Commission's report concentrated on land supply, infrastructure provision, costs and delays due to regulatory processes, and improving construction sector productivity.

Housing affordability is complex in the detail – governments intervene in many ways – but is conceptually simple. It costs too much and takes too long to build a house in New Zealand. Land has been made artificially scarce by regulation that locks up land for development. This regulation has made land supply unresponsive to demand. When demand shocks occur, as they did in the mid-2000s in New Zealand and around the world, much of that shock translates to higher prices rather than more houses. It simply takes too long to make new land available for development.

We may be seeing the beginning of a repeat of the mid-2000s demand shock. As interest rates stay below historic norms, expectations are shifting that these rates are here to stay. As a result, demand for real assets has increased, observed in booming equities markets in 2012. Demand for real estate is also increasing, with the median house price in Auckland recently exceeding the highs of 2007.

Costs of other housing inputs contribute to New Zealand's affordability problem. Building materials cost more in New Zealand than neighbouring Australia. The structure of infrastructure financing, and the timing levies are to be paid, raises the market price for housing. Appeals under the Resource



Management Act, New Zealand's land use regulation, can hold up developments and city planning for a decade or more in some cases. Time is money because development is risky.

New Zealand's residential build volumes are small, and the construction sector is highly fragmented. Only five firms in the country built more than 100 homes in 2011. The vast majority of builders build only one house each year. New Zealand is a late adopter of prefabrication and use of standardised materials. In New Zealand, if a window is to be added into a house, it will usually be measured and built by hand. Construction industry productivity has stagnated in the past 30 years, and is now below where it was in 1978. Industry regulation favours single person operations. New Zealand has inadvertently created a cottage industry to supply one of our most important asset classes.

Low build rates produce downstream problems. Shortages are absorbed through household composition and there is some evidence of overcrowding. New Zealand's housing stock is ageing and appears to be of relatively low quality, which has consequences for health and well-being. The large boom and bust cycles of the New Zealand industry discourage fixed investment in employees and systems, weakening productivity.

From the Government's perspective, worsening housing affordability creates a number of problems. Fiscal pressures increase because financial assistance for housing is tied to its market price. Home ownership provides financial security and a form of savings and lowers dependence on public assistance later in life.

Worsening affordability increases demands for direct intervention through rent controls and public housing. We are aware of the results of these sorts of interventions overseas and must avoid them.

New Zealand is not alone in its housing affordability problem and there seems to be increasing awareness around the world that the planning pendulum may have swung too far. Land use regulations and intrusive development rules have consequences. The Conservative government in the UK has recently taken first tentative steps to, as David Cameron put it, "[get] the planners off our backs" by increasing permitted activities by residents.<sup>1</sup> New York is considering relaxing minimum size rules on apartments.<sup>2</sup>

This Government's strategy is to address the varied causes of housing affordability and avoiding 'magic bullet' solutions that paper over causes and create more problems downstream.

In New Zealand an important political driver of urban controls is environmentalism, but this concern is misguided. Cities are environmentally friendly places if the alternative to city living is high-footprint lifestyle in the country. New Zealand has seen a proliferation of 'lifestyle blocks'

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<sup>1</sup> Source: <http://www.telegraph.co.uk/news/9524089/David-Cameron-build-your-way-out-of-recession-with-home-improvements.html> (accessed 10 January 2013).

<sup>2</sup> Source: [http://www.huffingtonpost.com/2012/07/09/nyc-apartment-size-bloomberg-micro-apartments\\_n\\_1660396.html](http://www.huffingtonpost.com/2012/07/09/nyc-apartment-size-bloomberg-micro-apartments_n_1660396.html) (accessed 10 January 2013).



outside cities in the last 15 years, which may in part be an unintended consequence of raising the cost of urban living.

New Zealand has an opportunity to get on to a path towards real improvement in housing affordability. There is political consensus that housing affordability is a serious problem, although as always diverging views on what to do about it.

I welcome Demographia's ongoing and valuable contribution to the constructive public discussion about housing affordability.

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# 9<sup>th</sup> Annual Demographia International Housing Affordability Survey

Wendell Cox (Demographia) & Hugh Pavletich (Performance Urban Planning)

## EXECUTIVE SUMMARY

### Rating Housing Affordability

The 9<sup>th</sup> Annual Demographia International Housing Affordability Survey covers 337 metropolitan markets in Australia, Canada, Hong Kong, Ireland, New Zealand, the United Kingdom and the United States. A supplemental analysis of housing affordability in Singapore is also provided, using available data. The Demographia International Housing Affordability Survey employs the “Median Multiple” (median house price divided by gross before tax annual median household income) to rate housing affordability (Table ES-1). The Median Multiple is widely used for evaluating urban markets, and has been recommended by the World Bank and the United Nations and is used by the Harvard University Joint Center on Housing.

Table ES-1 <i>Demographia International Housing Affordability Survey</i> Housing Affordability Rating Categories	
Rating	Median Multiple
Severely Unaffordable	5.1 & Over
Seriously Unaffordable	4.1 to 5.0
Moderately Unaffordable	3.1 to 4.0
Affordable	3.0 & Under

More elaborate indicators, which mix housing affordability and mortgage affordability can mask the structural elements of house pricing are often not well understood outside the financial sector. Moreover, they provide only a "snapshot," because interest rates can vary over the term of a mortgage; however the price paid for the house does not. The reality is that, if house prices double or triple relative to incomes, as has occurred in many severely unaffordable markets, the sum total of mortgage payments will also rise substantially.

Historically, the Median Multiple has been remarkably similar in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States, with median house prices having generally been from 2.0 to 3.0 times median household incomes (historical data has not been identified for Hong Kong), with 3.0 being the outer bound of affordability. This affordability relationship continues in many housing markets of the United States and Canada. However, the Median Multiple has escalated sharply in the past decade in Australia, Ireland, New Zealand, and the United Kingdom and in some markets of Canada and the United States. In every market where there has been a sustained and significant increase in the Median Multiple, there has also been the implementation of more restrictive land use policy, which is referred to in this survey as "urban containment" (there are also additional labels, such as "smart growth," "urban consolidation," "compact city policy," "growth management," and "densification policy").



The *Demographia International Housing Affordability Survey* is produced to contrast the deterioration in housing affordability in some metropolitan markets with the preservation of affordability in other metropolitan areas. It is dedicated to younger generations who have a right to expect they will live as well or better than their parents, but may not, in large part due to the higher cost of housing that is driven by exorbitant increases in house prices relative to incomes.

## Housing Affordability in 2012

Housing affordability was little changed in 2012, with the most affordable markets being in the United States, Canada and Ireland. The United Kingdom, Australia and New Zealand continue to experience pervasive unaffordability, while the least affordable market is Hong Kong.

**Major Metropolitan Markets:** The 337 markets include 81 major metropolitan markets (those with more than 1,000,000 population).

Among these major metropolitan markets, there were 20 affordable major markets, 23 moderately unaffordable major markets, 14 seriously unaffordable major markets and 24 severely unaffordable major markets. All 20 of the affordable major markets were in the United States while two of the moderately unaffordable markets were in Canada and one in Ireland with the other 17 in the United States. All of the major markets of Australia, New Zealand and Hong Kong were severely unaffordable. One-half of the major markets in Canada and the United Kingdom were severely unaffordable, while only six of the 51 major US markets were severely unaffordable (Table ES-2).

Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	Median Multiple
Australia	0	0	0	5	5	6.5
Canada	0	2	1	3	6	4.7
China (Hong Kong)	0	0	0	1	1	13.5
Ireland	0	1	0	0	1	3.6
New Zealand	0	0	0	1	1	6.7
United Kingdom	0	0	8	8	16	5.1
United States	20	20	5	6	51	3.2
<b>TOTAL</b>	<b>20</b>	<b>23</b>	<b>14</b>	<b>24</b>	<b>81</b>	

The most affordable major market was Detroit, with a Median Multiple of 1.5, below the historic range of 2.0 to 3.0, reflecting the depressed nature of its economy. Atlanta had a Median Multiple of 2.0 and is experiencing strong demand from a recovering US housing market. Among the other 16 affordable major markets, the lowest Median Multiples were in Cincinnati, Rochester, St. Louis, Cleveland, Indianapolis and Jacksonville. Dallas-Fort Worth and Houston, which are the fastest growing markets with more than 5,000,000 population included in the *Survey*.

The most unaffordable major market was Hong Kong, with a Median Multiple of 13.5. (ranked 81<sup>st</sup>). Vancouver ranked second most unaffordable, at a Median Multiple of 9.5 (80<sup>th</sup>). Sydney was the third most unaffordable, at 8.3 (79<sup>th</sup>). San Jose had a Median Multiple of 7.9 (78<sup>th</sup>), San Francisco and London 7.8 (76<sup>th</sup>). and Melbourne 7.5 (75<sup>th</sup>).



**All Markets:** Among all 337 markets surveyed, there were 109 affordable markets, 100 in the United States and 8 in Canada and one in Ireland. There were 110 moderately unaffordable markets, 87 in the United States, 17 in Canada and 4 in Ireland and 2 in the United Kingdom. There were 43 seriously unaffordable markets and 75 severely unaffordable markets. Australia had 30 severely unaffordable markets, followed by the United Kingdom with 17 and the United States with 16. Canada had 6 severely unaffordable markets, while New Zealand had 5 (Table ES-3).

Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	Median Multiple
Australia	0	0	9	30	39	5.6
Canada	8	17	4	6	35	3.6
China (Hong Kong)	0	0	0	1	1	13.5
Ireland	1	4	0	0	5	3.2
New Zealand	0	0	3	5	8	5.3
United Kingdom	0	2	14	17	33	5.1
United States	100	87	13	16	216	3.1
<b>TOTAL</b>	<b>109</b>	<b>110</b>	<b>43</b>	<b>75</b>	<b>337</b>	

## Longer Term Trends

Over the years of the *Demographia International Housing Affordability Survey*, housing affordability has improved by far the most in Ireland. It has also improved in the United States. Canada's major market house price has deteriorated the most. Canada's major markets housing affordability was the best in 2004, but has seen large Median Multiple increases in each of the three largest metropolitan areas. Australia and New Zealand have had the most unaffordable major markets, with every market being severely unaffordable in every year. Housing affordability has also been severely unaffordable in United Kingdom major markets over the period covered.

## A Competitive Land Supply: Key to Housing Affordability

Overwhelming economic evidence indicates that urban containment policies, especially urban growth boundaries raise the price of housing relative to income. This inevitably leads to a reduced standard of living and increases poverty rates, because the unnecessarily higher costs of housing leave households with less discretionary income to spend on other goods and services. The higher costs ripple into rental markets, tightening the budgets of lower income households, who already suffer from lower discretionary incomes.

The principal problem is the failure to maintain a "competitive land supply." Brookings Institution economist Anthony Downs describes the process, noting that more urban growth boundaries can convey monopolistic pricing power on sellers of land if sufficient supply is not available, which, all things being equal, is likely to raise the price of land and housing that is built on it.

Urban containment policy has been associated with greater price volatility and greater speculation. Investors and speculators are drawn to metropolitan areas where "quick" money is to be made, because of the inflexibility of the supply market. Econometric research also identifies an association between slower economic growth and urban containment regulation. For example, Raven Saks (US Federal Reserve Board)



found that where housing supply is more constrained by regulations, employment growth is generally lower than expected.

### Recent Policy Developments

The last year has seen progress in a number of geographies. Perhaps the most important has been in New Zealand, where the central government has committed to policies to expand the land supply and provide alternatives for infrastructure finance, both of which are likely to lead to improved housing affordability. In Australia, the Victorian government continues to expand the Melbourne urban growth boundary. This is even as Australia continues to have both the highest share of rural land and the most severe rationing of land for urban development. In Hong Kong, the government has taken a number of steps to cool the demand for housing and is seeking to increase the supply.

The United Kingdom government is seeking substantial reform of its long-standing policies that have made housing severely unaffordable in that nation. At the same time, the government faces formidable political barriers. The most negative development is in California, where urban planning regulations are being interpreted to make it largely illegal to expand urban areas or to build detached housing on the urban fringe. Housing affordability has deteriorated markedly.

### Housing Affordability and a Sustainable Economy

There has been increasing attention to the challenging demographic trends that could materially reduce future standards of living in each of the covered geographies. Birth rates have plummeted, while the share of the population that is elderly has increased substantially. As a result, government financial obligations could overwhelm the ability of nations to pay. Higher than necessary housing costs would make it even more difficult to meet these obligations.

Further, surveys indicate that many households are having children later, or not at all because housing conducive to raising children is unaffordable. There are generally lower fertility rates in urban cores, with their higher density housing than in the more dispersed suburbs, with their detached and semi-detached housing.

But the consequences of stagnant or declining standards of living and rising poverty could be even greater. Harvard economist Benjamin Friedman has concluded that continuing improvements in the quality of life are required for social sustainability, in his *The Moral Consequences of Economic Growth*.

Affordable housing is thus a critical component of economic sustainability. Yet, the "conventional wisdom" in land-use policy favors urban containment strategies that severely ration land for development, materially raising its price.

There are indications that perspectives are changing. New York University Professor Shlomo Angel writes in his book *Planet of Cities* of the importance of housing affordability and argues against urban planning restrictions that restricting adequate housing to ordinary households.

A team of UK academic researchers has questioned the appropriateness of assuming that urban containment should be the default land use option. This is an important development, since much of urban planning is committed to outlawing more liberal land-use policies.

Other research shows that urban travel times are longer (even if trips are shorter) and traffic congestion is more intense under the higher densities of urban containment policy.



Urban policy needs a "reset." The emphasis should be shifted away from "designing" urban areas to facilitating a better standard of living for the people who live in them. In his epic *Civilization: The West and the Rest*, historian Niall Ferguson, in his *Civilization* notes that "The success of the civilization is measured not just in its aesthetic achievements but also, and surely more importantly in the duration and quality of life of its citizens." This requires greater affluence and less poverty, both of which require more affordable housing.



# 9th Annual Demographia International Housing Affordability Survey

Wendell Cox (Demographia) & Hugh Pavletich (Performance Urban Planning)

## 1. RATING HOUSING AFFORDABILITY

The 9th Annual Demographia International Housing Affordability Survey covers housing affordability in 337 metropolitan markets in Australia, Canada, Ireland, New Zealand, the United Kingdom, the United States and Hong Kong in China. Limited information is also provided for Singapore. The Demographia International Housing Affordability Survey is unique in providing standardized comparisons of housing affordability between international housing markets. The 9th Annual Demographia International Housing Affordability Survey includes estimates from the September quarter (third quarter) of 2012.

Many housing affordability reviews focus only national data, which can mask significant differences between metropolitan markets. Yet metropolitan real estate markets can vary significantly in house price trends, as the experience in the United States indicated during the housing bubble that developed between 2000 and 2007.<sup>1</sup> In contrast, the Demographia International Housing Affordability Survey assesses housing affordability within nations, at the metropolitan market level. This approach not only compares housing affordability within nations, but also permits comparisons between international markets where historical similarities are indicated between housing affordability indices in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States (see Section 5).

*Historically, the Median Multiple has been remarkably similar among the nations surveyed, with median house prices generally being 3.0 or less times median household income.*

### 1.1 The Standard: The Median Multiple

The Demographia International Housing Affordability Survey uses the “Median Multiple” (median house price divided by gross annual median household income)<sup>2</sup> to assess housing affordability. The Median Multiple is widely used for evaluating urban markets, and has been recommended by the World Bank<sup>3</sup> and the United Nations and is used by the Harvard University Joint Center on Housing.<sup>4</sup>

More elaborate indicators, which often mix housing affordability and mortgage affordability can mask the structural elements of house pricing, are often not well understood outside the financial sector. The mixed

<sup>1</sup> In the United States, housing became seriously unaffordable or severely unaffordable in a number of metropolitan markets (all of them with urban containment regulation). Yet in many other metropolitan markets, housing remained affordable and there was little or no “bubble” effect on housing prices. The national average trend in housing affordability does not reflect these differences. Details on this divergence in affordability by market in the United States is covered in a [Heritage Foundation](#) policy report.

<sup>2</sup> Also called the price to income ratio.

<sup>3</sup> The Housing Indicators Program, <http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1169578899171/rd-hs7.htm>. Also see Shlomo Angel, *Housing Policy Matters: A Global Analysis*. Oxford University Press, 2000.

<sup>4</sup> Indicators of Sustainable Development: House Price to Income Ratio: [http://esl.jrc.it/envind/un\\_meths/UN\\_ME050.htm](http://esl.jrc.it/envind/un_meths/UN_ME050.htm).



indicators provide only a "snapshot," because interest rates can vary over the term of a mortgage; however the price paid for the house does not.

The Median Multiple is a reliable, easily understood and essential structural indicator for measuring the health of residential markets and facilitates meaningful and transparent comparisons of housing affordability. Further to this, the Median Multiple provides a solid foundation for the consideration of structural policy options for restoring and maintaining housing affordability in local markets.

## 1.2 The Median Multiple: Historical International Consistency

Historically, the Median Multiple has been remarkably similar among six of the nations surveyed for the stock of homes included in principal national reports. Reserve Bank of Australia research has shown that the price to income ratio was at or [below 3.0](#) in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States until the late 1980s or late 1990s, depending on the nation (See Section 5). This historic affordability relationship of a Median Multiple in the range of from 2.0 to 3.0, with 3.0 as the outer bound of affordability continues in many housing markets of the United States and Canada.<sup>5</sup> The 3.0 standard [was noted in research](#) by Arthur C. Grimes, of Motu Economics and Policy Research and Chair of the Board of the Reserve Bank of New Zealand.

This makes comparisons between these nations, such as those made by international organizations, central banks and other analysts especially appropriate. But the most important comparisons are within the nations and metropolitan areas themselves, where the Median Multiple can be used to examine trends in housing affordability. `

No similarly long series of data has been identified for Hong Kong (or Singapore).

***...the affordability of housing is overwhelmingly a function of just one thing, the extent to which governments place artificial restrictions on the supply of residential land.***

-Dr. Donald Brash, Former Governor,  
Reserve Bank of New Zealand

In recent decades, housing affordability has deteriorated materially across Australia, Ireland, New Zealand<sup>6</sup> and the United Kingdom, virtually without regard to market size or demand. There has also been substantial housing affordability deterioration in some markets of Canada and the United States. The causes of deteriorating housing affordability are not a mystery. As long-time [Governor of the Reserve Bank of New Zealand Donald Brash put it in his introduction](#) to the *4th Annual Demographia International Housing Affordability Survey*:

*...the affordability of housing is overwhelmingly a function of just one thing, the extent to which governments place artificial restrictions on the supply of residential land.*

This reality is in contrast with the virtual universal commitment to housing affordability by governments. The resulting rationing of land for housing drives up prices, just as the price of petrol increases in response to politically driven supply constraints. Where house prices have increased substantially relative to incomes, they have been preceded by urban containment regulation (Table 1).

<sup>5</sup> A value below 2.0 is affordable, but may indicate depressed economic conditions.

<sup>6</sup> Interest.co.nz also provides housing affordability data using a Median Multiple measure. Interest.co.nz uses a standardized household, rather than the median income household (see: [http://www.interest.co.nz/HLA/house\\_price\\_to\\_income\\_ratio.asp](http://www.interest.co.nz/HLA/house_price_to_income_ratio.asp))



Table 1  
LAND USE REGULATION CLASSIFICATIONS

The land use regulation categories used in the *Demographia International Housing Affordability Survey* are as follows:

**Urban containment (More Restrictive Land Use Regulation)** relies on intrusive land use regulation, and includes markets where residential development (new construction) is strongly controlled by comprehensive plans or development limits. Generally, it is an urban planning objective to make urban containment the *only* legal regulatory structure. There is a strong campaign to make the principal alternative, liberal regulation (below), illegal.

Urban containment<sup>7</sup> may also be characterized by terms such as "densification policy," "compact development," "urban consolidation," "growth management" and "smart growth." Generally, urban containment regulation is "plan-driven," as planning departments and governments determine where new housing is allowed to be built. There is a "negative presumption," with new development generally prohibited, except in limited areas where it is permitted by government plans.

By severely limiting or even prohibiting development on the urban fringe, urban containment eliminates the "supply vent" of urban fringe development, by not allowing the supply of housing to keep up with demand, except at prices elevated well above historic norms. In addition to higher costly housing costs relative to incomes, the higher densities in urban containment markets are associated with [greater traffic congestion and longer average work trip journey times](#).

Urban containment policies are normally accompanied by costly development impact fee regimes that disproportionately charge the cost of the necessary infrastructure for growth on new house buyers. There is particular concern about the cost increasing impacts of these fees, especially in Australia, Canada ([Canadian Mortgage and Housing Corporation](#)),<sup>8</sup> New Zealand ([New Zealand Productivity Commission](#)) and California.

