

DEMOGRAPHIA

8th Annual
Demographia
International Housing
Affordability
Survey:
2012

Ratings for Metropolitan Markets

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

(Data for 3rd Quarter 2011)

exploring solutions...

www.PerformanceUrbanPlanning.org

Performance Urban Planning



8th Annual Demographia International Housing Affordability Survey

Introduction

By Robert Bruegmann

Nothing in the world today affects citizens more directly than the home in which they live. And when it comes to housing no piece of recent research opens more interesting avenues of investigation than the *Demographia International Housing Affordability Survey*.



Robert Bruegmann, PhD
(At the Atomomium, Brussels)

This combination of goals sets up some inherent conflicts in every society. What is good for a given individual or family is not necessarily good for a society as a whole, and what is good for society as a whole is not necessarily good for any given individual or family. From this fundamental tension has sprung a bewildering set of arrangements for allocating and regulating land and residential structures on it. At one end of the political spectrum have been societies in which land is owned in common and is supposed to be allocated to individuals and families on the basis of merit or need. Such has been the case with many Utopian and Socialist societies. At the other end of the spectrum have been societies where the individual ownership of land and homes is considered a bedrock condition of a democratic society, where ownership is widely dispersed, and individual rights and preferences have been zealously safeguarded from all but the most necessary intervention. One of the best examples

of this would have been the United States, Canada or Australia in the nineteenth century. The trend over the last fifty years has been a convergence toward the middle of this spectrum as Socialist countries have abandoned the dream of complete common ownership and societies that traditionally were loath to interfere with individual property rights have adopted layer after layer of regulation intended to secure the health, safety and wellbeing of the larger society.



Given the fundamental importance of housing in all societies, it is remarkable how little we know about the results of housing policies in various parts of the world. In my own field of architectural and urban history, for example, if you were to ask even some of the greatest experts to compare what an average house or apartment unit in any two given cities looked like at some date in the past or even the present, what it would cost to buy and to operate them and what regulations would affect them, it is very unlikely that the individual would have more than rudimentary hunches. Historians can tell you in great detail about the palaces, townhouses and country estates of the powerful and wealthy, then and now, and about some of the efforts at reform housing by the government or charitable organizations, but at least until recently, the lack of information about how and where ordinary individuals live has been remarkable.

Part of this neglect is due to a discredited but lingering attitude that history is made overwhelmingly by the rich and famous and not by the decisions of millions of ordinary citizens. Part of it is simply that real estate ownership is now so dispersed and so intensely affected by local conditions that it is hard to quantify in ways that allow for comparative analysis. Partly it has been due to a widespread belief that commerce and industry are the driving forces in the world economy and that housing is a by-product of the larger economy. This attitude is, of course, obviously wrong-headed, as the central role of residential real estate in the recent economic downturn has proved. Residential real estate plays a huge and increasingly important role in the economy of every nation.

Given the obvious importance of housing, what should public policy be and the role of the individual, the developer, governmental agencies? Is there an optimal size for cities, for housing units? How much land should housing occupy? Should housing be separated from or integrated with other uses? Should government promote one kind of residential tenure over another, individual home ownership over rental or various kinds of collective ownership over individual property, for example? Have the citizens of a given city or nation underinvested or overinvested in housing? Are housing prices in line or out of line with individual and family incomes? Unfortunately there has been very little data for anyone trying to find answers to questions like these.

It was against this backdrop that the appearance, for 2004, of the first international housing affordability survey by Wendell Cox and Hugh Pavletich (*a Christchurch New Zealand based retired commercial property developer and former industry leader who runs the [Performance Urban Planning](http://PerformanceUrbanPlanning.com) website -Editor*) was such a revelation. It provided some of most reliable information ever compiled for those who wished to compare nations around the world with quite different housing policies. Cox and Pavletich had their own point of view. It is fair to say that both of them tend to favor market solutions to many of the most difficult questions about housing and how it is allocated and regulated, but their compilation of data, like the data found on Cox's demographia.com website generally, can stand on its own as one of the most impressive and reliable collections of comparative urban statistics to be found anywhere.