**Liberal Land Use Policy (Less Restrictive Markets)** applies in markets not classified as "urban containment." In these markets, residential development is allowed to occur based upon consumer preferences, subject to reasonable environmental regulation.<sup>9</sup> Generally, liberal land use regulation is "demand-driven." There is a presumption allowing land to be developed, except in limited areas, such as parks and environmentally sensitive areas. By allowing development on the urban fringe, liberal land use regulation allows the "supply vent" to operate, which keeps house prices affordable. Less restrictive regulation can also be called *traditional* or *liberal* regulation. In addition to lower costly housing costs relative to incomes, lower population densities in liberal markets are associated with [less intense traffic congestion and shorter average work trip journey times](#).

**Classification of Major Markets:** The classification of major markets (metropolitan areas with more than 1,000,000 population) is described in the Annex and in Figure 1.

As housing affordability has deteriorated, there has been a tendency on the part of housing industry and financial market analysts to "cheer on" abnormally high house price increases as if housing were a commodity, like gold. Housing is much different. It is a basic necessity and adequate, comfortable housing is necessary for a decent standard of living. The performance of the housing market is thus not genuinely measured based on price increases relative to other investments. The genuine measure of a housing market's performance is the extent to which it remains affordable in a well functioning metropolitan economy.

<sup>7</sup> The term "urban containment" is used throughout the *Survey* to denote more restrictive land use regulation.

<sup>8</sup> A Province of [Alberta Court of Appeals](#) struck down such an infrastructure charge, saying " ...a municipality is not entitled to allocate the whole of the off-site costs of new or expanded infrastructure or facilities upon new development unless it can be reasonably supposed that the existing residents derived no benefit therefor." This would be a fair and useful legal theory for application elsewhere.

<sup>9</sup> Liberal land use policy may vary widely, from the near deregulation in some areas of Texas to the "light-handed" zoning based regulations operating throughout much of the rest of the United States.



Throughout the New World nations (Australia, Canada, New Zealand and the United States) evaluated in this report, housing has been affordable and metropolitan economies generally prospered for at least the four to five decades following World War II. Over the last two decades, however, some markets have become unaffordable, to the detriment of their residents, especially those who have recently entered or will enter the work force (see Section 2.2).

The *Demographia International Housing Affordability Survey* is produced to contrast the deterioration in housing affordability in some metropolitan markets with the preservation of affordability in other metropolitan areas. It is dedicated to younger generations who have a right to expect they will live as well or better than their parents, but may not, due in large part due to the higher cost of housing.

**Housing Affordability Ratings:** The *9th Annual Demographia International Housing Affordability Survey* uses existing house sales transaction data to rate housing affordability in the 337 markets. Housing affordability ratings are assigned based upon the Median Multiple (Table 2).

Table 2 Demographia Housing Affordability Rating Categories	
Rating	Median Multiple
Severely Unaffordable	5.1 & Over
Seriously Unaffordable	4.1 to 5.0
Moderately Unaffordable	3.1 to 4.0
Affordable	3.0 & Under

## 2. HOUSING AFFORDABILITY IN 2012

### 2.1 International Summary

The distribution of housing affordability in the 81 major metropolitan markets (those with more than 1,000,000 residents) changed somewhat over the past year (Table 3). The number of affordable markets dropped to 20 from 24, while there was an increase in the number of moderately unaffordable markets (from 20 to 23). The number of severely unaffordable (24) markets remained the same, while there was an increase of one in the seriously unaffordable markets (14).

Table 3 Distribution of Markets by Housing Affordability Rating Category			
Rating	Median Multiple	Major Markets (Number)	All Markets (Number)
Affordable	3.0 or Less	20	109
Moderately Unaffordable	3.1 to 4.0	23	110
Seriously Unaffordable	4.1 to 5.0	14	43
Severely Unaffordable	5.1 & Over	24	75
TOTAL		81	337

All of the 20 affordable major metropolitan markets were in the United States. The United States also had 20 moderately unaffordable major metropolitan markets, while Canada had two and Ireland one. All of the major metropolitan markets in Australia and New Zealand were severely unaffordable. One-half of the major



markets in the United Kingdom and Canada were severely unaffordable. Hong Kong was the least affordable market of any size (Table 4).

Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	Median Multiple
Australia	0	0	0	5	5	6.5
Canada	0	2	1	3	6	4.7
China (Hong Kong)	0	0	0	1	1	13.5
Ireland	0	1	0	0	1	3.6
New Zealand	0	0	0	1	1	6.7
United Kingdom	0	0	8	8	16	5.1
United States	20	20	5	6	51	3.2
TOTAL	20	23	14	24	81	

The most affordable major market (over 1,000,000 population) was Detroit, with a Median Multiple of 1.5, an extraordinarily low figure that is the result of that metropolitan area's extreme economic decline. In contrast, the second most affordable major market was Atlanta, with a Median Multiple of 2.0 (Schedule 3), which has begun a strong recovery from business reverses in the Great Financial Crisis (See Section 2.2: United States).<sup>10</sup> Dallas-Fort Worth and Houston, which are now the fastest growing larger metropolitan areas<sup>11</sup> in the United States, remained affordable, despite high demand (these three US metropolitan areas, along with Singapore, are the fastest growing in the high-income world).

The most affordable major metropolitan markets outside the United States were moderately unaffordable, including Edmonton (Median Multiple: 3.5), Dublin (3.6) and Ottawa-Gatineau (3.7).

***Hong Kong,  
Vancouver and Sydney  
continued to be the  
most unaffordable  
major markets...***

There was a material worsening of housing affordability in Hong Kong, which was the most unaffordable market for the third year in a row. Hong Kong's Median Multiple increased from 12.6 to 13.5, nearly equal to an additional year's median household income. Vancouver was the second least affordable, with a Median Multiple of 9.5, followed by Sydney (8.3), San Jose (7.9), San Francisco and London (7.8) and Melbourne (7.5).

As in the past, each of the least affordable (seriously unaffordable and severely unaffordable) major markets were characterized by urban containment regulation (such as "densification," "compact development," "urban consolidation," "growth management," "smart growth," or "livability" policies). Urban containment severely rations land for development, leading to [materially higher land prices, which makes houses more expensive](#). At the same time, the affordable markets are generally characterized by liberal land use regulation, which has been associated with greater housing affordability (Table 1, above and Figure 1).

<sup>10</sup> Even so, Atlanta remained "affordable" through the housing bubble, with the exception of a single year, when it was rated "moderately unaffordable," with a Median Multiple of 3.1.

<sup>11</sup> Over 5 million population.



**All Markets:** Housing affordability among all markets was generally similar in 2012 to last year. The best performing national housing market, overall, continued to be the United States, where the overall Median Multiple was 3.1, similar to last year's 3.0. Ireland's housing market exhibited near equal housing affordability, with a Median Multiple of 3.2.

Canada's Median Multiple was 3.6, indicating slightly deteriorating from last year's 3.5. Overall, Hong Kong, Australia, New Zealand and the United Kingdom

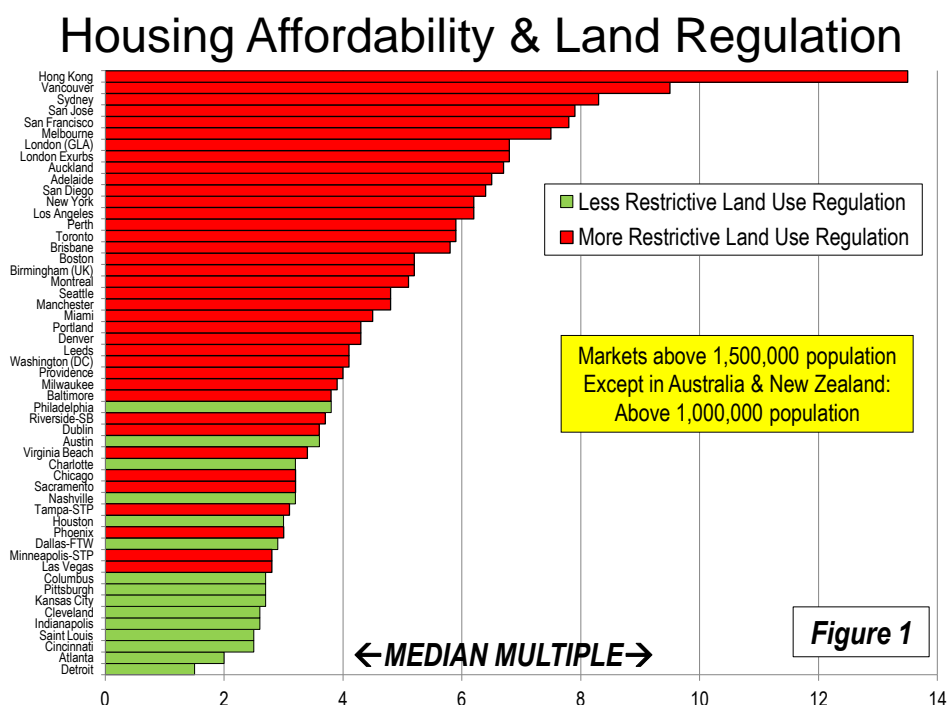
continue to be plagued with severely unaffordable housing markets. The city-state of Hong Kong has a Median Multiple of 13.5, followed by Australia at 5.6, New Zealand at 5.3 and the United Kingdom at 5.1 (Figure 2).

Among the 337 markets, 109 were affordable (Median Multiple of 3.0 or less), down from 128 in 2011. The number of moderately unaffordable markets (Median Multiple of 3.1 to 4.0) increased from 87 to 110. There were 43 seriously unaffordable markets (Median Multiple of 4.1 to 5.0), which is up from 39 in 2011. There was an increase in severely unaffordable markets (Median Multiple of 5.1 or higher), from 71 in 2011 to 75 in 2012 (Table 4).

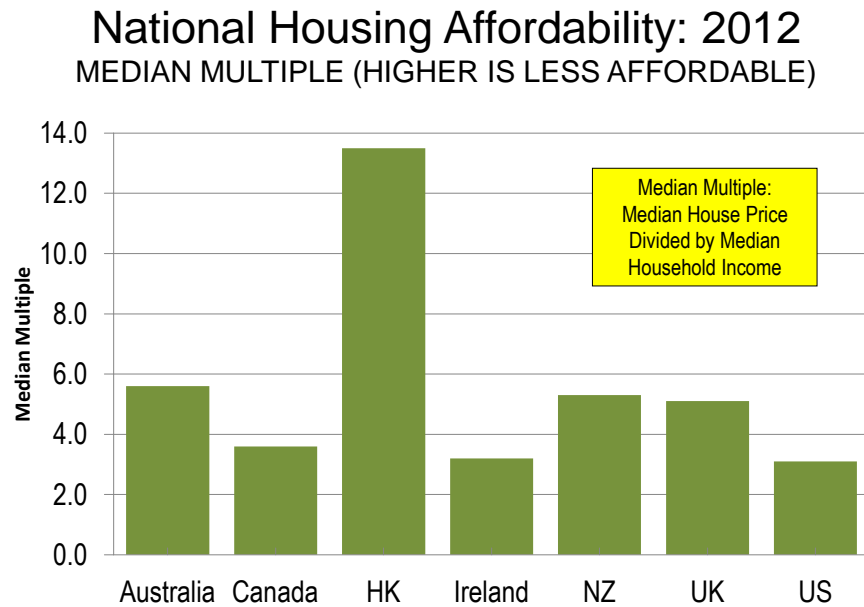
The 337 markets are ranked by housing affordability in Schedule 1. All of the 109 affordable markets (having a Median Multiple of 3.0 or below) were in Ireland, Canada and the United States. The 19 most affordable markets were in the United States. There were 100 affordable markets in the United States and eight affordable markets in Canada and one in Ireland. There were no affordable markets in Australia, New Zealand or the United Kingdom.

The 110 moderately unaffordable markets were divided between the United States (87), Canada (17). Ireland (4) and the United Kingdom (2). There were no moderately unaffordable markets in Australia or New Zealand (Table 5).

More than three-quarters of the markets in Australia were severely unaffordable, while more than 60 percent of New Zealand markets were severely unaffordable. In the United Kingdom, more than 50 percent of markets were severely unaffordable. By contrast, less than 20 percent of the markets in Canada were severely unaffordable, less than 10 percent in the United States and none in Ireland.



Despite its generally better housing affordability, the United States also had the least affordable market outside the major markets, in Honolulu, with a Median Multiple of 9.3. Even in this costly market, housing affordability has deteriorated markedly, with the Median Multiple rising 0.6 points in just the last year. Honolulu was less affordable than all but two of the 337 markets (Hong Kong and Vancouver).



Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	Median Multiple
Australia	0	0	9	30	39	5.6
Canada	8	17	4	6	35	3.6
China (Hong Kong)	0	0	0	1	1	13.5
Ireland	1	4	0	0	5	3.2
New Zealand	0	0	3	5	8	5.3
United Kingdom	0	2	14	17	33	5.1
United States	100	87	13	16	216	3.1
TOTAL	109	110	43	75	337	

## 2.2 Summary by Nation

The housing affordability situation is summarized by nation below. Details are provided in Schedules 1 and 2.

**Australia:** Australia's major market housing affordability improved from a Median Multiple of 6.7 to 6.5 over the past year. Rising incomes and flat or declining house prices improved the Median Multiples in Australia's major markets. However each of the five major markets continues to be severely unaffordable, reflecting vastly overpriced housing. Sydney is the least affordable, with a Median Multiple of 8.3. Melbourne has a Median Multiple of 7.5, Adelaide 6.5, Perth 5.9 and Brisbane 5.8. Each of Australia's major markets, with the exception of Sydney had housing affordability within the 3.0

***All major markets in Australia continued to be severely unaffordable, reflecting vastly over-priced housing.***



Median Multiple norm during the 1980s, before the widespread adoption of urban containment policies, which is referred to as "urban consolidation" in Australia (Figure 3).

Overall, Australia's Median Multiple remained at a severely unaffordable 5.6. Among the smaller markets, the least affordable was Port Macquarie, with a Median Multiple of 8.6, followed by Coff's Harbour at 8.0 and the Sunshine Coast, also at 8.0. Outside the major metropolitan areas, the least expensive markets were Shepparton (VIC) at 4.5 and Mildura (VIC) at 4.6, both seriously unaffordable. There were no affordable or moderately unaffordable markets in Australia (Table 6).

This year's *Survey* also includes two principally resource-based markets located in the Pilbara region of Western Australia, in response to reader interest.. Despite a large surrounding land supply of land housing is seriously unaffordable in Karratha (4.9) and severely unaffordable in Port Hedland (6.4). Western Australia's "Pilbara Cities Blueprint" seeks "to secure the Pilbara's future long after the resources sector has reached its peak." This would be a fate far different from those suffered by ghost towns like Coolgardie that fell into decline after their natural resource peaks. However, to secure sustainable long-term futures for communities in the Pilbara will require affordable housing, which is highly doubtful so long as urban consolidation policies are in place.

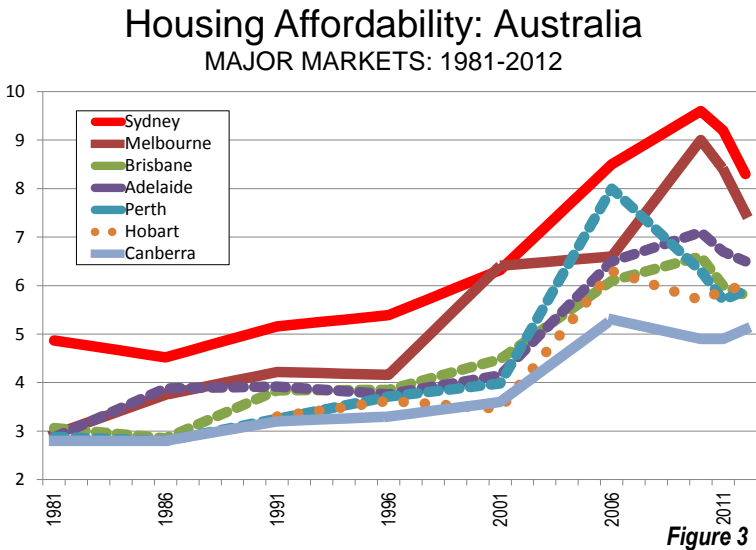


Table 6 AUSTRALIA AFFORDABILITY AND SEVERE UNAFFORDABILITY	
AFFORDABLE Median Multiple: 3.0 & Under	SEVERELY UNAFFORDABLE Median Multiple 5.1 & Over
NONE	<div>Adelaide, SA</div> <div>Hobart, TAS</div> <div>Alice Springs, NT</div> <div>Launceston, TAS</div> <div>Ballarat, VIC</div> <div>Mackay, QLD</div> <div>Bathurst, NSW</div> <div>Mandurah, WA</div> <div>Bendigo, VIC</div> <div>Melbourne, VIC</div> <div>Brisbane, QLD</div> <div>Newcastle-Maitland, NSW</div> <div>Bundaberg, QLD</div> <div>Orange, NSW</div> <div>Cairns, QLD</div> <div>Perth, WA</div> <div>Canberra, ACT-NSW</div> <div>Port Hedland, WA</div> <div>Coff's Harbour, NSW</div> <div>Port Macquarie, NSW</div> <div>Darwin, NT</div> <div>Sunshine Coast, QLD</div> <div>Fraser Coast, QLD</div> <div>Sydney, NSW</div> <div>Geelong, VIC</div> <div>Tamworth, NSW</div> <div>Geraldton, WA</div> <div>Toowoomba, QLD</div> <div>Gold Coast, QLD-NSW</div> <div>Wollongong, NSW</div>



**Canada:** Housing affordability remained little changed overall in Canada's major metropolitan markets, which have an overall rating of seriously unaffordable, at a Median Multiple of 4.7, a deterioration from 4.5 last year. However, this is principally due to a moderation of the Median Multiple in Vancouver's grossly overvalued market, from 10.6 to 9.5. Toronto sustained an increase in its median multiple from 5.1 to 5.9. Calgary also experienced a substantial increase, from 3.9 to 4.3.

In addition to Vancouver, [Canada's two largest metropolitan areas are a particular concern](#). Toronto was also severely unaffordable, with a Median Multiple of 5.9, two-thirds higher than in 2004, as that metropolitan area's urban containment program has taken effect. Montréal continues to have severely unaffordable housing, with a Median Multiple of 5.2, and has recently adopted even more stringent urban containment regulation, could retard housing affordability even more in the future.

Overall, housing in Canada is moderately unaffordable with a Median Multiple of 3.6, a slight deterioration from last year's 3.5. Housing had been affordable overall in Canada [as late as 2000](#). In the early years of the *Demographia International Housing Affordability Survey*, Canada was generally the most affordable nation. However, Canada now ranks third, behind the United States and Ireland. Canada had 8 affordable markets, 17 moderately unaffordable markets, 4 seriously unaffordable markets and 6 severely unaffordable markets (Table 7).

Canada's most affordable markets were Fredericton (NB), Moncton (NB), both with Median Multiple of 2.3. Saint John (NB) and Windsor (ON) had a Median Multiple of 2.5. Thunder Bay (ON), Charlottetown (PEI), Saguenay (QC) and Trois-Rivieres (QC) were also rated affordable.

***In addition to Vancouver, Canada's two largest metropolitan areas (Toronto and Montréal) are of particular concern.***

In addition to Vancouver, the three most unaffordable metropolitan markets were in British Columbia, including Victoria, Kelowna and Abbotsford. Like Vancouver, house prices in these markets have been driven extraordinarily higher relative to incomes by urban containment regulations.

Table 7 CANADA AFFORDABILITY AND SEVERE UNAFFORDABILITY			
AFFORDABLE Median Multiple: 3.0 & Under		SEVERELY UNAFFORDABLE Median Multiple 5.1 & Over	
Charlottetown, PEI	Saint John, NB	Abbotsford, BC	Toronto, ON
Frederickton, NB	Thunder Bay, ON	Kelowna, BC	Vancouver, BC
Moncton, NB	Trois-Rivieres, QC	Montréal, QC	Victoria, BC
Saguenay, QC	Windsor, ON		

**China (Hong Kong):** The one market covered in China, Hong Kong, had the most unaffordable housing in the *Survey* for the third straight year, with a Median Multiple of 13.5 (Table 8). This is an increase from 12.6 from last year --- up nearly one year's median household income in a single year. Hong Kong has the most unaffordable Median Multiple in the history of the *Demographia International Housing Affordability Survey* (Los Angeles reached 11.5 in 2007, at the height of the California-led US housing bubble, which precipitated the world-wide Great Financial Crisis).<sup>12</sup> Housing affordability has arisen as a subject of public demonstrations in Hong Kong.

<sup>12</sup> High house price to income ratios in have been reported in mainland China housing markets. However, there are insufficient data at the metropolitan area level. Because of that, other markets in China are neither included in the



As is noted above, no historical data set has been identified for house prices and household incomes in Hong Kong. As a result, comparisons to the historic trends in Australia, Canada, Ireland, New Zealand, United Kingdom and the United States would not be appropriate.

***Housing affordability has been a subject of public demonstrations in Hong Kong***

Further, the nature of owned housing in Hong Kong is substantially different. Most owned housing in Hong Kong is high rise condominiums, which is considerably more expensive to construct than the detached and semi-detached housing that predominates in the other six geographies (This is also the case in Singapore, see Section 2.3).

Nonetheless, Hong Kong's Median Multiple has been considerably above the 5.1 threshold for severe unaffordability that has been identified from the historical trends in the other six geographies. Further, academic research has demonstrated that house prices have been driven considerably higher by land-use restrictions in Hong Kong.<sup>13</sup> Thus, housing affordability in Hong Kong is rated as severely unaffordable.

Table 8 HONG KONG AFFORDABILITY AND SEVERE UNAFFORDABILITY	
<b>AFFORDABLE</b> Median Multiple: 3.0 & Under	<b>SEVERELY UNAFFORDABLE</b> Median Multiple 5.1 & Over
NONE	Hong Kong

**Ireland:** Ireland house prices have now nearly returned to normal affordability, following the housing bubble. Dublin was the least affordable markets with a Median Multiple of 3.6. Waterford (2.5) was rated as affordable, the most affordable rating in Ireland in the history of the *Demographia International Housing Affordability Survey*. Ireland is the only nation without a metropolitan market that is severely unaffordable or seriously unaffordable (Table 9).

Table 9 IRELAND AFFORDABILITY AND SEVERE UNAFFORDABILITY	
<b>AFFORDABLE</b> Median Multiple: 3.0 & Under	<b>SEVERELY UNAFFORDABLE</b> Median Multiple 5.1 & Over
Waterford	NONE

**New Zealand:** Housing in New Zealand was severely unaffordable, with a Median Multiple of 5.3, slightly higher than last year's 5.2. Houses in New Zealand are now nearly 80 percent more expensive than the historic affordability housing norm of 3.0, last experienced in [the 1990s](#).

Auckland was the least affordable market, with a Median Multiple of 6.7. Along with Auckland, Christchurch (6.6), Tauranga-Western Bay of Plenty (5.9), Wellington (5.4) and Dunedin (5.1) were severely unaffordable.

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*Demographia International Housing Affordability Survey*, nor provisionally evaluated (as opposed, for example, to Singapore).

<sup>13</sup> Hui, C. M. & F. K. Wong (n.d.), "Dynamic Impact of Land Supply on Population Mobility with Evidence from Hong Kong," [http://www.prrs.net/Papers/Hui\\_Dynamic\\_impact\\_of\\_land\\_supply\\_on\\_population\\_mobility.pdf](http://www.prrs.net/Papers/Hui_Dynamic_impact_of_land_supply_on_population_mobility.pdf).



Three New Zealand markets were seriously unaffordable, Palmerston North (4.4), Napier-Hastings (4.5) and Hamilton (4.7). New Zealand had no affordable markets and no moderately unaffordable markets (Table 10).

Table 10 NEW ZEALAND AFFORDABILITY AND SEVERE UNAFFORDABILITY	
<b>AFFORDABLE</b> Median Multiple: 3.0 & Under	<b>SEVERELY UNAFFORDABLE</b> Median Multiple 5.1 & Over
NONE	Auckland Christchurch Dunedin Taraunga-Western Bay of Plenty Wellington

**United Kingdom:** Housing in the United Kingdom remains severely unaffordable, which is consistent with its long history of its nationally imposed urban containment policies. The United Kingdom has a Median Multiple of 5.1, unchanged from last year. This is more than 60 percent above the historic norm of 3.0,<sup>14</sup> which had last been achieved in [the 1990s](#). Today, there are no affordable markets in the UK (Table 11)

Among the major markets, the Median Multiple was 5.1, a slight deterioration from last year's 5.0. London (the Greater London Authority) was the least affordable market, with a median multiple of 7.8. The next least affordable markets were Plymouth & Devon, at 7.3 and the London Exurbs (East and Southeast England, virtually all outside the London greenbelt) at 6.8. Five other major markets were severely unaffordable, including Birmingham & West Midlands, Bristol – Bath in the Southwest and Midlands as well as Liverpool & Merseyside, Newcastle & Tyneside and Sheffield & South Yorkshire in the more economically depressed North. There were 8 seriously unaffordable major markets and no either moderately unaffordable nor affordable major markets.

***Newcastle, Liverpool and Sheffield in the more depressed North ... were also severely unaffordable.***

Dundee, which had been the first UK market to achieve a moderate unaffordable rating was joined by Falkirk this year. Bournemouth & Dorsett was the most unaffordable market, with a Median Multiple of 8.7.

Table 11 UNITED KINGDOM AFFORDABILITY AND SEVERE UNAFFORDABILITY	
<b>AFFORDABLE</b> Median Multiple: 3.0 & Under	<b>SEVERELY UNAFFORDABLE</b> Median Multiple 5.1 & Over
NONE	Aberdeen Birmingham & West Midlands Bournemouth & Dorsett Bristol-Bath Edinburgh Leicester & Leicestershire Liverpool & Merseyside London (GLA) London Exurbs (E & SE England) Newcastle & Tyneside Northampton & Northamptonshire Plymouth & Devon Sheffield & South Yorkshire Swindon & Wiltshire Telford & Shropshire Warrington & Cheshire Warwickshire

<sup>14</sup> Data is England and Wales is for the second quarter of 2011, which was the latest data available. Data for the balance of the United Kingdom (Scotland and Northern Ireland) is for the third quarter of 2011, consistent with other data in the *Survey*.



**United States:** Overall, the US Median Multiple was 3.1 (moderately unaffordable), up slightly from 3.0 last year. The United States had 100 affordable markets, 87 moderately unaffordable markets, 13 seriously unaffordable markets and 16 severely unaffordable markets (Table 12).

Housing affordability deteriorated in the 51 major markets of the United States from a Median Multiple of 3.1 to 3.2. This year, 20 major markets are rated as affordable, down from 24 last year.

Severely depressed Detroit remains the most affordable major US housing market, with a Median Multiple of 1.5. The second most affordable major market is Atlanta, with Median Multiple of 2.0. At the peak of the housing bubble, affordability deteriorated to a moderately unaffordable 3.1 in Atlanta. Atlanta had been among the high income world's fastest-growing metropolitan areas for at least three decades, but slowed briefly during the Great Financial Crisis. Growth has returned, with Atlanta ranking third in net domestic migration among US metropolitan areas with more than 5 million population.

In recent years, Dallas – Fort Worth and Houston have emerged as the fastest growing larger metropolitan areas, both driven by strong underlying demand from net domestic migration. Both remain affordable, with a median multiple of 2.9 in Dallas-Fort Worth and 3.0 in Houston.

As was the situation last year, six major markets are rated severely unaffordable. Four of these markets are in coastal California, where housing affordability deteriorated markedly over the past year, especially in San Francisco (7.8) and San Jose (7.9), where the Median Multiple rose by one point or more --- the median price of houses rose the equivalent of a year's median household income. The Median Multiple has now risen in both San Francisco and San Jose to 30% or more higher than at any point before the California housing bubble. The Median multiple also rose 0.5 points in Los Angeles. Affordability could continue to deteriorate as regional planning agencies implementing new state regulations under Senate Bill 375 that virtually outlaws new housing on the urban fringe. Even in the face of heavy net outward migration to other states, this could lead to a new housing bubble.

***In the United States...  
20 major markets are rated as  
affordable, down from 24 last year***

The most affordable smaller market was Evansville, IN (1.5). Some of the most affordable markets were in the hard-hit automobile and parts manufacturing belt of the Middle West such as Flint, MI and Toledo, OH. Other affordable markets included Fayetteville (AR-MO), home to the headquarters of the world's largest retailer (Wal-Mart), [Des Moines](#) (IA), which experienced the largest financial sector employment expansion over the past five years and Fargo (ND-MN), most of which is in the nation's fastest growing state, [North Dakota](#). Others among the most notable affordable markets include York (PA), which is gaining domestic migration from the unaffordable markets of Baltimore and Washington and Ogden, in fast-growing Utah.

Outside the major metropolitan markets, Honolulu was the least affordable, with a Median Multiple of 9.3, a deterioration from 8.7 in 2011. Honolulu ranked third least affordable among the 337 international markets in the *Survey*, trailing only Hong Kong and Vancouver. The other least affordable markets in the US were in coastal California --- Santa Cruz (8.2), Santa Barbara (7.9) and San Luis Obispo (7.5).

***Comparing Housing Affordability in Urban Containment and Liberally Regulated Markets:*** The housing affordability differences in the US are illustrated by a comparing six large markets (Figure 4).



**Table 12**  
**UNITED STATES**  
**AFFORDABILITY AND SEVERE UNAFFORDABILITY**

<b>AFFORDABLE</b> Median Multiple: 3.0 & Under		<b>SEVERELY UNAFFORDABLE</b> Median Multiple 5.1 & Over	
Akron, OH	Lakeland, FL	Barnstable Town, MA	Salinas, CA
Amarillo, TX	Lansing, MI	Boston, MA-NH	San Diego, CA
Appleton, WI	Las Cruces, NM	Boulder, CO	San Francisco-Oakland, CA
Atlanta, GA	Las Vegas, NV	Bridgeport, CT	San Jose, CA
Augusta, GA	Lexington, KY	Honolulu, HI	San Luis Obispo, CA
Beaumont, TX	Lincoln, NE	Los Angeles, CA	Santa Barbara, CA
Binghamton, NY	Little Rock, AR	New York, NY-NJ-PA	Santa Cruz, CA
Buffalo, NY	Longview, TX	Oxnard-Ventura, CA	Santa Rosa, CA
Canton, OH	Louisville, KY-IN		
Cape Coral-Fort Myers, FL	Lubbock, TX		
Cedar Rapids, IA	Lynchburg, VA		
Charleston, SC	Macon, GA		
Cincinnati, OH-KY-IN	Memphis, TN-MS-AR		
Clarksville, TN	Minneapolis-St. Paul, MN-WI		
Cleveland, OH	Mobile, AL		
Columbus, GA-AL	Montgomery, AL		
Columbus, OH	Ocala, FL		
Dallas-Fort Worth, TX	Ogden, UT		
Davenport, IA-IL	Omaha, NE-IA		
Dayton, OH	Orlando, FL		
Deltona-Daytona Beach, FL	Palm Bay-Melbourne, FL		
Des Moines, IA	Pensacola, FL		
Detroit, MI	Peoria, IL		
Duluth, MN	Phoenix, AZ		
Elkhart, IN	Pittsburgh, PA		
Erie, PA	Port St. Lucie, FL		
Evansville, IN	Racine, WI		
Fargo, ND-MN	Reading, PA		
Fayetteville, AR-MO	Rochester, NY		
Flint, MI	Rockford, IL		
Fort Smith, AR-OK	Saginaw, MI		
Fort Wayne, IN	Saint Louis, MO-IL		
Grand Rapids, MI	Savannah, GA		
Green Bay, WI	Scranton-Wilkes Barre, PA		
Greensboro, NC	Sioux Falls, SD		
Gulfport, MS	South Bend, IN-MI		
Hagerstown, MD-WV	Springfield, IL		
Harrisburg, PA	Springfield, MO		
Hickory, NC	Syracuse, NY		
Holland, MI	Toledo, OH		
Houma, LA	Topeka, KS		
Houston, TX	Tulsa, OK		
Indianapolis, IN	Tuscaloosa, AL		
Jacksonville, FL	Utica, NY		
Kalamazoo, MI	Vallejo, CA		
Kansas City, MO-KS	Wichita, KS		
Kingsport, TN-VA	Winston-Salem, NC		
Lafayette, IN	York, PA		
Lafayette, LA	Youngstown, OH-PA		
Lake Charles, LA	Yuma, AZ		



In Atlanta, Dallas – Fort Worth and Houston, with liberal land use regulation, there has been significant migration of people from other parts of the United States. Among the three markets, there was net domestic migration averaging 7.6% of their 2000 populations between 2000 and 2011.<sup>15</sup>

Despite this strong underlying demand, each of these markets remained affordable for virtually the entire period from 2000 through 2012.

In Los Angeles, New York and San Francisco, with urban containment regulation, there was significant net outmigration to other

parts of the United States. The average net domestic outmigration from 2000 to 2011 was 10.3% compared to their 2000 populations. The net domestic outmigration figures were especially notable in New York and Los Angeles, which lost 2.1 million and 1.4 million residents respectively to other parts of the nation.<sup>16</sup>

## Underlying Demand & Regulation

### SELECTED UNITED STATES MARKETS: 2000-2012

Metropolitan Area Markets	Population (2011 in Millions)	Net Domestic Migration (% of 2000 Population)	Median Multiple: 2000-2012		
			Average	High	Low
Liberal Regulation		7.6%	2.7	3.0	2.2
Atlanta	5.4	10.3%	2.5	3.1	1.9
Dallas-Fort Worth	6.5	6.9%	2.7	2.9	2.4
Houston	6.1	5.6%	2.8	3.0	2.4
Urban Containment		-10.3%	6.9	9.7	4.7
Los Angeles	12.9	-11.4%	6.8	10.1	4.7
New York	19.0	-11.2%	6.1	7.7	4.2
San Francisco	4.4	-8.3%	7.7	11.2	5.3

**Figure 4**

### 2.3. Singapore: Supplemental Analysis

The *Demographia International Housing Affordability Survey* has long been interested in adding additional geographies. Unfortunately, the comprehensiveness and form of the data used in the international comparisons is difficult to locate outside the geographies currently included.

However, provisional estimates have been developed for Singapore. In Singapore, publicly sponsored but privately owned housing (under the aegis of the Housing and Development Board (HDB) represents nearly 90 percent of the owned market (Singapore has an overall 88 percent rate of home ownership, the highest of any geography in the *Survey*). The median income data is limited to households with workers. Thus, while significant data is available for Singapore, it is not sufficiently complete to be formally included in this year's *Survey*.

*Housing in Singapore appears to be approximately one-half as expensive relative to incomes as in Hong Kong.*

Based upon government and industry data, *Demographia* provisionally estimates that the Median Multiple in Singapore was approximately 5.9 for the HDB market in the third quarter of 2012. Housing in Singapore

<sup>15</sup> 2010 excluded (no data collected). Data from the United States Bureau of the Census.

<sup>16</sup> Data from the United States Bureau of the Census.



appears to be approximately than one-half (or less) as expensive relative to incomes as in Hong Kong<sup>17</sup> (see Section 2.2: Hong Kong).

In the United States, the United Kingdom, Canada, Australia, Ireland and New Zealand markets with liberal land use regulation have rarely had Median Multiples exceeding 3.0. By contrast, the such historical data is not readily available in Singapore (nor in Hong Kong).

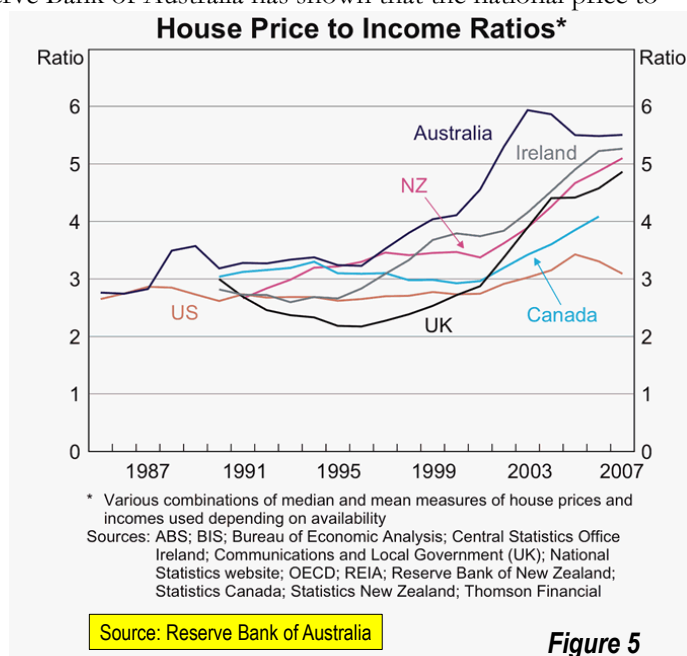
Moreover, housing units are substantially different in Singapore (and Hong Kong), principally being high rise condominiums, which is more expensive to construct than the detached or semi-detached housing that predominates in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States.

### 3. LONGER TERM TRENDS

As was noted above, Anthony Richards of the Reserve Bank of Australia has shown that the national price to income ratio was at or [below 3.0](#) in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States until the late 1980s or late 1990s, depending on the nation.<sup>18</sup> This historic Median Multiple affordability range of 2.0 to 3.0 continues in many markets of the United States and Canada (Figure 5).<sup>19</sup> Co-author Hugh Pavletich has produced a more detailed definition of housing affordability (Table 13).

Over the nine years of the *Demographia International Housing Affordability Survey*, the trend among national Median Multiples in major metropolitan markets has varied. Housing affordability has improved by far the most in Ireland, where Dublin's Median Multiple has dropped from severely unaffordable to moderately unaffordable.

Housing affordability has also improved in the United States. This is despite California's leading role (along with Florida, Nevada and Arizona) in precipitating the Great Financial Crisis. Throughout the housing bubble, most major metropolitan markets



**Figure 5**

<sup>17</sup> The median HDB house price was \$450,000 and the median household income was estimated at \$76,700, indicating a 5.9 Median Multiple for this dominant part of the market. The house price includes "cash over value," while the income excludes employer Central Provident Fund contributions. Data from SRX Residential Property as reported in the [Singapore Business Review](#). Median household income data is estimated from Statistics Singapore data.

<sup>18</sup> Anthony Richards, *Some Observations on the Cost of Housing in Australia*, Address to 2008 Economic and Social Outlook Conference The Melbourne Institute, 27 March 2008 <http://www.rba.gov.au/speeches/2008/sp-so-270308.html>. This research included all nations covered in the *Demographia International Housing Affordability Survey* except for Ireland. The Richards research is also illustrated in the of the National Housing Council of Australia, [http://www.fahcsia.gov.au/sa/housing/pubs/housing/national\\_housing\\_supply/Documents/default.htm](http://www.fahcsia.gov.au/sa/housing/pubs/housing/national_housing_supply/Documents/default.htm) (Figure 1.1).

<sup>19</sup> A value below 2.0 is affordable, but may indicate depressed economic conditions.



remained either affordable or moderately unaffordable, especially those that had not adopted the urban containment policies that are associated with substantial house price increases. The severely unaffordable Median Multiples at the peak of the housing bubble were limited to a minority of markets with the most severe land-use regulations.

Table 13  
AFFORDABLE HOUSING MARKETS: DEFINITION

For metropolitan areas to rate as 'affordable' and ensure that housing bubbles are not triggered, housing prices should not exceed three times gross annual household earnings. To allow this to occur, new starter housing of an acceptable quality to the purchasers, with associated commercial and industrial development, must be allowed to be provided on the urban fringes at 2.5 times the gross annual median household income of that urban market.

The critically important Development Ratios<sup>20</sup> for this new fringe starter housing, should be 17 - 23% serviced lot / section cost - the balance the actual housing construction.

Ideally through a normal building cycle, the Median Multiple should move from a Floor Multiple of 2.3, through a Swing Multiple of 2.5 to a Ceiling Multiple of 2.7 - to ensure maximum stability and optimal medium and long term performance of the residential construction sector.

*-Hugh Pavletich*  
*Performance Urban Planning*

At the same time, in Canada's major market house price escalation has rightly caught the attention of that nation's central (reserve) bank, the Bank of Canada. Housing affordability among Canada's major markets was the best among the six nations in 2004, with the lowest possible Median Multiple in the moderately unaffordable category. Canada's deteriorating housing affordability was led by large house price increases relative to incomes in Toronto (50%), Montréal (65%) and Vancouver (80%) since 2004.

From 2004 to 2012, Australia and New Zealand had the most unaffordable major markets, with every major market being severely unaffordable in every year. Housing affordability has also been severely unaffordable in United Kingdom major markets over the period covered (Figure 6).