The issue that appears to have been the principle motivation to compile this data was the rise of various forms of "Smart Growth" policies around the world. Whether these policies were intended to enhance the environment or limit sprawl, they clearly had an effect on the price of housing, but



what these effects were was very much in dispute. In the United States, for example, the question of whether the growth boundary around Portland, Oregon, has had an effect in raising housing prices, as some observers claim, or that the dual focus on development at the center and regulation at the edge has kept housing prices reasonable, has raged for a number of years now. The same debate has been joined in many other places, for example in Australia where the recent rise in prices has been particularly sharp and, given the vast extent of the country, the urban containment policies particularly contentious.

Cox and Pavletich went out in search of the data they felt could answer questions of this kind. Their conclusion, that the land use policies in places like coastal California, Vancouver, Britain and Australia, have dramatically driven up the cost of housing, and that the less intrusive policies of places like Atlanta and Houston has kept prices down has been controversial, but I think it is fair to say that a growing number of people who have looked at the figures have tended to agree that a good many well-meaning policies involving housing may be pushing up prices to such an extent that the negative side-effects are more harmful than the problems the policies were intended to correct. These observers have also noted that measures that restrict land supply, slow growth in the immediate area where the policies are in place and push up housing prices can be very attractive to individuals who already own their own homes.

In any case, the figures presented in this survey, like the collection of data on demographia.com more generally, are endlessly fascinating and very important. They provide some basis for exploring issues that will figure importantly in discussions of housing policy for decades to come

[Robert Bruegmann](#), PhD

Professor Emeritus of Art History, Architecture and Urban Planning

University of Illinois at Chicago

Author, *[Sprawl: A Compact History](#)*



TABLE OF CONTENTS

Introduction: By Robert Bruegmann	Front
Executive Summary	1
1. Rating Housing Affordability	5
2. Housing Affordability in 2011	8
Overview	8
Australia	11
Canada	12
China (Hong Kong)	13
Ireland	13
New Zealand	14
United Kingdom	14
United States	15
3. Housing Affordability: Incompatible with Restrictive Regulation	17
4. Preserving "The Ideal of a Property Owning Democracy"	21
Schedule 1: International Housing Affordability Rankings: All Markets	25
Schedule 2: National Housing Affordability Rankings	32
Schedule 3: International Housing Affordability Rankings: Major Markets	40
Annex 1: Uses, Methods and Sources	42
Annex 2: Introductions to Previous Editions	46
Annex 3: Resources for Additional Research	46
Biographies	47



FIGURES

1: National Housing Affordability	8
2: Housing Affordability & Land Regulation	11
3: Housing Affordability: Australia	11
4: "Across the Road" Raw Land Values	19
5: Florida Housing Affordability: 2000-2011	22

TABLES

ES-1 Demographia Housing Affordability Rating Categories	1
ES-2: Housing Affordability by Nation: Major Metropolitan Markets	2
ES-3 Housing Affordability by Nation: All Markets	3
1: Land Use Regulation Market Classifications	7
2: Demographia Housing Affordability Rating Categories	7
3: Distribution of Markets by Housing Affordability Rating Category	8
4: Housing Affordability by Nation: Major Markets	9
5: Housing Affordability Ratings by Nation: All Markets	10
6: Australia: Affordability & Severe Unaffordability	12
7: Canada: Affordability & Severe Unaffordability	13
8: Hong Kong: Affordability & Severe Unaffordability	13
9: Ireland: Affordability & Severe Unaffordability	14
10: New Zealand: Affordability & Severe Unaffordability	14
11: United Kingdom: Affordability & Severe Unaffordability	15
12: United States: Affordability & Severe Unaffordability	16

Permission granted to quote with attribution.