*From 2004 to 2012, Australia and New Zealand had the most unaffordable major markets, with every major market being severely unaffordable in every year.*

#### 4. COMPETITIVE LAND SUPPLY: KEY TO HOUSING AFFORDABILITY

Overwhelming economic evidence indicates that urban containment policies, especially land rationing mechanisms (principally urban growth boundaries) raise the price of housing relative to income. This inevitably leads to a reduced standard of living and increases poverty rates, because the unnecessarily higher costs of housing leave households with less discretionary income to spend on other goods and services. The higher costs ripple into rental markets, tightening the budgets of lower income households in particular, who already struggle with lower discretionary incomes.

<sup>20</sup> The development ratio is the cost of the finished land (underlying infrastructure complete) divided by the house construction cost plus the finished land. This issue is extensively discussed with respect to the United States market in the [Demographia Residential Land & Regulation Cost Index](#).



## The Problem: Failure to Maintain a Competitive Land Supply

The housing affordability problem can be principally trace to the failure to maintain a "competitive land supply." Brookings Institution economist Anthony Downs describes the process,<sup>21</sup> noting that more urban growth boundaries can convey monopolistic pricing power on sellers of land if sufficient supply is not available, which, all things being equal, is likely to raise the price of land and housing that is built on it (Table 14).

*If a locality limits to certain sites the land that can be developed within a given period, it confers a preferred market position on those sites. . . . If the limitation is stringent enough, it may also confirm a monopolistic power on the owners of those sites, permitting them to raising land prices substantially.*

Urban containment has been associated<sup>22</sup> with up to nearly 87 percent of house price increases,<sup>23</sup> up to 54 percent higher overall house prices and 61 percent higher new house prices.<sup>24</sup> The conclusions of Richard C. Green and Stephen Malpezzi, who have conducted substantial research on the subject, are typical of the academic research:

*When the supply of any commodity is restricted, the commodity's price rises. To the extent that land – use, building codes, housing finance, or any other type of regulation is binding, it will worsen housing affordability. However, the size of the effect is an empirical matter.*

**National Housing Affordability: 2004-2012**  
MAJOR MARKETS (OVER 1,000,000 POPULATION)

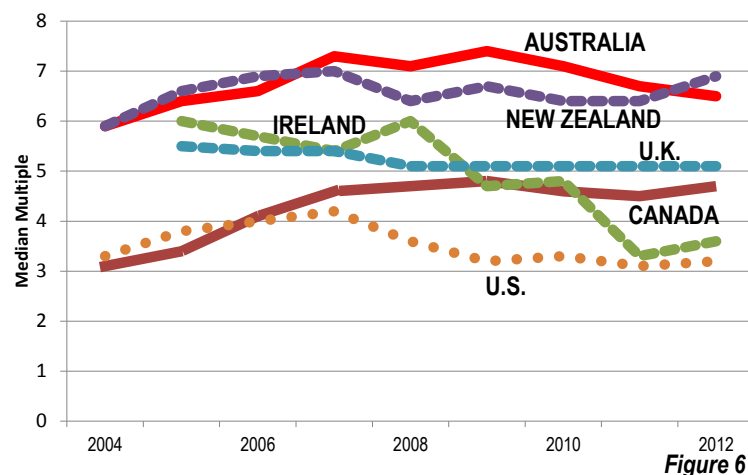


Figure 6

Green and Malpezzi conclude that *regardless of the index used, increased levels of regulations bring about higher house prices*. Their own model indicates a strong association between urban containment regulations, higher house prices, higher rents, and diminished home building. Finally, Green and Malpezzi indicate that urban containment regulations "increase costs, often without corresponding benefits."<sup>25</sup>

**Urban Containment Encourages Speculation:** Urban containment has been associated with [greater price volatility](#) and [more speculation](#). Investors and speculators are drawn to places where "quick" money is to be made. Speculators will include "flippers," who are in the business of buying up properties in urban

<sup>21</sup> Downs, Anthony. *New Visions for Metropolitan America* (Brookings Institution Press, 1994).

<sup>22</sup> Green, Richard K., and Stephen Malpezzi. *A Primer on U. S. Housing Markets and Housing Policy* (Urban Institute Press, 2003): 146.

<sup>23</sup> <http://depts.washington.edu/teclass/landuse/Housing051608.pdf>

<sup>24</sup> Downs, Anthony. "Satan or Savior: 1. Regulatory Barriers to Affordable Housing," *Journal of the American Planning Association*, 58, 4 (1992): 419-22.

<sup>25</sup> Green, Richard K., and Stephen Malpezzi. *A Primer on U. S. Housing Markets and Housing Policy* (Urban Institute Press, 2003): 146.



containment markets and then reselling them for a profit higher than would be possible in a liberal market. Urban containment's artificially rising prices also draw foreign investors, such as in Vancouver, the California coast and Hong Kong.

**Urban Containment Hobbles Metropolitan Economies:** Econometric research also identifies [an association between slower economic growth and urban containment regulation](#). For example, Raven Saks (US Federal Reserve Board) found that where housing supply is more constrained by regulations, employment growth is generally lower than expected. Nandwa (University of Dubai) and Ogura (Grand Valley State University) found that US metropolitan areas with strict land-use regulation tend to have slower than expected productivity growth. Vermeulen (Netherlands Bureau of Economic Analysis) and Van Ommeren (VU University) associated slower employment growth in the Randstad, with its more stringent housing supply limitations.

*...each single-family house constructed produces three jobs, in construction and support manufacturing and services*

Further, the lower rate of single family house building that occurs under urban containment policy reduces employment. The US [National Association of Home Builders](#) (NAHB) estimates that each single-family house constructed produces three jobs, in construction and support manufacturing and services.

**Bibliography:** A [bibliography of land regulation research](#) is also maintained at co-author Hugh Pavletich's website, [performanceurbanplanning.org](#). Research is summarized in [The Association between Prescriptive Land Use Regulation and Higher House Prices: Literature Review on Smart Growth, Growth Management, Livability, Urban containment and Compact City Policy](#).<sup>26</sup> These research compendia includes reports by analysts at national central banks, international economic organizations.

The fatal flaw of urban containment is that it reduces affluence and expands poverty by pushing up house prices relative to incomes (which reduces discretionary incomes).

## 5. POLICY DEVELOPMENTS OVER THE PAST YEAR

Virtually all of the world's governments are concerned about both housing affordability and the quality of housing. Adequate housing is a prerequisite for a decent quality of life. Further, housing typically represents the largest share of household expenditure. Yet, as this *Survey* has shown through its history, governments have often adopted policies that have unnecessarily increased the price of housing, making it more difficult for households to afford adequate housing, especially of the form and size adequate for children (See Section 6.1). There have been notable recent policy developments, as governments wrestle with the consequences of these counter-productive policies.

**New Zealand:** The most significant developments have occurred over the past year in New Zealand, as public opinion and reaction to a major government report have brought unprecedented attention to the nation's housing affordability crisis. These, in turn, have been followed by perhaps the strongest central national government program in any of the geographies covered by the *Survey* to roll-back the policies that have made housing so unaffordable.

*New Zealand seeks to increase land supply to restore housing affordability*

<sup>26</sup> Cox, Wendell. [Association between Prescriptive Land Use Regulation and Higher House Prices: Literature Review on Smart Growth, Growth Management, Urban containment and Compact City Policy](#).  
<http://www.demographia.com/db-dhi-econ.pdf>. This document contains additional references for this section.



A December 2012 public opinion poll by [Television One Colmar Brunton Poll \(video\)](#) found that New Zealanders want the government to act to lower housing prices. By an almost 2 to 1 margin, respondents indicated that the nation's government should be "doing something" about housing affordability. The support for reforms to make housing more affordable was significantly stronger in the 18 to 34 age group, where the margin was more than 3 to 1.

Table 14  
ASSESSING THE SUFFICIENCY OF LAND SUPPLY

Often, land and regulation agencies justify their urban containment policies claiming that there is sufficient land for residential development, invariably claiming a specific number of years of available land supply (such as 20 or 30 years). Australian national homebuilder [Bob Day stressed the fallacy of such claims](#):

*...I heard a state bureaucrat say recently that the government had released enough land for 15 years supply. I raised my hand and asked "15 years supply - at what price?" He didn't know what I meant. I said "at \$200,000 a block it may well take 15 years to sell. So why don't you double the price and then you'll have 30 years supply?"*

Chairman of the National Trust (UK), Sir Simon Jenkins missed exactly this point in a recent British Broadcasting Company (BBC2) *Newsnight* telecast. Jenkins, opposing greenfield housing development, said that there were already enough sites to build two million new homes 'right now'. The question, as Day indicates, is *at what price?* The answer was supplied by Sir Peter Hall and associates more than 40 years ago and by the [Barker Reports](#) of nearly a decade ago (See Section 5: United Kingdom). Britain's land use regulations have driven housing prices far higher than necessary --- two million houses Britons cannot afford.

One academic ([Micheal Buxton of RMIT University in Melbourne](#)) told *The Age* that Melbourne had enough land for 25 years of urban expansion and further claimed not to know of another "city in the world that's got that kind of land supply."

In fact there are many such cities. Virtually all, metropolitan areas with liberal land use policies have far more land available for expansion than Melbourne's claimed 25 years. In the United States alone, this includes at least scores of markets, including Atlanta, Dallas-Fort Worth and Houston, each of has a considerably larger population than Melbourne.

There is a simple test of whether a metropolitan area has enough land for expansion --- an affordable Median Multiple. If the Median Multiple of is 3.0 or less, then there is enough land for urban expansion. Melbourne falls far short of this standard, with a Median Multiple of 7.5. Melbournians must pay 2.5 times as much for their housing relative to their incomes as households in affordable metropolitan areas, such as Atlanta, Dallas-Fort Worth, Houston and many others.

In late October of 2012, Deputy Prime Minister Bill English [announced government policies \(video & report - New Zealand Herald\)](#) to directly address that nation's housing affordability crisis.<sup>27</sup> These policies include increasing land supply, to restore a competitive market for land, the lack of which is the core of the affordability problem. There is also to be an emphasis on alternative infrastructure finance, the costs of which have all too often been imposed on new housing construction, raising its costs and exacerbating further the affordability problem (see Table 1, above). The government also, importantly, intends to reduce delays in planning consents and to achieving a 20 per cent increase in construction productivity by 2020.

These measures are consistent with March 2012 recommendations from the New Zealand Productivity Commission [Housing Affordability Inquiry](#), which called for "an immediate release of land for residential development," with particular emphasis on Auckland and Christchurch.

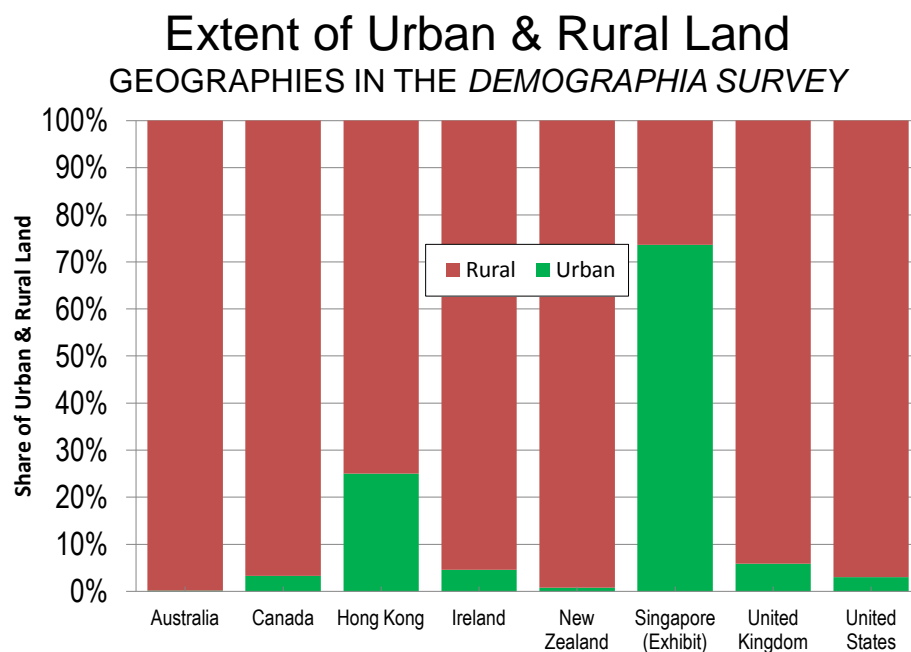
<sup>27</sup> Hon. Bill English is the author of the Introduction to this edition of the *Demographia International Housing Affordability Survey* (above).



Retirement Commissioner Diana Crossan noted “Unfortunately, housing affordability has declined to a point where, now, a house costs five times a salary, compared to two-and-a-half times a salary in the 1990s (See Table 13), and rates of home ownership are declining.” She further indicated that the lower home ownership rates were [leading to a retirement incomes crisis as well](#) (See Section 6.1).<sup>28</sup>

**Australia:** The Victorian government continues to open land to residential development, in contrast, for example, with Sydney or Adelaide. Melbourne's urban growth boundary has been expanded, most recently under the leadership of Planning Minister Matthew Guy, by 23 square miles (60 square kilometers). This is a very important beginning.

Yet, only 0.18 percent of Australian land is used for urban areas, by far the smallest figure of any geographies covered by the *Demographia International Housing Affordability Survey* (Figure 7). By comparison, the 3.0 percent of the United States is urban. Nonetheless, urban containment policies may be the most deeply entrenched in this land-rich country. Australian households, pay twice as much of their gross disposable income for mortgages than US households, according to [Fitch Ratings](#).



**Figure 7**

**Canada:** Concern has been expressed about the potential of a housing bubble in Canada, where house prices have risen out of proportion to household income increases (See Section 5) and household debt has increased substantially.<sup>29</sup> The federal government responded by announcing tightened lending rules, reducing maximum loan terms and requiring larger down payments for houses insured by the Canadian Housing and Mortgage Corporation (CHMC). The problem, however, is that these demand side strategies fail to address the root cause of Canada's rapidly deteriorating housing affordability --- the land rationing that is typical of urban land use policy and which raises house prices relative to household incomes.

<sup>28</sup> The New Zealand Planning Institute [expressed support for](#) the *Demographia International Housing Affordability Survey* in 2007, under the leadership at the time of its National President Professor Michal Gunder.

<sup>29</sup> For example, see *Macleans*, <http://www2.macleans.ca/2012/01/26/what-happens-when-canadas-housing-bubble-pops/>



**China (Hong Kong):** Chief Executive Officer Leung Chun-ying has imposed new restrictions on the housing market to improve affordability for residents. Hong Kong's had been plagued by the government's failure to make sufficient supplies of land available and by an influx of well-financed purchasers from outside, principally from mainland China. [Some developments are to be available only](#) to Hong Kong residents for purchase. [Housing taxes](#) on investors from outside Hong Kong have been significantly increased and mortgage finance has been made more restrictive. The government also seeks to materially increase the supply of new housing. These reforms occurred, after large [public demonstrations](#) aimed, among other issues, at unaffordable housing.

*In Hong Kong... reforms occurred, after large public demonstrations were aimed, at unaffordable housing.*

**United Kingdom:** In the United Kingdom, a report by the [Institute for Public Policy Research](#) found that unaffordable housing also discourages family formation. The researchers (Jenny Pennington, Dalia Ben-Galim and Graeme Cooke) also associated more limited economic ambitions and a weaker sense of community with the more expensive housing in the United Kingdom.

These findings make the findings of previous research even more relevant. [Former Bank of England Monetary Policy Committee Member Kate Barker](#) and a number of academics have tied the UK's lack of housing affordability to its urban containment policies. More than four decades ago, Sir Peter Hall and associated researchers [provided an early analysis of the housing affordability consequences](#) of the Town and Country Planning Act of 1947. The more costly housing resulting from the UK's land use policies have reduced household discretionary incomes, required households to live in smaller housing, and denied the purchase of additional goods and services that would have increased employment levels.

By the early 2000s, the size of houses had fallen 37 percent from 1920.<sup>30</sup> The average new house size in the United Kingdom is now from less than one-half to less than one-third that of Australia, Canada, New Zealand and the United States. Perhaps most surprisingly, the average new house in Ireland is larger than in the United Kingdom. In reporting on research on new housing by the Commission for Architecture and the Built Environment, [the Daily Telegraph \(the nation's leading Conservative/Tory oriented newspaper\)](#) noted:

*... new-build houses are increasingly cramped, with many owners unhappy about the poor design and mean dimensions of their homes. A country where every man's home was his castle has been transformed into a nation of rabbit hutches.*

The impacts have been more burdensome on less affluent residents in the United Kingdom. The land use regulations have also denied home ownership to households and, by increasing the price of housing, increased poverty. As Sir Peter Hall put it:<sup>31</sup>

*...there can be little doubt about the identity of the group that has got the poorest bargain. It is the really depressed class in the housing market: the poorer members of the privately-rented housing sector*

A determined effort has been mounted by the Conservative-Liberal Democrat coalition government to improve that nation's long-standing housing affordability problem, led by Communities Minister Eric Pickles and Planning Minister Nick Boles. Minister Boles has called Britain's lack of housing affordability "[the biggest social justice crisis we have](#)," and called it bigger than education and unemployment ([video](#)). Further, reforms

<sup>30</sup> Based on data from the [Royal Institute of Surveyors](#). Assumes 2001 distribution of housing types (detached, semi-detached and terraced [townhouse or rowhouse]).

<sup>31</sup> Hall, P., R., T. H. Gracey and R. Drewett (1973), *The Containment of Urban England*, George Allen & Unwin.



are planned and a recent report by Lord Matthew Taylor called for a substantial streamlining of the nation's ponderous land and housing regulations.

The government's initiatives to reform land use regulation to improve housing affordability and enhance the quality of life for the majority of Britons has encountered fierce resistance, not least from *The Daily Telegraph*, as well as the Campaign to Protect Rural England (CPRE)

***Planning Minister Nick Boles calls the UK's housing affordability problem ... "the biggest social justice crisis we have," bigger than both education and unemployment.***

**United States:** Housing affordability has continued to be widespread in the United States. This is due to its broad liberal land use regulation, which preserved housing affordability even through the housing bubble. The huge house price increases, which precipitated the world-side Great Financial Crisis, were limited to markets with urban containment during the housing bubble. There has been some "pushback" against urban containment. [Florida repealed its state-wide urban containment regulations](#) in 2011. Housing affordability in the state has been largely restored, except in Miami, where local urban containment regulations continue to keep house prices elevated.

At the same time, California's Sustainable Communities Mandate (established by Senate Bill 375) could lead to substantially worsened housing affordability (See Section 2.2: California). The measure is being interpreted by the state to largely ban development on or beyond the urban fringe. Further, based upon both Senate Bill 375 [and misconstrued "changes" in consumer demand](#), some regional plans in California will virtually [outlaw building the detached housing](#) that is preferred by the overwhelming majority of citizens (as revealed by their recent choices in housing). Already, California has the least affordable housing in the nation. A recent US Census Bureau report shows that the poverty rate in California [would be nearly 50% higher if higher cost of its housing were reflected](#).

As noted above (Section 2.2: United States) the largest California markets are again experiencing substantial cost escalation relative to incomes. This could lead, in the worst case, to another housing bubble.

## 6: HOUSING AFFORDABILITY AND A SUSTAINABLE ECONOMY

### 6.1: The Demographic Challenge

Demographic trends are strongly skewed against not only the improvement, but also the maintenance of high standards of living.

Recently, [Joel Kotkin](#)<sup>32</sup> led an analysis of changing demographic trends that could combine to reduce future affluence in the high income world. The report showed that birth rates have fallen radically in most high income nations, a number of middle income nations (such as Mexico and Brazil) and even some low income nations (such as Viet Nam and Myanmar). As a result, most nations are expected to have a far higher percentage of elderly population than before and, in some cases, far smaller populations.<sup>33</sup> In the eight geographies reported upon in the *Survey*, the old age dependency ratio is expected to rise from between 10 and 20 elderly persons (aged 65 and over) per 100 persons of working age (15 to 64 years) to from nearly 40

<sup>32</sup> [Author](#) of the introduction to the *7th Annual Demographia International Housing Affordability Survey*.

<sup>33</sup> For example, current government projections in Japan indicate a population loss of from approximately 125 million today to under 50 million by 2010.



to more than 55 by 2050 (Figure 8). As a result, government financial obligations could overwhelm the ability of nations to pay.<sup>34</sup> Higher than necessary housing costs would exacerbate society's inability to pay.

Kotkin et al. cite research by of Gavin Jones, Paulin Tay Straughan and Angelique Chan, who found that “a housing and urban environment unfriendly to children”

***“a housing and urban environment unfriendly to children” was a principal reason for the reluctance of women to have children (or more children).***

was a principal reason for the reluctance of women to have children (or more children). Their work concluded that a "housing and urban environment unfriendly to children" was a principal cause of the very low fertility rates in Singapore, Japan, South Korea and Hong Kong.<sup>35</sup> Generally, the Kotkin report found substantially lower fertility rates in urban core areas, with their higher density housing than in the more dispersed suburbs, with their detached and semi detached housing.

But the consequences of stagnant or declining standards of living and rising poverty could be even greater. Harvard economist Benjamin Friedman has concluded that continuing improvements in the quality of life are required for social sustainability, in his *The Moral Consequences of Economic Growth*.<sup>36</sup>

Affordable housing is thus a critical component of economic sustainability.

Yet, the "conventional wisdom" in land-use policy favors urban containment strategies that severely ration land for development, materially raising its price. This is reflected in the much higher than historic norm prices that prevailed across the United Kingdom, Australia, and New Zealand, as well as Canadian markets (such as Vancouver, Toronto and Montréal) and United States markets (such as coastal California, Seattle, Portland, New York, Washington and Boston).

## Elderly Population per Working Population AGED 65 & OVER PER 100 WORKING AGE PERSONS

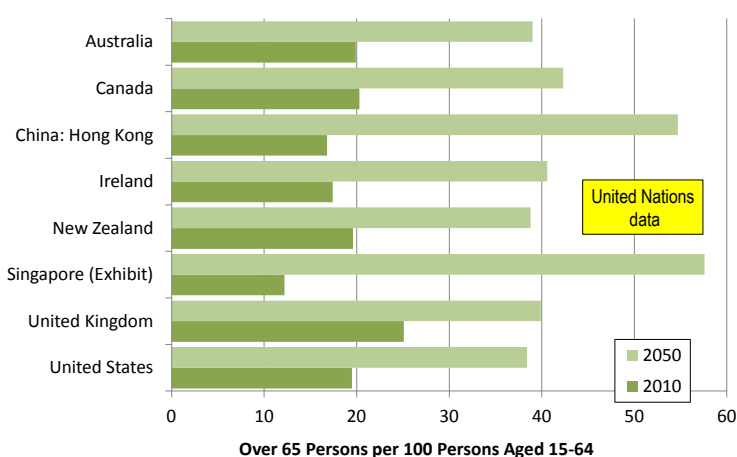


Figure 8

## 6.2: Shifting Perspectives

There are encouraging developments within the urban planning community.

New York University [Professor Shlomo Angel](#)<sup>37</sup> described the potential consequences of urban containment policies in his book *Planet of Cities*. He notes that strict measures to protect the natural environment by blocking urban expansion could "choke the supplies of affordable lands on the fringes of cities and limit the

<sup>34</sup> Such as in the intractable financial difficulties of the European Union and the perennial federal debt and state and local pension concerns in the United States.

<sup>35</sup> Gavin Jones, Paulin Tay-Straughan and Angelique Chan (2008), *Ultra Low Fertility in Pacific Asia: Trends, Causes and Policy Issues*.

<sup>36</sup> Friedman, B. M. (2005, *The Moral Consequences of Economic Growth*, Alfred A. Knopf.

<sup>37</sup> Author of the [introduction](#) to the 5th Annual Demographia Housing Affordability Survey.



abilities of ordinary people to house themselves." He decries the notion that "cities should simply be contained and enclosed by greenbelts or impenetrable urban growth boundaries" as "uninformed and utopian" because it makes sustainability "an absolute end that justifies all means to attain it." He warns that the "protection of our planet would likely come at the expense of the poor."

Recent research by Echenique , Hargreaves, Mitchell and Namdeoat at Cambridge University [questioned the "default" preference](#) for urban containment and noted that the urban transport benefits were largely overblown. This is an important development, since much of urban planning is [committed to outlawing](#) more liberal land-use policies.

*(Professor Shlomo Angel) ... decries the notion that "cities should simply be contained and enclosed by greenbelts or impenetrable urban growth boundaries" as "uninformed and utopian" because it makes sustainability "an absolute end that justifies all means to attain it." He warns that the "protection of our planet would likely come at the expense of the poor."*

[Research by Survey co-author Wendell Cox, published by the Land Transport Authority of Singapore](#) showed that higher urban densities, such as are sought by urban containment regulation, are associated with longer one-way work trip travel times and greater traffic congestion. Greater traffic congestion is also associated with [more intense local health consequences](#) from automobile related air pollution.

Urban policy needs a "reset." The emphasis should be shifted away from "designing" urban areas to facilitating a better standard of living for the people who live in them. In his epic *Civilization: The West and the Rest*, historian Niall Ferguson, in his *Civilization* notes that "The success of the civilization is measured not just in its aesthetic achievements but also, and surely more importantly in the duration and quality of life of its citizens." [This requires greater affluence and less poverty, both of which require more affordable housing.](#)



**SCHEDULE 1**  
**Demographia International Housing Affordability Rankings: All Markets**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
1	1	1	U.S.	Detroit, MI	1.5	\$75,700	\$49,800
1		1	U.S.	Evansville, IN	1.5	\$69,400	\$47,500
3		3	U.S.	Las Cruces, NM	1.9	\$71,400	\$36,700
4	2	4	U.S.	Atlanta, GA	2.0	\$106,700	\$53,500
4		4	U.S.	Flint, MI	2.0	\$85,000	\$41,500
4		4	U.S.	Lansing, MI	2.0	\$95,700	\$47,300
4		4	U.S.	Lubbock, TX	2.0	\$89,200	\$44,000
4		4	U.S.	Toledo, OH	2.0	\$86,900	\$42,800
4		4	U.S.	Youngstown, OH-PA	2.0	\$82,000	\$41,300
10		10	U.S.	Canton, OH	2.1	\$90,000	\$42,500
10		10	U.S.	Fort Wayne, IN	2.1	\$101,900	\$48,300
10		10	U.S.	Holland, MI	2.1	\$114,000	\$54,400
10		10	U.S.	Rockford, IL	2.1	\$97,000	\$45,900
10		10	U.S.	Saginaw, MI	2.1	\$85,000	\$41,100
10		10	U.S.	South Bend, IN-MI	2.1	\$94,900	\$44,600
16		16	U.S.	Appleton, WI	2.2	\$128,800	\$59,100
16		16	U.S.	Fayetteville, AR-MO	2.2	\$102,500	\$45,900
16		16	U.S.	Fort Smith, AR-OK	2.2	\$81,400	\$36,600
16		16	U.S.	Utica, NY	2.2	\$100,000	\$45,900
20		1	Canada	Frederickton, NB	2.3	\$150,400	\$65,000
20		1	Canada	Moncton, NB	2.3	\$141,800	\$61,900
20		20	U.S.	Augusta, GA	2.3	\$105,900	\$46,100
20		20	U.S.	Lakeland, FL	2.3	\$93,000	\$40,900
20		20	U.S.	Racine, WI	2.3	\$125,000	\$53,500
20		20	U.S.	Topeka, KS	2.3	\$110,800	\$47,200
26		24	U.S.	Binghamton, NY	2.4	\$112,600	\$47,100
26		24	U.S.	Clarksville, TN	2.4	\$105,000	\$43,400
26		24	U.S.	Columbus, GA-AL	2.4	\$98,300	\$40,200
26		24	U.S.	Grand Rapids, MI	2.4	\$120,700	\$50,400
26		24	U.S.	Ocala, FL	2.4	\$89,000	\$36,900
26		24	U.S.	Springfield, IL	2.4	\$123,400	\$52,100
26		24	U.S.	Wichita, KS	2.4	\$123,600	\$50,600
33		3	Canada	Saint John, NB	2.5	\$150,500	\$61,300
33		3	Canada	Windsor, ON	2.5	\$154,100	\$62,000
33		1	Ireland	Waterford	2.5	\$113,000	\$45,000
33		31	U.S.	Akron, OH	2.5	\$118,800	\$47,800
33	3	31	U.S.	Cincinnati, OH-KY-IN	2.5	\$134,400	\$53,200
33		31	U.S.	Davenport, IA-IL	2.5	\$121,500	\$47,900
33		31	U.S.	Dayton, OH	2.5	\$111,500	\$44,900
33		31	U.S.	Lafayette, IN	2.5	\$106,900	\$43,600
33		31	U.S.	Ogden, UT	2.5	\$153,000	\$61,900
33		31	U.S.	Palm Bay-Melbourne, FL	2.5	\$119,400	\$47,200
33		31	U.S.	Port St. Lucie, FL	2.5	\$114,000	\$45,300
33	3	31	U.S.	Rochester, NY	2.5	\$130,200	\$51,400
33	3	31	U.S.	Saint Louis, MO-IL	2.5	\$131,300	\$52,000
33		31	U.S.	Syracuse, NY	2.5	\$128,500	\$52,200



**SCHEDULE 1**  
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**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
33		31	U.S.	York, PA	2.5	\$143,900	\$56,500
48		43	U.S.	Cedar Rapids, IA	2.6	\$146,600	\$55,600
48	6	43	U.S.	Cleveland, OH	2.6	\$119,800	\$46,700
48		43	U.S.	Elkhart, IN	2.6	\$114,000	\$44,000
48		43	U.S.	Green Bay, WI	2.6	\$138,000	\$53,600
48		43	U.S.	Houma, LA	2.6	\$117,600	\$45,700
48	6	43	U.S.	Indianapolis, IN	2.6	\$134,000	\$51,700
48	6	43	U.S.	Jacksonville, FL	2.6	\$131,900	\$51,000
48		43	U.S.	Lake Charles, LA	2.6	\$108,600	\$41,500
48		43	U.S.	Longview, TX	2.6	\$112,400	\$43,600
48		43	U.S.	Mobile, AL	2.6	\$110,200	\$43,100
48		43	U.S.	Omaha, NE-IA	2.6	\$146,100	\$56,000
48		43	U.S.	Savannah, GA	2.6	\$121,800	\$47,600
48		43	U.S.	Scranton-Wilkes Barre, PA	2.6	\$115,000	\$44,600
48		43	U.S.	Springfield, MO	2.6	\$109,100	\$42,100
62		57	U.S.	Charleston, SC	2.7	\$138,900	\$51,100
62	9	57	U.S.	Columbus, OH	2.7	\$146,000	\$53,200
62		57	U.S.	Erie, PA	2.7	\$116,900	\$42,700
62		57	U.S.	Hagerstown, MD-WV	2.7	\$140,100	\$51,600
62		57	U.S.	Harrisburg, PA	2.7	\$153,000	\$56,300
62		57	U.S.	Kalamazoo, MI	2.7	\$121,000	\$45,300
62	9	57	U.S.	Kansas City, MO-KS	2.7	\$148,500	\$54,300
62	9	57	U.S.	Memphis, TN-MS-AR	2.7	\$124,600	\$46,100
62		57	U.S.	Peoria, IL	2.7	\$139,300	\$50,800
62	9	57	U.S.	Pittsburgh, PA	2.7	\$135,000	\$49,700
62		57	U.S.	Sioux Falls, SD	2.7	\$152,000	\$56,500
73		5	Canada	Thunder Bay, ON	2.8	\$176,400	\$62,500
73		5	Canada	Trois-Rivieres, QC	2.8	\$134,000	\$48,400
73	13	68	U.S.	Buffalo, NY	2.8	\$136,200	\$47,900
73		68	U.S.	Cape Coral-Fort Myers, FL	2.8	\$127,000	\$46,000
73		68	U.S.	Des Moines, IA	2.8	\$165,500	\$59,200
73		68	U.S.	Duluth, MN	2.8	\$130,000	\$46,900
73		68	U.S.	Gulfport, MS	2.8	\$108,200	\$38,900
73	13	68	U.S.	Las Vegas, NV	2.8	\$137,900	\$49,000
73		68	U.S.	Lincoln, NE	2.8	\$142,100	\$50,100
73	13	68	U.S.	Minneapolis-St. Paul, MN-WI	2.8	\$181,500	\$64,400
73		68	U.S.	Montgomery, AL	2.8	\$129,900	\$46,500
73		68	U.S.	Reading, PA	2.8	\$151,200	\$53,200
85		7	Canada	Charlottetown, PEI	2.9	\$175,000	\$59,600
85		7	Canada	Saguenay, QC	2.9	\$165,800	\$56,400
85		78	U.S.	Amarillo, TX	2.9	\$140,000	\$48,100
85		78	U.S.	Beaumont, TX	2.9	\$128,400	\$43,900
85	16	78	U.S.	Dallas-Fort Worth, TX	2.9	\$165,200	\$56,500
85		78	U.S.	Deltona-Daytona Beach, FL	2.9	\$111,100	\$38,900
85		78	U.S.	Kingsport, TN-VA	2.9	\$111,700	\$38,400
85	16	78	U.S.	Louisville, KY-IN	2.9	\$141,100	\$48,400
85		78	U.S.	Lynchburg, VA	2.9	\$136,200	\$47,500



**SCHEDULE 1**  
**Demographia International Housing Affordability Rankings: All Markets**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
85		78	U.S.	Macon, GA	2.9	\$107,500	\$37,500
85	16	78	U.S.	Orlando, FL	2.9	\$135,400	\$46,900
96		87	U.S.	Fargo, ND-MN	3.0	\$157,600	\$53,300
96		87	U.S.	Greensboro, NC	3.0	\$125,900	\$42,100
96		87	U.S.	Hickory, NC	3.0	\$116,900	\$39,600
96	19	87	U.S.	Houston, TX	3.0	\$167,500	\$55,800
96		87	U.S.	Lafayette, LA	3.0	\$131,200	\$44,100
96		87	U.S.	Lexington, KY	3.0	\$145,800	\$47,900
96		87	U.S.	Little Rock, AR	3.0	\$144,100	\$47,400
96		87	U.S.	Pensacola, FL	3.0	\$140,900	\$46,700
96	19	87	U.S.	Phoenix, AZ	3.0	\$153,400	\$50,900
96		87	U.S.	Tulsa, OK	3.0	\$138,900	\$46,900
96		87	U.S.	Tuscaloosa, AL	3.0	\$125,100	\$41,100
96		87	U.S.	Vallejo, CA	3.0	\$196,900	\$64,900
96		87	U.S.	Winston-Salem, NC	3.0	\$129,100	\$43,100
96		87	U.S.	Yuma, AZ	3.0	\$116,000	\$39,000
110		2	Ireland	Limerick	3.1	\$150,000	\$49,000
110		101	U.S.	Chattanooga, TN-GA	3.1	\$132,000	\$42,900
110		101	U.S.	Kennewick, WA	3.1	\$184,700	\$60,200
110		101	U.S.	Killeen, TX	3.1	\$145,000	\$47,200
110		101	U.S.	Lancaster, PA	3.1	\$168,000	\$54,300
110		101	U.S.	McAllen, TX	3.1	\$97,000	\$31,600
110	21	101	U.S.	Oklahoma City, OK	3.1	\$147,600	\$47,800
110	21	101	U.S.	Raleigh, NC	3.1	\$188,200	\$60,200
110		101	U.S.	Spartanburg, SC	3.1	\$125,700	\$40,800
110	21	101	U.S.	Tampa-St. Petersburg, FL	3.1	\$138,000	\$44,600
120		9	Canada	Sudbury, ON	3.2	\$211,500	\$65,900
120		3	Ireland	Galway	3.2	\$155,000	\$48,000
120		110	U.S.	Ann Arbor, MI	3.2	\$184,000	\$57,600
120		110	U.S.	Bakersfield, CA	3.2	\$149,000	\$46,000
120		110	U.S.	Boise City ID	3.2	\$146,000	\$45,800
120		110	U.S.	Brownsville, TX	3.2	\$104,000	\$32,600
120	24	110	U.S.	Charlotte, NC-SC	3.2	\$165,400	\$51,500
120	24	110	U.S.	Chicago, IL-IN-WI	3.2	\$184,400	\$58,200
120		110	U.S.	Columbia, SC	3.2	\$145,400	\$46,000
120		110	U.S.	Florence, SC	3.2	\$128,200	\$40,600
120		110	U.S.	Knoxville, TN	3.2	\$143,200	\$45,300
120		110	U.S.	Manchester, NH	3.2	\$215,500	\$67,700
120		110	U.S.	Merced, CA	3.2	\$131,700	\$40,700
120	24	110	U.S.	Nashville, TN	3.2	\$163,700	\$50,800
120		110	U.S.	Norwich, CT	3.2	\$208,000	\$65,900
120	24	110	U.S.	Sacramento, CA	3.2	\$181,300	\$56,100
120		110	U.S.	Tallahassee, FL	3.2	\$144,400	\$44,700
120		110	U.S.	Visalia, CA	3.2	\$132,000	\$41,900
138		126	U.S.	Charleston, WV	3.3	\$138,900	\$41,700
138		126	U.S.	Corpus Christi, TX	3.3	\$146,600	\$45,100
138		126	U.S.	Huntsville, AL	3.3	\$175,900	\$52,600



**SCHEDULE 1**  
**Demographia International Housing Affordability Rankings: All Markets**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
138		126	U.S.	Lake Havasu City, AZ	3.3	\$120,000	\$36,600
138		126	U.S.	Modesto, CA	3.3	\$147,500	\$44,800
138		126	U.S.	Roanoke, VA	3.3	\$168,000	\$51,100
138	28	126	U.S.	San Antonio, TX	3.3	\$161,900	\$49,500
138		126	U.S.	Stockton, CA	3.3	\$172,000	\$51,700
146		10	Canada	Brantford, ON	3.4	\$219,600	\$64,800
146		10	Canada	London, ON	3.4	\$211,200	\$63,000
146		4	Ireland	Cork	3.4	\$165,000	\$49,000
146		134	U.S.	Baton Rouge, LA	3.4	\$168,000	\$49,200
146	29	134	U.S.	Birmingham, AL	3.4	\$157,500	\$46,400
146		134	U.S.	Greenville, SC	3.4	\$156,100	\$45,300
146		134	U.S.	Jackson, MS	3.4	\$152,600	\$44,500
146		134	U.S.	Poughkeepsie, NY	3.4	\$229,000	\$67,800
146		134	U.S.	Reno-Sparks, NV	3.4	\$177,300	\$51,600
146	29	134	U.S.	Richmond, VA	3.4	\$187,000	\$55,700
146	29	134	U.S.	Virginia Beach-Norfolk, VA-NC	3.4	\$198,000	\$58,300
146		134	U.S.	Waco, TX	3.4	\$141,000	\$41,200
146		134	U.S.	Worcester, MA	3.4	\$212,100	\$61,500
159		12	Canada	Barrie, ON	3.5	\$263,300	\$75,400
159		12	Canada	Halifax, NS	3.5	\$232,200	\$66,000
159		12	Canada	Kingston, ON	3.5	\$234,500	\$66,600
159	32	12	Canada	Ottawa-Gatineau, ON-QC	3.5	\$287,100	\$81,100
159		12	Canada	St. Catharines-Niagara, ON	3.5	\$212,500	\$59,900
159		144	U.S.	Albany, NY	3.5	\$209,800	\$59,600
159		144	U.S.	Allentown, PA-NJ	3.5	\$194,000	\$55,100
159		144	U.S.	Champaign, IL	3.5	\$149,400	\$43,000
159		144	U.S.	El Paso, TX	3.5	\$142,100	\$40,200
159		144	U.S.	Fresno, CA	3.5	\$153,000	\$43,500
159		144	U.S.	Madison, WI	3.5	\$210,600	\$60,700
159	32	144	U.S.	New Orleans, LA	3.5	\$157,000	\$44,700
159		144	U.S.	Olympia, WA	3.5	\$211,000	\$61,100
159		144	U.S.	Salem, OR	3.5	\$163,400	\$46,400
159		144	U.S.	Spokane, WA	3.5	\$175,200	\$49,900
159		144	U.S.	Tucson, AZ	3.5	\$155,300	\$44,800
175		17	Canada	St. John's, NL	3.6	\$255,000	\$70,800
175		17	Canada	Winnipeg, MB	3.6	\$220,400	\$61,900
175	34	5	Ireland	Dublin	3.6	\$203,000	\$56,000
175		1	U.K.	Falkirk	3.6	\$100,000	\$27,700
175	34	155	U.S.	Austin, TX	3.6	\$207,900	\$57,700
175		155	U.S.	Charlottesville, VA	3.6	\$209,700	\$57,600
175	34	155	U.S.	Hartford, CT	3.6	\$236,000	\$65,600
175		155	U.S.	Huntington, WV-KY-OH	3.6	\$136,300	\$37,500
175		155	U.S.	Myrtle Beach, SC	3.6	\$142,500	\$39,400
175		155	U.S.	Prescott, AZ	3.6	\$153,000	\$42,400
175		155	U.S.	Provo, UT	3.6	\$212,000	\$59,400
175		155	U.S.	Tyler, TX	3.6	\$160,000	\$44,500
187	37	19	Canada	Edmonton, AB	3.7	\$294,400	\$78,700