Permission granted for links to this report
<http://www.demographia.com/dhi.pdf>

Permission granted for links to the websites
<http://www.demographia.com/>
<http://www.performanceurbanplanning.org/>



ERRATA

The median household income data reported for Lexington, Kentucky (\$89,400) is incorrect. The correct figure is \$46,800. This changes the Lexington Median Multiple to 3.1. Lexington's rank in the international housing affordability list drops from third to a tie for 117th. All metropolitan markets ranked from fourth to 118th move up one position.

8th Annual Demographia International Housing Affordability Survey

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

EXECUTIVE SUMMARY

Rating Housing Affordability

The 8th Annual Demographia International Housing Affordability Survey covers 325 metropolitan markets in Australia, Canada, Hong Kong, Ireland, New Zealand, the United Kingdom and the United States. 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.

Rating	Median Multiple
Affordable	3.0 & Under
Moderately Unaffordable	3.1 to 4.0
Seriously Unaffordable	4.1 to 5.0
Severely Unaffordable	5.1 & Over

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, mortgage payments will also be double or triple, whatever the interest rate.

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.

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 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.



Housing Affordability in 2011

Housing affordability was little changed in 2011, 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.

Major Metropolitan Markets: The 325 markets include 81 major metropolitan markets (those with more than 1,000,000 population).

Among these major metropolitan markets, there were 24 affordable major markets, 20 moderately unaffordable major markets, 13 seriously unaffordable major markets and 24 severely unaffordable major markets. All of the affordable major markets were in the United States while three of the moderately unaffordable markets were in Canada and one in Ireland with the other 16 in the United States. The severely unaffordable major markets were principally in the United Kingdom (8), the United States (6), and Australia (5). Hong Kong was severely unaffordable and there were three severely unaffordable major markets in Canada and one in New Zealand (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	National Median
Australia	0	0	0	5	5	6.7
Canada	0	3	0	3	6	4.5
China (Hong Kong)	0	0	0	1	1	12.6
Ireland	0	1	0	0	1	3.4
New Zealand	0	0	0	1	1	6.4
United Kingdom	0	0	8	8	16	5.0
United States	24	16	5	6	51	3.1
TOTAL	24	20	13	24	81	

The most affordable major market was Detroit, with a Median Multiple of 1.4, below the historic range of 2.0 to 3.0. Atlanta had a Median Multiple of 1.9. The other 22 affordable major markets had Median Multiples of from 2.0 to 3.0, with the most affordable being Phoenix, Rochester, Cincinnati, Cleveland and Las Vegas. The strong growth markets of Dallas-Fort Worth, Houston, Orlando, Jacksonville, Nashville, Oklahoma City, Sacramento and Indianapolis also achieved affordable ratings.

All major markets in Australia and New Zealand, as well as Hong Kong were severely unaffordable. Hong Kong was the least affordable major market (ranked 81st), with a median multiple of 12.6. Vancouver was second most unaffordable, at a Median Multiple of 10.6 (ranked 80th), which is even more severely unaffordable than last year. Sydney was the third most unaffordable, at 9.2 (ranked 79th). Melbourne and Plymouth & Devon all had Median Multiples of more than 7.0.

All Markets: Among all 325 markets surveyed, there were 128 affordable markets, 117 in the United States, 9 in Canada and 2 in Ireland. There were 87 moderately unaffordable markets, 64 in the United States, 19 in Canada, 3 in Ireland and 1 in the United Kingdom. There were 39 seriously unaffordable markets and 71 severely unaffordable markets. Australia had 25 severely unaffordable markets, followed by the United Kingdom with 20 and the United States with 14. Canada had 6 severely unaffordable markets, while New Zealand had 5. China's one included market, Hong Kong, was also severely unaffordable (Table ES-3).



Honolulu and Bournemouth & Dorsett were the most unaffordable markets outside the major metropolitan markets, with a Median Multiple of 8.7.