**SCHEDULE 1**  
**Demographia International Housing Affordability Rankings: All Markets**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
187		19	Canada	Oshawa, ON	3.7	\$296,900	\$80,500
187		2	U.K.	Dundee	3.7	\$109,100	\$29,700
187		163	U.S.	Anchorage, AK	3.7	\$270,000	\$72,900
187		163	U.S.	Colorado Springs, CO	3.7	\$206,100	\$55,800
187		163	U.S.	Fayetteville, NC	3.7	\$161,300	\$43,700
187		163	U.S.	Gainesville, FL	3.7	\$147,300	\$40,200
187		163	U.S.	Greeley, CO	3.7	\$191,000	\$51,900
187	37	163	U.S.	Riverside-San Bernardino, CA	3.7	\$193,900	\$52,900
187	37	163	U.S.	Salt Lake City, UT	3.7	\$214,000	\$58,000
187		163	U.S.	Sarasota-Bradenton, FL	3.7	\$171,700	\$46,300
187		163	U.S.	Shreveport, LA	3.7	\$163,100	\$44,400
187		163	U.S.	Yakima, WA	3.7	\$156,700	\$42,900
200		21	Canada	Guelph, ON	3.8	\$284,100	\$74,200
200		21	Canada	Regina, SK	3.8	\$266,000	\$70,900
200		173	U.S.	Albuquerque, NM	3.8	\$172,900	\$45,800
200	40	173	U.S.	Baltimore, MD	3.8	\$254,200	\$66,600
200		173	U.S.	Bremerton, WA	3.8	\$235,000	\$61,300
200		173	U.S.	Durham, NC	3.8	\$190,400	\$49,500
200		173	U.S.	Laredo, TX	3.8	\$141,000	\$36,700
200		173	U.S.	New Haven, CT	3.8	\$227,200	\$60,200
200	40	173	U.S.	Philadelphia, PA-NJ-DE-MD	3.8	\$223,800	\$59,300
200		173	U.S.	Springfield, MA	3.8	\$192,100	\$51,100
210		23	Canada	Kitchener, ON	3.9	\$282,000	\$71,900
210		23	Canada	Quebec, QC	3.9	\$232,800	\$60,300
210		23	Canada	Sherbrooke, QC	3.9	\$192,100	\$49,400
210	42	181	U.S.	Milwaukee, WI	3.9	\$199,300	\$51,500
210		181	U.S.	Naples, FL	3.9	\$198,000	\$51,400
210		181	U.S.	Portland, ME	3.9	\$224,200	\$56,800
210		181	U.S.	Trenton, NJ	3.9	\$289,900	\$75,100
217		185	U.S.	Chico, CA	4.0	\$160,000	\$39,800
217	43	185	U.S.	Providence, RI-MA	4.0	\$218,900	\$54,400
217		185	U.S.	Wilmington, NC	4.0	\$176,500	\$44,000
220		26	Canada	Peterborough, ON	4.1	\$242,800	\$58,600
220	44	3	U.K.	Leeds & West Yorkshire	4.1	\$125,000	\$30,700
220		188	U.S.	Atlantic City, NJ	4.1	\$214,000	\$51,700
220		188	U.S.	Fort Collins, CO	4.1	\$229,800	\$56,100
220	44	188	U.S.	Washington, DC-VA-MD-WV	4.1	\$362,300	\$88,100
225		191	U.S.	Asheville, NC	4.2	\$179,000	\$42,700
226	46	27	Canada	Calgary, AB	4.3	\$358,400	\$83,900
226		27	Canada	Saskatoon, SK	4.3	\$283,200	\$66,500
226	46	192	U.S.	Denver, CO	4.3	\$260,300	\$60,200
226	46	192	U.S.	Portland, OR-WA	4.3	\$239,200	\$55,800
230		1	N.Z.	Palmerston North-Manawatu	4.4	\$240,700	\$55,100
230		4	U.K.	Belfast	4.4	\$123,700	\$28,400
230		194	U.S.	Eugene, OR	4.4	\$180,000	\$41,300
233		1	Australia	Shepparton, VIC	4.5	\$230,000	\$51,400
233		2	N.Z.	Napier-Hastings	4.5	\$254,700	\$57,100



**SCHEDULE 1**  
**Demographia International Housing Affordability Rankings: All Markets**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
233	49	5	U.K.	Derby & Derbyshire	4.5	\$135,000	\$29,800
233		195	U.S.	Bellingham, WA	4.5	\$235,000	\$52,400
233		195	U.S.	Medford, OR	4.5	\$178,000	\$39,800
233	49	195	U.S.	Miami-West Palm Beach, FL	4.5	\$209,200	\$46,200
239		2	Australia	Mildura, VIC	4.6	\$213,500	\$46,900
239		29	Canada	Hamilton, ON	4.6	\$315,400	\$69,300
239		6	U.K.	Swansea	4.6	\$120,000	\$26,100
239		198	U.S.	College Station, TX	4.6	\$166,000	\$36,000
243		3	N.Z.	Hamilton-Waikato	4.7	\$299,500	\$63,900
243	51	7	U.K.	Glasgow	4.7	\$117,600	\$25,100
243		199	U.S.	Burlington, VT	4.7	\$288,100	\$61,800
246		3	Australia	Albury-Wodonga, NSW-VIC	4.8	\$268,000	\$55,600
246		3	Australia	Bunbury, WA	4.8	\$367,000	\$75,700
246		3	Australia	Townsville, QLD	4.8	\$355,000	\$74,500
246		8	U.K.	Cardiff	4.8	\$135,000	\$28,300
246	52	8	U.K.	Hull & Humber	4.8	\$130,000	\$27,000
246	52	8	U.K.	Manchester & Greater Manchester	4.8	\$125,000	\$26,200
246	52	200	U.S.	Seattle, WA	4.8	\$310,000	\$65,200
253		6	Australia	Karratha, WA	4.9	\$775,000	\$156,700
253		6	Australia	Rockhampton, QLD	4.9	\$317,400	\$65,000
253		6	Australia	Wagga Wagga, NSW	4.9	\$298,000	\$61,000
253	55	11	U.K.	Blackpool & Lancashire	4.9	\$124,500	\$25,300
253		11	U.K.	Middlesbrough & Durham	4.9	\$115,700	\$23,800
253		11	U.K.	Newport	4.9	\$142,000	\$29,100
253		11	U.K.	Perth	4.9	\$157,500	\$32,000
260		9	Australia	Gladstone, QLD	5.0	\$455,000	\$91,900
260	56	15	U.K.	Nottingham & Nottinghamshire	5.0	\$127,700	\$25,600
260	56	15	U.K.	Stoke on Trent & Staffordshire	5.0	\$135,000	\$26,900
263		10	Australia	Canberra, ACT-NSW	5.1	\$513,900	\$101,300
263	58	30	Canada	Montréal, QC	5.1	\$287,300	\$56,700
263		4	N.Z.	Dunedin	5.1	\$251,600	\$49,800
263		17	U.K.	Aberdeen	5.1	\$172,000	\$33,700
263	58	17	U.K.	Sheffield & South Yorkshire	5.1	\$120,000	\$23,400
263		201	U.S.	Bridgeport, CT	5.1	\$402,000	\$78,600
269		11	Australia	Bathurst, NSW	5.2	\$317,600	\$60,800
269		11	Australia	Darwin, NT	5.2	\$504,000	\$97,400
269		11	Australia	Tamworth, NSW	5.2	\$273,800	\$52,400
269	60	19	U.K.	Birmingham & West Midlands	5.2	\$130,000	\$24,900
269		19	U.K.	Leicester & Leicestershire	5.2	\$149,700	\$28,800
269	60	19	U.K.	Newcastle & Tyneside	5.2	\$125,000	\$23,900
269		19	U.K.	Northampton & Northamptonshire	5.2	\$152,000	\$29,100
269	60	202	U.S.	Boston, MA-NH	5.2	\$365,800	\$70,600
277		14	Australia	Launceston, TAS	5.3	\$265,000	\$50,300
277		14	Australia	Mackay, QLD	5.3	\$445,000	\$84,200
277		14	Australia	Orange, NSW	5.3	\$327,800	\$62,100
277		14	Australia	Toowoomba, QLD	5.3	\$299,000	\$56,100
277	63	23	U.K.	Liverpool & Merseyside	5.3	\$125,000	\$23,600



**SCHEDULE 1**  
**Demographia International Housing Affordability Rankings: All Markets**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
282		18	Australia	Ballarat, VIC	5.4	\$285,000	\$52,400
282		5	N.Z.	Wellington	5.4	\$383,000	\$70,600
282		24	U.K.	Edinburgh	5.4	\$152,600	\$28,100
282		203	U.S.	Barnstable Town, MA	5.4	\$311,900	\$57,600
286		204	U.S.	Boulder, CO	5.5	\$382,100	\$69,800
287		19	Australia	Alice Springs, NT	5.6	\$511,700	\$91,300
287		19	Australia	Cairns, QLD	5.6	\$350,000	\$62,000
287		19	Australia	Geraldton, WA	5.6	\$361,300	\$64,100
290		22	Australia	Bendigo, VIC	5.7	\$301,000	\$52,700
290	64	25	U.K.	Bristol-Bath	5.7	\$179,000	\$31,500
290		25	U.K.	Warwickshire	5.7	\$182,000	\$31,800
290		205	U.S.	Oxnard-Ventura, CA	5.7	\$432,100	\$75,900
290		205	U.S.	Salinas, CA	5.7	\$309,700	\$54,100
295	65	23	Australia	Brisbane, QLD	5.8	\$430,000	\$74,000
296	66	24	Australia	Perth, WA	5.9	\$470,000	\$79,600
296	66	31	Canada	Toronto, ON	5.9	\$430,200	\$73,300
296		6	N.Z.	Taraunga-Western Bay of Plenty	5.9	\$349,100	\$59,600
299		25	Australia	Hobart, TAS	6.0	\$340,000	\$56,200
299		27	U.K.	Warrington & Cheshire	6.0	\$181,000	\$30,200
299		207	U.S.	Santa Rosa, CA	6.0	\$369,000	\$62,000
302		26	Australia	Newcastle-Maitland, NSW	6.1	\$378,900	\$62,300
303		28	U.K.	Telford & Shropshire	6.2	\$162,500	\$26,300
303	68	208	U.S.	Los Angeles, CA	6.2	\$355,700	\$57,600
303	68	208	U.S.	New York, NY-NJ-PA	6.2	\$394,700	\$63,400
306		32	Canada	Victoria, BC	6.3	\$405,500	\$64,000
307		27	Australia	Port Hedland, WA	6.4	\$980,000	\$153,800
307	70	210	U.S.	San Diego, CA	6.4	\$386,300	\$60,500
309	71	28	Australia	Adelaide, SA	6.5	\$385,000	\$59,000
309		28	Australia	Bundaberg, QLD	6.5	\$290,000	\$44,900
309		28	Australia	Geelong, VIC	6.5	\$362,000	\$55,600
312		7	N.Z.	Christchurch	6.6	\$358,800	\$54,200
313		31	Australia	Fraser Coast, QLD	6.7	\$280,000	\$41,600
313	72	8	N.Z.	Auckland	6.7	\$506,800	\$75,200
313		29	U.K.	Swindon & Wiltshire	6.7	\$185,000	\$27,700
316		33	Canada	Abbotsford, BC	6.8	\$429,300	\$63,200
316	73	30	U.K.	London Exurbs (E & SE England)	6.8	\$219,500	\$32,100
318		34	Canada	Kelowna, BC	6.9	\$394,200	\$56,800
319		32	Australia	Mandurah, WA	7.0	\$380,000	\$54,100
320	74	31	U.K.	Plymouth & Devon	7.3	\$180,000	\$24,800
321	75	33	Australia	Melbourne, VIC	7.5	\$530,000	\$70,700
321		33	Australia	Wollongong, NSW	7.5	\$443,800	\$59,500
321		211	U.S.	San Luis Obispo, CA	7.5	\$411,400	\$55,100
324		35	Australia	Gold Coast, QLD-NSW	7.6	\$458,000	\$60,000
325	76	32	U.K.	London (GLA)	7.8	\$310,000	\$39,600
325	76	212	U.S.	San Francisco-Oakland, CA	7.8	\$568,000	\$73,200
327	78	213	U.S.	San Jose, CA	7.9	\$673,000	\$85,400
327		213	U.S.	Santa Barbara, CA	7.9	\$485,600	\$61,500



## SCHEDULE 1

### Demographia International Housing Affordability Rankings: All Markets Using Median Multiple (Median House Price/Median Household Income) 2012 – 3<sup>rd</sup> Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
329		36	Australia	Coff's Harbour, NSW	8.0	\$383,600	\$48,100
329		36	Australia	Sunshine Coast, QLD	8.0	\$430,000	\$53,900
331		215	U.S.	Santa Cruz, CA	8.2	\$523,300	\$63,600
332	79	38	Australia	Sydney, NSW	8.3	\$642,700	\$77,400
333		39	Australia	Port Macquarie, NSW	8.6	\$387,200	\$44,800
334		33	U.K.	Bournemouth & Dorsett	8.7	\$215,500	\$24,900
335		216	U.S.	Honolulu, HI	9.3	\$627,200	\$67,200
336	80	35	Canada	Vancouver, BC	9.5	\$621,300	\$65,200
337	81	1	China	Hong Kong	13.5	\$3,810,000	\$282,000
Financial data in local currency.							



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
Using Median Multiple (Median House Price/Median Household Income)  
2012 – 3<sup>rd</sup> Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
309	71	28	Australia	Adelaide, SA	6.5	\$385,000	\$59,000
246		3	Australia	Albury-Wodonga, NSW-VIC	4.8	\$268,000	\$55,600
287		19	Australia	Alice Springs, NT	5.6	\$511,700	\$91,300
282		18	Australia	Ballarat, VIC	5.4	\$285,000	\$52,400
269		11	Australia	Bathurst, NSW	5.2	\$317,600	\$60,800
290		22	Australia	Bendigo, VIC	5.7	\$301,000	\$52,700
295	65	23	Australia	Brisbane, QLD	5.8	\$430,000	\$74,000
246		3	Australia	Bunbury, WA	4.8	\$367,000	\$75,700
309		28	Australia	Bundaberg, QLD	6.5	\$290,000	\$44,900
287		19	Australia	Cairns, QLD	5.6	\$350,000	\$62,000
263		10	Australia	Canberra, ACT-NSW	5.1	\$513,900	\$101,300
329		36	Australia	Coff's Harbour, NSW	8.0	\$383,600	\$48,100
269		11	Australia	Darwin, NT	5.2	\$504,000	\$97,400
313		31	Australia	Fraser Coast, QLD	6.7	\$280,000	\$41,600
309		28	Australia	Geelong, VIC	6.5	\$362,000	\$55,600
287		19	Australia	Geraldton, WA	5.6	\$361,300	\$64,100
260		9	Australia	Gladstone, QLD	5.0	\$455,000	\$91,900
324		35	Australia	Gold Coast, QLD-NSW	7.6	\$458,000	\$60,000
299		25	Australia	Hobart, TAS	6.0	\$340,000	\$56,200
253		6	Australia	Karratha, WA	4.9	\$775,000	\$156,700
277		14	Australia	Launceston, TAS	5.3	\$265,000	\$50,300
277		14	Australia	Mackay, QLD	5.3	\$445,000	\$84,200
319		32	Australia	Mandurah, WA	7.0	\$380,000	\$54,100
321	75	33	Australia	Melbourne, VIC	7.5	\$530,000	\$70,700
239		2	Australia	Mildura, VIC	4.6	\$213,500	\$46,900
302		26	Australia	Newcastle-Maitland, NSW	6.1	\$378,900	\$62,300
277		14	Australia	Orange, NSW	5.3	\$327,800	\$62,100
296	66	24	Australia	Perth, WA	5.9	\$470,000	\$79,600
307		27	Australia	Port Hedland, WA	6.4	\$980,000	\$153,800
333		39	Australia	Port Macquarie, NSW	8.6	\$387,200	\$44,800
253		6	Australia	Rockhampton, QLD	4.9	\$317,400	\$65,000
233		1	Australia	Shepparton, VIC	4.5	\$230,000	\$51,400
329		36	Australia	Sunshine Coast, QLD	8.0	\$430,000	\$53,900
332	79	38	Australia	Sydney, NSW	8.3	\$642,700	\$77,400
269		11	Australia	Tamworth, NSW	5.2	\$273,800	\$52,400
277		14	Australia	Toowoomba, QLD	5.3	\$299,000	\$56,100
246		3	Australia	Townsville, QLD	4.8	\$355,000	\$74,500
253		6	Australia	Wagga Wagga, NSW	4.9	\$298,000	\$61,000
321		33	Australia	Wollongong, NSW	7.5	\$443,800	\$59,500
				Median	5.6		
316		33	Canada	Abbotsford, BC	6.8	\$429,300	\$63,200
159		12	Canada	Barrie, ON	3.5	\$263,300	\$75,400
146		10	Canada	Brantford, ON	3.4	\$219,600	\$64,800
226	46	27	Canada	Calgary, AB	4.3	\$358,400	\$83,900
85		7	Canada	Charlottetown, PEI	2.9	\$175,000	\$59,600



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
187	37	19	Canada	Edmonton, AB	3.7	\$294,400	\$78,700
20		1	Canada	Frederickton, NB	2.3	\$150,400	\$65,000
200		21	Canada	Guelph, ON	3.8	\$284,100	\$74,200
159		12	Canada	Halifax, NS	3.5	\$232,200	\$66,000
239		29	Canada	Hamilton, ON	4.6	\$315,400	\$69,300
318		34	Canada	Kelowna, BC	6.9	\$394,200	\$56,800
159		12	Canada	Kingston, ON	3.5	\$234,500	\$66,600
210		23	Canada	Kitchener, ON	3.9	\$282,000	\$71,900
146		10	Canada	London, ON	3.4	\$211,200	\$63,000
20		1	Canada	Moncton, NB	2.3	\$141,800	\$61,900
263	58	30	Canada	Montréal, QC	5.1	\$287,300	\$56,700
187		19	Canada	Oshawa, ON	3.7	\$296,900	\$80,500
159	32	12	Canada	Ottawa-Gatineau, ON-QC	3.5	\$287,100	\$81,100
220		26	Canada	Peterborough, ON	4.1	\$242,800	\$58,600
210		23	Canada	Quebec, QC	3.9	\$232,800	\$60,300
200		21	Canada	Regina, SK	3.8	\$266,000	\$70,900
85		7	Canada	Saguenay, QC	2.9	\$165,800	\$56,400
33		3	Canada	Saint John, NB	2.5	\$150,500	\$61,300
175		17	Canada	St. John's, NL	3.6	\$255,000	\$70,800
226		27	Canada	Saskatoon, SK	4.3	\$283,200	\$66,500
159		12	Canada	St. Catharines-Niagara, ON	3.5	\$212,500	\$59,900
210		23	Canada	Sherbrooke, QC	3.9	\$192,100	\$49,400
120		9	Canada	Sudbury, ON	3.2	\$211,500	\$65,900
73		5	Canada	Thunder Bay, ON	2.8	\$176,400	\$62,500
296	66	31	Canada	Toronto, ON	5.9	\$430,200	\$73,300
73		5	Canada	Trois-Rivieres, QC	2.8	\$134,000	\$48,400
336	80	35	Canada	Vancouver, BC	9.5	\$621,300	\$65,200
306		32	Canada	Victoria, BC	6.3	\$405,500	\$64,000
33		3	Canada	Windsor, ON	2.5	\$154,100	\$62,000
175		17	Canada	Winnipeg, MB	3.6	\$220,400	\$61,900
				Median	3.6		
337	81	1	China	Hong Kong	13.5	\$3,810,000	\$282,000
146		4	Ireland	Cork	3.4	€165,000	€49,000
175	34	5	Ireland	Dublin	3.6	€203,000	€56,000
120		3	Ireland	Galway	3.2	€155,000	€48,000
110		2	Ireland	Limerick	3.1	€150,000	€49,000
33		1	Ireland	Waterford	2.5	€113,000	€45,000
				Median	3.2		
313	72	8	N.Z.	Auckland	6.7	\$506,800	\$75,200
312		7	N.Z.	Christchurch	6.6	\$358,800	\$54,200
263		4	N.Z.	Dunedin	5.1	\$251,600	\$49,800
243		3	N.Z.	Hamilton-Waikato	4.7	\$299,500	\$63,900
233		2	N.Z.	Napier-Hastings	4.5	\$254,700	\$57,100
230		1	N.Z.	Palmerston North-Manawatu	4.4	\$240,700	\$55,100