Table ES-3 Housing Affordability Ratings by Nation: All Markets						
Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	National Median
Australia	0	0	7	25	32	5.6
Canada	9	19	1	6	35	3.5
China (Hong Kong)	0	0	0	1	1	12.6
Ireland	2	3	0	0	5	3.3
New Zealand	0	0	3	5	8	5.2
United Kingdom	0	1	12	20	33	5.1
United States	117	64	16	14	211	3.0
TOTAL	128	87	39	71	325	

Housing Affordability: Incompatible with Restrictive Regulation

The deterioration of housing affordability in many of the markets rated in the *Demographia International Housing Affordability Survey* is unprecedented based upon the available historical data. Australia and New Zealand, for example, which had legendary housing affordability from after World War II to the 1980s and 1990s have seen house prices reach levels that are nearly double even nearly triple their historic ratio to household incomes.

The economic evidence indicates that this trend is strongly related to the implementation of more restrictive land use regulations, especially measures that create scarcity in land for housing. In creating scarcity, more restrictive land regulation increases land prices, which increases house prices. In considering this process, economist Anthony Downs, of The Brookings Institution in Washington, D.C., has indicated the importance of maintaining the "principle of competitive land supply." This is particularly important because one of the most favored more restrictive land use policies is the "urban growth boundary," which prohibits development on considerable amounts of land that would otherwise be developable, resulting in artificial and unnecessary scarcity values. The escalation of house prices relative to incomes, from Sydney and Vancouver to London and across California testify to the failure of planning to maintain a competitive land supply. The record shows that smart growth (urban consolidation and compact cities policies) is incompatible with housing affordability.

More restrictive regulation has led to situations where "across the road" values per hectare of raw, developable land vary by more than 10 times in Auckland and Portland, based upon whether they are inside or outside the urban growth boundary. And these "urban echo values" at these locations (pricing in anticipation of future urban zoning) are generally substantially higher than the true rural values, further out from the urban growth boundary. Even larger differences have been documented in the United Kingdom's Barker Report and researchers at the London School of Economics.

Further, economic analyses have indicated that metropolitan areas with more restrictive land use regulation tend to perform less well economically than would have been otherwise expected.



Preserving the "Ideal of a Property Owning Democracy"

One of the principal accomplishments of high-income world societies has been the expansion of property ownership and home ownership to the majority of the population. At the same time, there are dark economic clouds on the horizon. Governments in high income nations are faced with some of the most challenging times in their history. In this environment, the property owning middle-class seems likely to have to face significant challenges in the longer run. Housing represents the largest share of household budgets and thus, housing affordability is a major determinant of both the cost of living and the standard of living.

There are important positive signs. The state of Florida repealed its more restrictive regulations ("smart growth" law) in 2011. A major report released in December 2011 in New Zealand documented the importance of a competitive land supply in restoring housing affordability to that nation.

These are important first steps. There are serious social risks to more restrictive regulation and unnecessarily denying households the opportunity to own their own homes. In writing on the issue 40 years ago, urbanologist Peter Hall expressed concern about the effect of such policies on the "ideal of a property owning democracy."



8th Annual Demographia International Housing Affordability Survey

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

1. RATING HOUSING AFFORDABILITY

The *8th Annual Demographia International Housing Affordability Survey*. The *Survey* covers housing affordability in 325 metropolitan markets in Australia, Canada, Ireland, New Zealand, the United Kingdom, the United States and Hong Kong in China. The *Demographia International Housing Affordability Survey* is unique in providing standardized comparisons of housing affordability between international housing markets. The *8th Annual Demographia International Housing Affordability Survey* includes estimates from the September quarter (third quarter) of 2011.

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 2007.¹ 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. This is important, because of the large differences that can occur in housing affordability within nations.

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.

The *Demographia International Housing Affordability Survey* uses the “Median Multiple” (median house price divided by gross annual median household income)² to assess housing affordability. The Median Multiple is widely used for evaluating urban markets, and has been recommended by the World Bank³ and the United Nations and is used by the [Harvard University Joint Center on Housing](http://www.harvard.edu/joint-center-on-housing/).⁴ 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 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. Alun Beward, a state of Victoria economist has described how such indicators can mislead. The reality is that, if house prices double or triple relative to incomes, as has occurred in many severely unaffordable markets, mortgage payments will also be double or triple, whatever the interest rate.

¹ In the United States, housing became seriously unaffordable or severely unaffordable in a number of metropolitan markets (all of them with more restrictive land use 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](http://www.heritage.org/) policy report.

² Also called the price to income ratio.

³ *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.

⁴ *Indicators of Sustainable Development: House Price to Income Ratio*: http://esl.jrc.it/envind/un_meths/UN_ME050.htm.



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.

The Median Multiple Affordability Standard: Historically, the Median Multiple has been remarkably similar among six of the nations surveyed for the stock of homes included in principal national reports. As Anthony Richards of the Reserve Bank of Australia has shown, 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.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.⁶ 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. No similarly long series of data has been identified for Hong Kong.

The causes of massively deteriorating housing affordability are not a mystery. They inevitably result from more restrictive land use regulations adopted by governments with insufficient attention to economic fundamentals.

Thus, the historical evidence in six nations is of similar housing affordability, using the indexes of housing affordability that have been in most common use as reflective of the housing market in each of the nations. 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.

In recent decades, housing affordability has deteriorated materially across Australia, Ireland, New Zealand⁷ 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 massively deteriorating housing affordability are not a mystery. They inevitably result from more restrictive land use regulations adopted by governments with insufficient attention to economic fundamentals. This occurs even as virtually all governments profess housing affordability as an important public objective. Where land is rationed (by more restrictive land use regulation), house prices will rise. Thus, where house prices have increased substantially, they have been preceded by more restrictive land use regulation (Table 1). The substantial body of economic evidence is described further in Section 3 ("Housing Affordability: Incompatible with Restrictive Regulation").

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 market, 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

⁵ 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 (Figure 1.1).

⁶ A value below 2.0 is affordable, but may indicate depressed economic conditions.

⁷ 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)



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. 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 soon enter the work force.

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.

**Table 1
LAND USE REGULATION MARKET CLASSIFICATIONS**

The land use regulation categories used in this report are as follows:

More Restrictive Markets (also called "prescriptive markets") rely on comparatively intrusive land use regulation, and include markets where residential development (new construction) is strongly controlled or driven by comprehensive plans or with extensive limits on development imposed at various levels of government. More restrictive land use regulation are also referred to as "compact development", "urban consolidation", "growth management" "and " smart growth." Generally, more restrictive land use regulation is "plan-driven," as planners and governments determine where new housing is allowed to be built. As a result, there is a "negative presumption," with respect to development: Development is generally prohibited, except in limited areas where it is permitted by government plans. By severely limiting or even prohibiting development on the urban fringe, more restrictive regulation can make the "supply vent" inoperative where demand for new housing exceeds supply, which retards housing affordability. The classification of major markets is described in "Use, Methods and Sources" and illustrated in Figure 2.

Less Restrictive Markets (also called "responsive" markets) are all markets not classified as "more restrictive." In these markets, residential development is allowed to occur based upon consumer preferences, subject to reasonable environmental regulation. Generally, less restrictive land use regulation is "demand-driven" There is a "positive presumption" that land can be developed, except in limited areas, such as parks and environmentally sensitive areas. By allowing development on the urban fringe, less restrictive 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.

Housing Affordability Ratings: The *8th Annual Demographia International Housing Affordability Survey* uses existing house sales transaction data to rate housing affordability in the 325 markets. Housing affordability ratings are assigned based upon the Median Multiple (Table 2).