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
296		6	N.Z.	Taraunga-Western Bay of Plenty	5.9	\$349,100	\$59,600
282		5	N.Z.	Wellington	5.4	\$383,000	\$70,600
				Median	5.3		
263		17	U.K.	Aberdeen	5.1	£172,000	£33,700
230		4	U.K.	Belfast	4.4	£123,700	£28,400
269	60	19	U.K.	Birmingham & West Midlands	5.2	£130,000	£24,900
253	55	11	U.K.	Blackpool & Lancashire	4.9	£124,500	£25,300
334		33	U.K.	Bournemouth & Dorset	8.7	£215,500	£24,900
290	64	25	U.K.	Bristol-Bath	5.7	£179,000	£31,500
246		8	U.K.	Cardiff	4.8	£135,000	£28,300
233	49	5	U.K.	Derby & Derbyshire	4.5	£135,000	£29,800
187		2	U.K.	Dundee	3.7	£109,100	£29,700
282		24	U.K.	Edinburgh	5.4	£152,600	£28,100
175		1	U.K.	Falkirk	3.6	£100,000	£27,700
243	51	7	U.K.	Glasgow	4.7	£117,600	£25,100
246	52	8	U.K.	Hull & Humber	4.8	£130,000	£27,000
220	44	3	U.K.	Leeds & West Yorkshire	4.1	£125,000	£30,700
269		19	U.K.	Leicester & Leicestershire	5.2	£149,700	£28,800
277	63	23	U.K.	Liverpool & Merseyside	5.3	£125,000	£23,600
325	76	32	U.K.	London (GLA)	7.8	£310,000	£39,600
316	73	30	U.K.	London Exurbs (E & SE England)	6.8	£219,500	£32,100
246	52	8	U.K.	Manchester & Greater Manchester	4.8	£125,000	£26,200
253		11	U.K.	Middlesborough & Durham	4.9	£115,700	£23,800
269	60	19	U.K.	Newcastle & Tyneside	5.2	£125,000	£23,900
253		11	U.K.	Newport	4.9	£142,000	£29,100
269		19	U.K.	Northampton & Northamptonshire	5.2	£152,000	£29,100
260	56	15	U.K.	Nottingham & Nottinghamshire	5.0	£127,700	£25,600
253		11	U.K.	Perth	4.9	£157,500	£32,000
320	74	31	U.K.	Plymouth & Devon	7.3	£180,000	£24,800
263	58	17	U.K.	Sheffield & South Yorkshire	5.1	£120,000	£23,400
260	56	15	U.K.	Stoke on Trent & Staffordshire	5.0	£135,000	£26,900
239		6	U.K.	Swansea	4.6	£120,000	£26,100
313		29	U.K.	Swindon & Wiltshire	6.7	£185,000	£27,700
303		28	U.K.	Telford & Shropshire	6.2	£162,500	£26,300
299		27	U.K.	Warrington & Cheshire	6.0	£181,000	£30,200
290		25	U.K.	Warwickshire	5.7	£182,000	£31,800
				Median	5.1		
33		31	U.S.	Akron, OH	2.5	\$118,800	\$47,800
159		144	U.S.	Albany, NY	3.5	\$209,800	\$59,600
200		173	U.S.	Albuquerque, NM	3.8	\$172,900	\$45,800
159		144	U.S.	Allentown, PA-NJ	3.5	\$194,000	\$55,100
85		78	U.S.	Amarillo, TX	2.9	\$140,000	\$48,100
187		163	U.S.	Anchorage, AK	3.7	\$270,000	\$72,900
120		110	U.S.	Ann Arbor, MI	3.2	\$184,000	\$57,600



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
16		16	U.S.	Appleton, WI	2.2	\$128,800	\$59,100
225		191	U.S.	Asheville, NC	4.2	\$179,000	\$42,700
4	2	4	U.S.	Atlanta, GA	2.0	\$106,700	\$53,500
220		188	U.S.	Atlantic City, NJ	4.1	\$214,000	\$51,700
20		20	U.S.	Augusta, GA	2.3	\$105,900	\$46,100
175	34	155	U.S.	Austin, TX	3.6	\$207,900	\$57,700
120		110	U.S.	Bakersfield, CA	3.2	\$149,000	\$46,000
200	40	173	U.S.	Baltimore, MD	3.8	\$254,200	\$66,600
282		203	U.S.	Barnstable Town, MA	5.4	\$311,900	\$57,600
146		134	U.S.	Baton Rouge, LA	3.4	\$168,000	\$49,200
85		78	U.S.	Beaumont, TX	2.9	\$128,400	\$43,900
233		195	U.S.	Bellingham, WA	4.5	\$235,000	\$52,400
26		24	U.S.	Binghamton, NY	2.4	\$112,600	\$47,100
146	29	134	U.S.	Birmingham, AL	3.4	\$157,500	\$46,400
120		110	U.S.	Boise City ID	3.2	\$146,000	\$45,800
269	60	202	U.S.	Boston, MA-NH	5.2	\$365,800	\$70,600
286		204	U.S.	Boulder, CO	5.5	\$382,100	\$69,800
200		173	U.S.	Bremerton, WA	3.8	\$235,000	\$61,300
263		201	U.S.	Bridgeport, CT	5.1	\$402,000	\$78,600
120		110	U.S.	Brownsville, TX	3.2	\$104,000	\$32,600
73	13	68	U.S.	Buffalo, NY	2.8	\$136,200	\$47,900
243		199	U.S.	Burlington, VT	4.7	\$288,100	\$61,800
10		10	U.S.	Canton, OH	2.1	\$90,000	\$42,500
73		68	U.S.	Cape Coral-Fort Myers, FL	2.8	\$127,000	\$46,000
48		43	U.S.	Cedar Rapids, IA	2.6	\$146,600	\$55,600
159		144	U.S.	Champaign, IL	3.5	\$149,400	\$43,000
62		57	U.S.	Charleston, SC	2.7	\$138,900	\$51,100
138		126	U.S.	Charleston, WV	3.3	\$138,900	\$41,700
120	24	110	U.S.	Charlotte, NC-SC	3.2	\$165,400	\$51,500
175		155	U.S.	Charlottesville, VA	3.6	\$209,700	\$57,600
110		101	U.S.	Chattanooga, TN-GA	3.1	\$132,000	\$42,900
120	24	110	U.S.	Chicago, IL-IN-WI	3.2	\$184,400	\$58,200
217		185	U.S.	Chico, CA	4.0	\$160,000	\$39,800
33	3	31	U.S.	Cincinnati, OH-KY-IN	2.5	\$134,400	\$53,200
26		24	U.S.	Clarksville, TN	2.4	\$105,000	\$43,400
48	6	43	U.S.	Cleveland, OH	2.6	\$119,800	\$46,700
239		198	U.S.	College Station, TX	4.6	\$166,000	\$36,000
187		163	U.S.	Colorado Springs, CO	3.7	\$206,100	\$55,800
120		110	U.S.	Columbia, SC	3.2	\$145,400	\$46,000
26		24	U.S.	Columbus, GA-AL	2.4	\$98,300	\$40,200
62	9	57	U.S.	Columbus, OH	2.7	\$146,000	\$53,200
138		126	U.S.	Corpus Christi, TX	3.3	\$146,600	\$45,100
85	16	78	U.S.	Dallas-Fort Worth, TX	2.9	\$165,200	\$56,500
33		31	U.S.	Davenport, IA-IL	2.5	\$121,500	\$47,900
33		31	U.S.	Dayton, OH	2.5	\$111,500	\$44,900
85		78	U.S.	Deltona-Daytona Beach, FL	2.9	\$111,100	\$38,900
226	46	192	U.S.	Denver, CO	4.3	\$260,300	\$60,200



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
73		68	U.S.	Des Moines, IA	2.8	\$165,500	\$59,200
1	1	1	U.S.	Detroit, MI	1.5	\$75,700	\$49,800
73		68	U.S.	Duluth, MN	2.8	\$130,000	\$46,900
200		173	U.S.	Durham, NC	3.8	\$190,400	\$49,500
159		144	U.S.	El Paso, TX	3.5	\$142,100	\$40,200
48		43	U.S.	Elkhart, IN	2.6	\$114,000	\$44,000
62		57	U.S.	Erie, PA	2.7	\$116,900	\$42,700
230		194	U.S.	Eugene, OR	4.4	\$180,000	\$41,300
1		1	U.S.	Evansville, IN	1.5	\$69,400	\$47,500
96		87	U.S.	Fargo, ND-MN	3.0	\$157,600	\$53,300
16		16	U.S.	Fayetteville, AR-MO	2.2	\$102,500	\$45,900
187		163	U.S.	Fayetteville, NC	3.7	\$161,300	\$43,700
4		4	U.S.	Flint, MI	2.0	\$85,000	\$41,500
120		110	U.S.	Florence, SC	3.2	\$128,200	\$40,600
220		188	U.S.	Fort Collins, CO	4.1	\$229,800	\$56,100
16		16	U.S.	Fort Smith, AR-OK	2.2	\$81,400	\$36,600
10		10	U.S.	Fort Wayne, IN	2.1	\$101,900	\$48,300
159		144	U.S.	Fresno, CA	3.5	\$153,000	\$43,500
187		163	U.S.	Gainesville, FL	3.7	\$147,300	\$40,200
26		24	U.S.	Grand Rapids, MI	2.4	\$120,700	\$50,400
187		163	U.S.	Greeley, CO	3.7	\$191,000	\$51,900
48		43	U.S.	Green Bay, WI	2.6	\$138,000	\$53,600
96		87	U.S.	Greensboro, NC	3.0	\$125,900	\$42,100
146		134	U.S.	Greenville, SC	3.4	\$156,100	\$45,300
73		68	U.S.	Gulfport, MS	2.8	\$108,200	\$38,900
62		57	U.S.	Hagerstown, MD-WV	2.7	\$140,100	\$51,600
62		57	U.S.	Harrisburg, PA	2.7	\$153,000	\$56,300
175	34	155	U.S.	Hartford, CT	3.6	\$236,000	\$65,600
96		87	U.S.	Hickory, NC	3.0	\$116,900	\$39,600
10		10	U.S.	Holland, MI	2.1	\$114,000	\$54,400
335		216	U.S.	Honolulu, HI	9.3	\$627,200	\$67,200
48		43	U.S.	Houma, LA	2.6	\$117,600	\$45,700
96	19	87	U.S.	Houston, TX	3.0	\$167,500	\$55,800
175		155	U.S.	Huntington, WV-KY-OH	3.6	\$136,300	\$37,500
138		126	U.S.	Huntsville, AL	3.3	\$175,900	\$52,600
48	6	43	U.S.	Indianapolis, IN	2.6	\$134,000	\$51,700
146		134	U.S.	Jackson, MS	3.4	\$152,600	\$44,500
48	6	43	U.S.	Jacksonville, FL	2.6	\$131,900	\$51,000
62		57	U.S.	Kalamazoo, MI	2.7	\$121,000	\$45,300
62	9	57	U.S.	Kansas City, MO-KS	2.7	\$148,500	\$54,300
110		101	U.S.	Kennewick, WA	3.1	\$184,700	\$60,200
110		101	U.S.	Killeen, TX	3.1	\$145,000	\$47,200
85		78	U.S.	Kingsport, TN-VA	2.9	\$111,700	\$38,400
120		110	U.S.	Knoxville, TN	3.2	\$143,200	\$45,300
33		31	U.S.	Lafayette, IN	2.5	\$106,900	\$43,600
96		87	U.S.	Lafayette, LA	3.0	\$131,200	\$44,100
48		43	U.S.	Lake Charles, LA	2.6	\$108,600	\$41,500



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
Using Median Multiple (Median House Price/Median Household Income)  
2012 – 3<sup>rd</sup> Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
138		126	U.S.	Lake Havasu City, AZ	3.3	\$120,000	\$36,600
20		20	U.S.	Lakeland, FL	2.3	\$93,000	\$40,900
110		101	U.S.	Lancaster, PA	3.1	\$168,000	\$54,300
4		4	U.S.	Lansing, MI	2.0	\$95,700	\$47,300
200		173	U.S.	Laredo, TX	3.8	\$141,000	\$36,700
3		3	U.S.	Las Cruces, NM	1.9	\$71,400	\$36,700
73	13	68	U.S.	Las Vegas, NV	2.8	\$137,900	\$49,000
96		87	U.S.	Lexington, KY	3.0	\$145,800	\$47,900
73		68	U.S.	Lincoln, NE	2.8	\$142,100	\$50,100
96		87	U.S.	Little Rock, AR	3.0	\$144,100	\$47,400
48		43	U.S.	Longview, TX	2.6	\$112,400	\$43,600
303	68	208	U.S.	Los Angeles, CA	6.2	\$355,700	\$57,600
85	16	78	U.S.	Louisville, KY-IN	2.9	\$141,100	\$48,400
4		4	U.S.	Lubbock, TX	2.0	\$89,200	\$44,000
85		78	U.S.	Lynchburg, VA	2.9	\$136,200	\$47,500
85		78	U.S.	Macon, GA	2.9	\$107,500	\$37,500
159		144	U.S.	Madison, WI	3.5	\$210,600	\$60,700
120		110	U.S.	Manchester, NH	3.2	\$215,500	\$67,700
110		101	U.S.	McAllen, TX	3.1	\$97,000	\$31,600
233		195	U.S.	Medford, OR	4.5	\$178,000	\$39,800
62	9	57	U.S.	Memphis, TN-MS-AR	2.7	\$124,600	\$46,100
120		110	U.S.	Merced, CA	3.2	\$131,700	\$40,700
233	49	195	U.S.	Miami-West Palm Beach, FL	4.5	\$209,200	\$46,200
210	42	181	U.S.	Milwaukee, WI	3.9	\$199,300	\$51,500
73	13	68	U.S.	Minneapolis-St. Paul, MN-WI	2.8	\$181,500	\$64,400
48		43	U.S.	Mobile, AL	2.6	\$110,200	\$43,100
138		126	U.S.	Modesto, CA	3.3	\$147,500	\$44,800
73		68	U.S.	Montgomery, AL	2.8	\$129,900	\$46,500
175		155	U.S.	Myrtle Beach, SC	3.6	\$142,500	\$39,400
210		181	U.S.	Naples, FL	3.9	\$198,000	\$51,400
120	24	110	U.S.	Nashville, TN	3.2	\$163,700	\$50,800
200		173	U.S.	New Haven, CT	3.8	\$227,200	\$60,200
159	32	144	U.S.	New Orleans, LA	3.5	\$157,000	\$44,700
303	68	208	U.S.	New York, NY-NJ-PA	6.2	\$394,700	\$63,400
120		110	U.S.	Norwich, CT	3.2	\$208,000	\$65,900
26		24	U.S.	Ocala, FL	2.4	\$89,000	\$36,900
33		31	U.S.	Ogden, UT	2.5	\$153,000	\$61,900
110	21	101	U.S.	Oklahoma City, OK	3.1	\$147,600	\$47,800
159		144	U.S.	Olympia, WA	3.5	\$211,000	\$61,100
48		43	U.S.	Omaha, NE-IA	2.6	\$146,100	\$56,000
85	16	78	U.S.	Orlando, FL	2.9	\$135,400	\$46,900
290		205	U.S.	Oxnard-Ventura, CA	5.7	\$432,100	\$75,900
33		31	U.S.	Palm Bay-Melbourne, FL	2.5	\$119,400	\$47,200
96		87	U.S.	Pensacola, FL	3.0	\$140,900	\$46,700
62		57	U.S.	Peoria, IL	2.7	\$139,300	\$50,800
200	40	173	U.S.	Philadelphia, PA-NJ-DE-MD	3.8	\$223,800	\$59,300
96	19	87	U.S.	Phoenix, AZ	3.0	\$153,400	\$50,900



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
62	9	57	U.S.	Pittsburgh, PA	2.7	\$135,000	\$49,700
33		31	U.S.	Port St. Lucie, FL	2.5	\$114,000	\$45,300
210		181	U.S.	Portland, ME	3.9	\$224,200	\$56,800
226	46	192	U.S.	Portland, OR-WA	4.3	\$239,200	\$55,800
146		134	U.S.	Poughkeepsie, NY	3.4	\$229,000	\$67,800
175		155	U.S.	Prescott, AZ	3.6	\$153,000	\$42,400
217	43	185	U.S.	Providence, RI-MA	4.0	\$218,900	\$54,400
175		155	U.S.	Provo, UT	3.6	\$212,000	\$59,400
20		20	U.S.	Racine, WI	2.3	\$125,000	\$53,500
110	21	101	U.S.	Raleigh, NC	3.1	\$188,200	\$60,200
73		68	U.S.	Reading, PA	2.8	\$151,200	\$53,200
146		134	U.S.	Reno-Sparks, NV	3.4	\$177,300	\$51,600
146	29	134	U.S.	Richmond, VA	3.4	\$187,000	\$55,700
187	37	163	U.S.	Riverside-San Bernardino, CA	3.7	\$193,900	\$52,900
138		126	U.S.	Roanoke, VA	3.3	\$168,000	\$51,100
33	3	31	U.S.	Rochester, NY	2.5	\$130,200	\$51,400
10		10	U.S.	Rockford, IL	2.1	\$97,000	\$45,900
120	24	110	U.S.	Sacramento, CA	3.2	\$181,300	\$56,100
10		10	U.S.	Saginaw, MI	2.1	\$85,000	\$41,100
33	3	31	U.S.	Saint Louis, MO-IL	2.5	\$131,300	\$52,000
159		144	U.S.	Salem, OR	3.5	\$163,400	\$46,400
290		205	U.S.	Salinas, CA	5.7	\$309,700	\$54,100
187	37	163	U.S.	Salt Lake City, UT	3.7	\$214,000	\$58,000
138	28	126	U.S.	San Antonio, TX	3.3	\$161,900	\$49,500
307	70	210	U.S.	San Diego, CA	6.4	\$386,300	\$60,500
325	76	212	U.S.	San Francisco-Oakland, CA	7.8	\$568,000	\$73,200
327	78	213	U.S.	San Jose, CA	7.9	\$673,000	\$85,400
321		211	U.S.	San Luis Obispo, CA	7.5	\$411,400	\$55,100
327		213	U.S.	Santa Barbara, CA	7.9	\$485,600	\$61,500
331		215	U.S.	Santa Cruz, CA	8.2	\$523,300	\$63,600
299		207	U.S.	Santa Rosa, CA	6.0	\$369,000	\$62,000
187		163	U.S.	Sarasota-Bradenton, FL	3.7	\$171,700	\$46,300
48		43	U.S.	Savannah, GA	2.6	\$121,800	\$47,600
48		43	U.S.	Scranton-Wilkes Barre, PA	2.6	\$115,000	\$44,600
246	52	200	U.S.	Seattle, WA	4.8	\$310,000	\$65,200
187		163	U.S.	Shreveport, LA	3.7	\$163,100	\$44,400
62		57	U.S.	Sioux Falls, SD	2.7	\$152,000	\$56,500
10		10	U.S.	South Bend, IN-MI	2.1	\$94,900	\$44,600
110		101	U.S.	Spartanburg, SC	3.1	\$125,700	\$40,800
159		144	U.S.	Spokane, WA	3.5	\$175,200	\$49,900
26		24	U.S.	Springfield, IL	2.4	\$123,400	\$52,100
200		173	U.S.	Springfield, MA	3.8	\$192,100	\$51,100
48		43	U.S.	Springfield, MO	2.6	\$109,100	\$42,100
138		126	U.S.	Stockton, CA	3.3	\$172,000	\$51,700
33		31	U.S.	Syracuse, NY	2.5	\$128,500	\$52,200
120		110	U.S.	Tallahassee, FL	3.2	\$144,400	\$44,700
110	21	101	U.S.	Tampa-St. Petersburg, FL	3.1	\$138,000	\$44,600



**SCHEDULE 2**  
**Demographia National Housing Affordability Rankings**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
4		4	U.S.	Toledo, OH	2.0	\$86,900	\$42,800
20		20	U.S.	Topeka, KS	2.3	\$110,800	\$47,200
210		181	U.S.	Trenton, NJ	3.9	\$289,900	\$75,100
159		144	U.S.	Tucson, AZ	3.5	\$155,300	\$44,800
96		87	U.S.	Tulsa, OK	3.0	\$138,900	\$46,900
96		87	U.S.	Tuscaloosa, AL	3.0	\$125,100	\$41,100
175		155	U.S.	Tyler, TX	3.6	\$160,000	\$44,500
16		16	U.S.	Utica, NY	2.2	\$100,000	\$45,900
96		87	U.S.	Vallejo, CA	3.0	\$196,900	\$64,900
146	29	134	U.S.	Virginia Beach-Norfolk, VA-NC	3.4	\$198,000	\$58,300
120		110	U.S.	Visalia, CA	3.2	\$132,000	\$41,900
146		134	U.S.	Waco, TX	3.4	\$141,000	\$41,200
220	44	188	U.S.	Washington, DC-VA-MD-WV	4.1	\$362,300	\$88,100
26		24	U.S.	Wichita, KS	2.4	\$123,600	\$50,600
217		185	U.S.	Wilmington, NC	4.0	\$176,500	\$44,000
96		87	U.S.	Winston-Salem, NC	3.0	\$129,100	\$43,100
146		134	U.S.	Worcester, MA	3.4	\$212,100	\$61,500
187		163	U.S.	Yakima, WA	3.7	\$156,700	\$42,900
33		31	U.S.	York, PA	2.5	\$143,900	\$56,500
4		4	U.S.	Youngstown, OH-PA	2.0	\$82,000	\$41,300
96		87	U.S.	Yuma, AZ	3.0	\$116,000	\$39,000
				Median	3.1		
Financial data in local currency							