**Table 2
Demographia Housing Affordability Rating Categories**

Rating	Median Multiple
Affordable	3.0 & Under
Moderately Unaffordable	3.1 to 4.0
Seriously Unaffordable	4.1 to 5.0
Severely Unaffordable	5.1 & Over



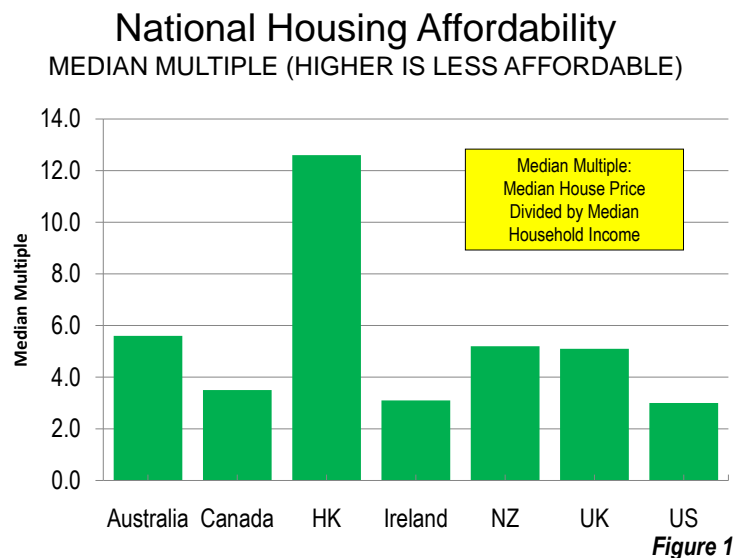
2. HOUSING AFFORDABILITY IN 2011

Housing affordability generally improved over the past year in the surveyed nations, though the most unaffordable markets, Hong Kong and Vancouver became even more unaffordable. The best performing national housing market, overall, continued to be the United States, where the overall Median Multiple was 3.0, equaling last year's figure. Ireland's housing market ranked second in housing affordability, with a Median Multiple of 3.3. This is the first time that a nation other than the United States or Canada has been the second most affordable. House prices reductions in Ireland have now nearly erased the artificial price increases of the destructive housing bubble.

Canada's Median Multiple was 3.5, indicating slightly deteriorating housing performance from last year's 3.4. 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 12.6, followed by Australia at 5.6, New Zealand at 5.2 and the United Kingdom at 5.1 (Figure 1).

Among the 325 markets, 128 were affordable (Median Multiple of 3.0 or less), an improvement from 115 in 2010. The number of moderately unaffordable markets (Median Multiple of 3.1 to 4.0) declined from 94 to 87, while there were 39 seriously unaffordable markets (Median Multiple of 4.1 to 5.0), which was down from 42 in 2010. There remained 71 severely unaffordable markets (Median Multiple over 5.0), which was an improvement over the 74 from 2010 (Table 3)

The distribution of housing affordability in major metropolitan markets (those with more than 1,000,000 residents) was similar to last year. The number of severely unaffordable (24) and seriously unaffordable (13) markets remained the same, while four metropolitan markets became affordable, having graduated from being moderately unaffordable.



Rating	Median Multiple	Major Markets (Number)	All Markets (Number)
Affordable	3.0 or Less	24	128
Moderately Unaffordable	3.1 to 4.0	20	87
Seriously Unaffordable	4.1 to 5.0	13	39
Severely Unaffordable	5.1 & Over	24	71
TOTAL		81	325



Major Metropolitan Markets: All of the 24 affordable major metropolitan markets were in the United States. The United States also had 16 moderately unaffordable major metropolitan markets, while Canada had three and Ireland one. All of the major metropolitan markets in Australia and New Zealand, while one-half of the major markets in the United Kingdom and Canada were severely unaffordable (Table 4).

Table 4 Housing Affordability Ratings by Nation: Major Markets (Over 1,000,000 Population)						
Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	National Median
Australia	0	0	0	5	5	6.7
Canada	0	3	0	3	6	4.5
China (Hong Kong)	0	0	0	1	1	12.6
Ireland	0	1	0	0	1	3.3
New Zealand	0	0	0	1	1	6.4
United Kingdom	0	0	8	8	16	5.0
United States	24	16	5	6	51	3.1
TOTAL	24	20	13	24	81	