**SCHEDULE 3**  
**Demographia International Housing Affordability Rankings: Major Markets (Over 1,000,000 Population)**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
1	1	1	U.S.	Detroit, MI	1.5	\$75,700	\$49,800
4	2	4	U.S.	Atlanta, GA	2.0	\$106,700	\$53,500
33	3	31	U.S.	Cincinnati, OH-KY-IN	2.5	\$134,400	\$53,200
33	3	31	U.S.	Rochester, NY	2.5	\$130,200	\$51,400
33	3	31	U.S.	Saint Louis, MO-IL	2.5	\$131,300	\$52,000
48	6	43	U.S.	Cleveland, OH	2.6	\$119,800	\$46,700
48	6	43	U.S.	Indianapolis, IN	2.6	\$134,000	\$51,700
48	6	43	U.S.	Jacksonville, FL	2.6	\$131,900	\$51,000
62	9	57	U.S.	Columbus, OH	2.7	\$146,000	\$53,200
62	9	57	U.S.	Kansas City, MO-KS	2.7	\$148,500	\$54,300
62	9	57	U.S.	Memphis, TN-MS-AR	2.7	\$124,600	\$46,100
62	9	57	U.S.	Pittsburgh, PA	2.7	\$135,000	\$49,700
73	13	68	U.S.	Buffalo, NY	2.8	\$136,200	\$47,900
73	13	68	U.S.	Las Vegas, NV	2.8	\$137,900	\$49,000
73	13	68	U.S.	Minneapolis-St. Paul, MN-WI	2.8	\$181,500	\$64,400
85	16	78	U.S.	Dallas-Fort Worth, TX	2.9	\$165,200	\$56,500
85	16	78	U.S.	Louisville, KY-IN	2.9	\$141,100	\$48,400
85	16	78	U.S.	Orlando, FL	2.9	\$135,400	\$46,900
96	19	87	U.S.	Houston, TX	3.0	\$167,500	\$55,800
96	19	87	U.S.	Phoenix, AZ	3.0	\$153,400	\$50,900
110	21	101	U.S.	Oklahoma City, OK	3.1	\$147,600	\$47,800
110	21	101	U.S.	Raleigh, NC	3.1	\$188,200	\$60,200
110	21	101	U.S.	Tampa-St. Petersburg, FL	3.1	\$138,000	\$44,600
120	24	110	U.S.	Charlotte, NC-SC	3.2	\$165,400	\$51,500
120	24	110	U.S.	Chicago, IL-IN-WI	3.2	\$184,400	\$58,200
120	24	110	U.S.	Nashville, TN	3.2	\$163,700	\$50,800
120	24	110	U.S.	Sacramento, CA	3.2	\$181,300	\$56,100
138	28	126	U.S.	San Antonio, TX	3.3	\$161,900	\$49,500
146	29	134	U.S.	Birmingham, AL	3.4	\$157,500	\$46,400
146	29	134	U.S.	Richmond, VA	3.4	\$187,000	\$55,700
146	29	134	U.S.	Virginia Beach-Norfolk, VA-NC	3.4	\$198,000	\$58,300
159	32	144	U.S.	New Orleans, LA	3.5	\$157,000	\$44,700
159	32	12	Canada	Ottawa-Gatineau, ON-QC	3.5	\$287,100	\$81,100
175	34	155	U.S.	Austin, TX	3.6	\$207,900	\$57,700
175	34	5	Ireland	Dublin	3.6	\$203,000	\$56,000
175	34	155	U.S.	Hartford, CT	3.6	\$236,000	\$65,600
187	37	19	Canada	Edmonton, AB	3.7	\$294,400	\$78,700
187	37	163	U.S.	Riverside-San Bernardino, CA	3.7	\$193,900	\$52,900
187	37	163	U.S.	Salt Lake City, UT	3.7	\$214,000	\$58,000
200	40	173	U.S.	Baltimore, MD	3.8	\$254,200	\$66,600
200	40	173	U.S.	Philadelphia, PA-NJ-DE-MD	3.8	\$223,800	\$59,300
210	42	181	U.S.	Milwaukee, WI	3.9	\$199,300	\$51,500
217	43	185	U.S.	Providence, RI-MA	4.0	\$218,900	\$54,400
220	44	3	U.K.	Leeds & West Yorkshire	4.1	\$125,000	\$30,700
220	44	188	U.S.	Washington, DC-VA-MD-WV	4.1	\$362,300	\$88,100



**SCHEDULE 3**  
**Demographia International Housing Affordability Rankings: Major Markets (Over 1,000,000 Population)**  
**Using Median Multiple (Median House Price/Median Household Income)**  
**2012 – 3<sup>rd</sup> Quarter (September Quarter)**

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
226	46	27	Canada	Calgary, AB	4.3	\$358,400	\$83,900
226	46	192	U.S.	Denver, CO	4.3	\$260,300	\$60,200
226	46	192	U.S.	Portland, OR-WA	4.3	\$239,200	\$55,800
233	49	5	U.K.	Derby & Derbyshire	4.5	\$135,000	\$29,800
233	49	195	U.S.	Miami-West Palm Beach, FL	4.5	\$209,200	\$46,200
243	51	7	U.K.	Glasgow	4.7	\$117,600	\$25,100
246	52	8	U.K.	Hull & Humber	4.8	\$130,000	\$27,000
246	52	8	U.K.	Manchester & Greater Manchester	4.8	\$125,000	\$26,200
246	52	200	U.S.	Seattle, WA	4.8	\$310,000	\$65,200
253	55	11	U.K.	Blackpool & Lancashire	4.9	\$124,500	\$25,300
260	56	15	U.K.	Nottingham & Nottinghamshire	5.0	\$127,700	\$25,600
260	56	15	U.K.	Stoke on Trent & Staffordshire	5.0	\$135,000	\$26,900
263	58	30	Canada	Montréal, QC	5.1	\$287,300	\$56,700
263	58	17	U.K.	Sheffield & South Yorkshire	5.1	\$120,000	\$23,400
269	60	19	U.K.	Birmingham & West Midlands	5.2	\$130,000	\$24,900
269	60	202	U.S.	Boston, MA-NH	5.2	\$365,800	\$70,600
269	60	19	U.K.	Newcastle & Tyneside	5.2	\$125,000	\$23,900
277	63	23	U.K.	Liverpool & Merseyside	5.3	\$125,000	\$23,600
290	64	25	U.K.	Bristol-Bath	5.7	\$179,000	\$31,500
295	65	23	Australia	Brisbane, QLD	5.8	\$430,000	\$74,000
296	66	24	Australia	Perth, WA	5.9	\$470,000	\$79,600
296	66	31	Canada	Toronto, ON	5.9	\$430,200	\$73,300
303	68	208	U.S.	Los Angeles, CA	6.2	\$355,700	\$57,600
303	68	208	U.S.	New York, NY-NJ-PA	6.2	\$394,700	\$63,400
307	70	210	U.S.	San Diego, CA	6.4	\$386,300	\$60,500
309	71	28	Australia	Adelaide, SA	6.5	\$385,000	\$59,000
313	72	8	N.Z.	Auckland	6.7	\$506,800	\$75,200
316	73	30	U.K.	London Exurbs (E & SE England)	6.8	\$219,500	\$32,100
320	74	31	U.K.	Plymouth & Devon	7.3	\$180,000	\$24,800
321	75	33	Australia	Melbourne, VIC	7.5	\$530,000	\$70,700
325	76	32	U.K.	London (GLA)	7.8	\$310,000	\$39,600
325	76	212	U.S.	San Francisco-Oakland, CA	7.8	\$568,000	\$73,200
327	78	213	U.S.	San Jose, CA	7.9	\$673,000	\$85,400
332	79	38	Australia	Sydney, NSW	8.3	\$642,700	\$77,400
336	80	35	Canada	Vancouver, BC	9.5	\$621,300	\$65,200
337	81	1	China	Hong Kong	13.5	\$3,810,000	\$282,000
Financial data in local currency							



## ANNEX: USES, METHODS AND SOURCES

Most international housing affordability sources and "city" rating sources focus on higher end housing that would be demanded by executives who might transfer from one nation to another. The *Demographia International Housing Affordability Survey* is unique in focusing on the middle of the market --- housing affordability for average households.

Further, the focus is on metropolitan markets, rather than higher-cost inner areas or expensive neighborhoods. This is an important distinction. The data in the *Demographia International Housing Affordability Survey* does not relate, for example to Mayfair in London, New York's Upper East Side or Beverly Hills in Los Angeles. It rather encompasses entire metropolitan markets, which for example, include the 23 counties in the states of New York, New Jersey and Pennsylvania that comprise the New York metropolitan area<sup>38</sup> (where included housing can be 75 miles (120 kilometers) or more from the upscale areas of the urban core, where prices are the highest).

**Price to Income Ratios: Uses and Misuses:** The use of house price to income multiples has become more popular in recent years. While the Median Multiple has been most frequently used, other price to income multiples have been developed. This is appropriate, so long as parallel and consistently calculated indices are provided. This has not always been the case.

In Australia, price to income ratios have been published that use *average* household incomes and *median* house prices. To make valid comparisons between international markets, it would be necessary to also calculate these "average/median" multiples for the markets outside Australia to which comparisons are made (and to provide historical data). [However, "average/median" multiples have been inappropriately compared to Median Multiples.](#) For example, Australian housing affordability has been portrayed more favorably than the reality, in sources using *average* household incomes (which are materially higher than *median* household incomes) and *median* household incomes.

**Coverage:** The seven nations and corresponding metropolitan markets that are included in the *7th Annual Demographia International Housing Affordability Survey* have sufficient current sources of house prices and household income data to estimate housing affordability using the Median Multiple. The data also allows provisional coverage of Singapore for the first time.

*Demographia* receives periodic requests to expand its coverage to other nations. The addition of continental European nations, mainland China and India has been most frequently requested. *Demographia* would be pleased to add other nations and will do so wherever consistent data of sufficient quality can be identified. Correspondence on this issue is encouraged.

**House Characteristics:** At the same time, it should be recognized that there are substantial differences in average house, housing characteristics and lot size. The *Demographia International Housing Affordability Survey* does not adjust the Median Multiples to reflect these differences. For example, the average size of housing, particularly new housing, is abnormally small by New World standards in Ireland, the United Kingdom and Hong Kong.<sup>39</sup>

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<sup>38</sup> As defined by the United States Bureau of Management and the Budget.

<sup>39</sup> See [2nd Annual Demographia International Housing Affordability Survey](#), Pages 16-18.



**Methods:** Median house price information is obtained from the leading national reporting agencies and includes the housing stock as reported upon. Where only average house prices are available, median house prices are estimated from historic conversion factors. The principal sources are generally real estate industry time series that have become established as authoritative, national transaction registries and other government sources.

Median household income data is estimated using national census data or surveys for each metropolitan market, where such data is available (such as the 2011 census in Australia, the 2006 censuses in Canada and New Zealand, the annual American Community Survey in the United States and the annual Census and Statistics Department data in Hong Kong). Alternative government data is used to estimate incomes in Ireland and the United Kingdom, where comparable census data has not been identified. The income base is then adjusted to account for changes to produce an up-to-date estimate, using the best available indicators of median income growth.

Median house price estimates are provided for the 3<sup>rd</sup> quarter of 2012 (September quarter), or for the month of September where September quarter data is not available. In a few smaller markets, the latest available house prices are from the 2<sup>nd</sup> quarter of 2012.

Caution is urged in time-series comparisons in individual markets. Changes in data sources, base year income information, housing data sources and geographical definitions make precise year to year comparisons less reliable. Comparisons should be generally limited to the housing affordability rating categories of "affordable," "moderately unaffordable," "seriously unaffordable" and "severely unaffordable."<sup>40</sup>

**Sources:** The following principal sources have been consulted:

Australian Bureau of Statistics  
Australian Property Monitors  
Bank of Canada  
Bank of England  
Bank of Ireland  
Canada Mortgage and Housing Corporation  
Canadian Home Builders Association  
Canadian Real Estate Association  
Census and Statistical Office: Government of Hong Kong  
Central Statistics Office, Ireland  
Chambre Immobilière de Québec  
Communities and Local Government (Ministry), United Kingdom  
Daft.ie  
Department of the Environment, Heritage and Local Government (Ireland)  
Federal Reserve System (United States)  
Harvard University Joint Center on Housing  
Housing Industry Association (Australia)  
Ireland Environment, Heritage and Local Government  
John Burns Real Estate Consulting  
Land Registry of England and Wales

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<sup>40</sup> Demographia attempts to use the most reliable available data at the time of report preparation. This necessitates adopting more representative sources as they become available, including new sources and updates.



The Land Registry (Hong Kong)  
 National Association of Home Builders (USA)  
 National Association of Realtors (USA)  
 National Statistics (United Kingdom)  
 Real Estate Board of Winnipeg  
 Real Estate Institute of Australia  
 Real Estate Institute of New South Wales  
 Real Estate Institute of New Zealand  
 Real Estate Institute of Northern Territory  
 Real Estate Institute of Queensland  
 Real Estate Institute of Tasmania  
 Real Estate Institute of Victoria  
 Real Estate Institute of Western Australia  
 Registers of Scotland  
 Reserve Bank of Australia  
 Reserve Bank of New Zealand  
 Residential Property Price Register of the Property Services Regulatory Authority (Ireland)  
 RP Data (realestate.com.au)  
 Statistics Canada  
 Statistics New Zealand  
 United Kingdom Department of Communities and Local Government  
 United States Department of Commerce: Bureau of Economic Analysis  
 United States Department of Commerce: Bureau of the Census  
 United States Department of Housing and Urban Development  
 University of Ulster  
 Urban Development Institute of Australia

## Notes on Figures:

**Figure 1: Housing Affordability & Land Regulation:** All markets with a population of 1,500,000 or more are included, plus Auckland. In the United States, urban containment regulation markets (Table 1) include those classified as “growth management,” “growth control,” “containment” and “contain-lite” in *From Traditional to Reformed A Review of the Land Use Regulations in the Nation’s 50 largest Metropolitan Areas* (Brookings Institution, 2006) as well as markets Demographia has determined to have significant rural zoning (large lot zoning) and land preservation restrictions (New York, Chicago, Milwaukee, Minneapolis-St. Paul, Virginia Beach and Washington). Outside the United States, urban containment metropolitan markets are identified based upon their widespread use urban containment. This includes all of the United Kingdom (under the Town and Country Planning Act), Ireland (under the National Spatial Strategy), Hong Kong and all of the major markets of Australia and New Zealand. In Canada, urban containment policy has been adopted in Toronto, Montréal, Vancouver, Ottawa and Calgary. In these markets with urban containment policies, land prices for development on the urban fringe, if allowed at all, have been driven well above the “agricultural value plus premium” levels that have generally characterized markets since World War II and continue to apply liberal markets. Markets not classified as “urban containment” are classified as liberal.

**Figure 2: National Housing Affordability:** From data in this *Survey*.

**Figure 3: Housing Affordability Trend: Australia:** Derived from Australian Bureau of Statistics and national and state real estate transaction reporting sources data.



**Figure 4: Underlying Demand and Migration: Selected US Markets: 2000-2012:** US Census Bureau and sources from Figure 1.

**Figure 5: House Price to Income Ratios:** Reserve Bank of Australia.

**Figure 6: National Housing Affordability: 2004-2012.** Information from this *Survey* and previous editions.

**Figure 7: Urban and Rural Land:** Calculated from National statistics bureau data and *Demographia World Urban Areas*.

**Figure 8: Elderly Population v. Working Population:** United Nations data.

Table 8 Metropolitan Market (or Urban Market) Selection Criteria	
Nation	Markets Included (Where Complete Data is Available)
Australia	Metropolitan markets corresponding to urban centres over 50,000 population
Canada	Metropolitan markets (CMAs) over 100,000 population
China	Hong Kong
Ireland	Metropolitan markets over 50,000 population
New Zealand	Markets corresponding to urban areas over 75,000 population
Singapore	Limited information
United Kingdom	Markets corresponding to urban areas over 150,000 population and London Exurbs (E & SE England).
United States	Metropolitan markets (MSAs) over 250,000 population
Selected additional markets.	

Footer Illustrations: New Houses (Left to Right):

- Suburban Kansas City, United States
- Suburban Montréal, Canada
- East of England (London Exurbs), United Kingdom
- Condominium Towers, Tseung Kwan O (Hong Kong)
- Suburban Dublin, Ireland
- Suburban Auckland, New Zealand
- Suburban Adelaide, Australia



# BIOGRAPHIES

## Wendell Cox

Wendell Cox is co-author of the *Demographia International Housing Affordability Survey*. He is a public policy consultant and principal of Demographia, an international public policy firm. He has also served as a visiting professor at the Conservatoire National des Arts et Metiers in Paris (a national university) from 2002. He is vice-president of CODATU, a Lyon (France) based international research organization dedicated to improving transport in developing world urban areas. He is a contributing editor at [newgeography.com](http://newgeography.com) and author of the [\*Evolving Urban Form\*](#) series, which provides development profiles of individual world urban areas.

He is also associated with various public policy organizations, such as the Heritage Foundation (Washington), the Heartland Institute (Chicago), the Frontier Centre (Winnipeg), the Pacific Research Institute (San Francisco), the Texas Public Policy Foundation, the Independence Institute (Denver), Institut économique de Montréal, the National Center for Policy Analysis (Dallas), Georgia the Public Policy Foundation, the Virginia Institute for Public Policy and the Maryland Public Policy Institute.

Wendell Cox has lectured widely, including a month long tour to all Australian state and territorial capitals and university lectures in the United Kingdom, France, China, Egypt and Australia. He has completed projects in the United States, Western Europe, Canada, Australia and New Zealand in urban policy, demographics and transport.

He was appointed to three terms on the Los Angeles County Transportation Commission by Mayor Tom Bradley and to the Amtrak Reform Council by Speaker of the U. S. House of Representatives Newt Gingrich.

Demographia annually publishes [\*Demographia World Urban Areas\*](#), the only annual list of world urban areas (agglomerations) over 500,000 population with coordinate urban land area, population and population density estimates. Demographia sponsors three internet web sites, including [demographia.com](http://demographia.com) and [www.publicpurpose.com](http://www.publicpurpose.com). Publicpurpose.com been twice honored by the *National Journal* as one of the nation's top internet transport sites. He is also author of the [\*Demographia Residential Land and Regulation Cost Index\*](#).

In 2004 he teamed with Hugh Pavletich of [\*Performance Urban Planning\*](#) to develop the *Demographia International Housing Affordability Survey*.

## Hugh Pavletich

Hugh Pavletich, the co-author of this *Survey*, resides in “severely unaffordable” ( 6.6 Median Multiple ) Christchurch, New Zealand, which since 4 September 2010 has experienced [in excess of 13,000 earthquakes](#). He is the coordinator of a local advocacy group [Cantabrians Unite](#) ( [facebook](#) ) and has written extensively on these issues.

He operates the archival website [Performance Urban Planning](#) and is the Managing Director of Pavletich Properties Ltd, a commercial property development and investment company.



He commenced his working life as a farm worker and wool classer (wool classifier) in 1967 and moved to Christchurch in 1980, where he started developing small factory units and has developed commercial and industrial property on freehold and Maori leasehold land in other centers of the South Island as well.

His industry involvement commenced when elected President of the South Island Division of the Property Council of New Zealand (then the Building Owners & Managers Association – BOMA) soon after its inception in 1991, which he led for four years.

He has had extensive involvement with public policy issues of local authority financial management, land use regulation and heritage. In 2004, he was elected a fellow of the Urban Development Institute of Australia (UDIA) for services to the industry.

He felt there was a need for an international measure of housing affordability and teamed up with Wendell Cox in 2004, to develop the annual *Demographia International Housing Affordability Survey*.

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