The most affordable major market (over 1,000,000 population) was Detroit, with a Median Multiple of 1.6. Atlanta was the second most affordable, with a Median Multiple of 1.9 (Schedule 3). Phoenix, which had experienced a highly volatile housing market that reached serious unaffordability at the peak of the housing bubble has since seen housing affordability restored, with a Median Multiple of 2.2, while the major markets of Rochester (NY), Cincinnati, Cleveland and Las Vegas each had a Median Multiple of 2.4. [Las Vegas](#) had reached severe unaffordability during the housing bubble, where, like in [Phoenix](#), a shortage of developable private land drove prices up when heightened sub-prime mortgage demand increased. The house price rises in these metropolitan areas during the housing bubble were similar to that of markets where stringent urban growth boundaries have been enforced, and driven prices up substantially (such as Vancouver, Sydney and other Australian markets) The strong growth markets of Dallas-Fort Worth, Houston, Orlando, Jacksonville, Nashville, Oklahoma City, Sacramento and Indianapolis also achieved affordable ratings.

The most affordable major metropolitan markets outside the United States were Dublin, with a Median Multiple of 3.4 and Edmonton, with a Median Multiple of 3.5.

The five least affordable major metropolitan markets remained the same in 2011. Hong Kong, Vancouver and Sydney continued to be the most unaffordable major markets. However Vancouver displaced Sydney as the second most unaffordable market. Hong Kong ranked as the least affordable major market (81st)⁸, with a median multiple of 12.6. Vancouver ranked second least affordable (80th), with a Median Multiple of 10.6. Sydney ranked third most unaffordable, with a Median Multiple of 9.2 (79th). Melbourne ranked 78th, with a Median Multiple of 8.4. Plymouth & Devon was also above 7.0 (78th), with a Median Multiple of 7.4. The 5 major metropolitan areas with a Median Multiple above 7.0 is an improvement from last year's 8 (Table 4).

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

⁸ Last year, there were 82 major markets, instead of 81. Tucson, which had been rated based upon the latest population estimates did not make the 1,000,000 threshold in the 2010 US Census and was thus not included.



As in the past, each of the least affordable (seriously unaffordable and severely unaffordable) markets were characterized by more restrictive land use regulation (such as “compact development,” “urban consolidation,” “growth management,” “smart growth,” or more recently, "livability" policies), [which materially increases the price of land and makes housing less affordable](#). At the same time, all of the affordable markets were characterized by the “less restrictive” land use regulation, which has been associated with greater housing affordability (Figure 2 and Table 1, above).

All Markets: The 325 markets are ranked by housing affordability in Schedule 1. All of the 128 affordable markets (having a Median Multiple of 3.0 or below) were in Ireland, Canada and the United States. There were 117 affordable markets in the United States and 9 affordable markets in Canada and two affordable markets in Ireland. There were no affordable markets in Australia, New Zealand or the United Kingdom.

The 87 moderately unaffordable markets were divided between the United States (64), Canada (19), Ireland (3) and the United Kingdom (1). There were no moderately unaffordable markets in Australia or New Zealand (Table 5).

The metropolitan markets of Australia, New Zealand and the United Kingdom were concentrated in the seriously unaffordable and severely unaffordable categories. By contrast, less than 20 percent of the markets in Canada were severely unaffordable and less than 10 percent in the United States.

Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	National Median
Australia	0	0	7	25	32	5.6
Canada	9	19	1	6	35	3.5
China (Hong Kong)	0	0	0	1	1	12.6
Ireland	3	2	0	0	5	3.3
New Zealand	0	0	3	5	8	5.2
United Kingdom	0	1	12	20	33	5.1
United States	117	64	16	14	211	3.0
TOTAL	128	87	39	71	325	

The nine most affordable markets outside the major markets were all in the United States, which accounted for 31 of the 34 most affordable markets. Canada accounted for the other three most affordable metropolitan markets.

The least affordable markets outside the major markets were Honolulu and Bournemouth & Dorset (UK) with a Median Multiple of 8.7, Coff's Harbour (NSW, Australia) at 8.4, the Gold Coast (Australia) at 7.6 and the Sunshine Coast (QLD) at 7.5.



Housing Affordability & Land Regulation

LARGER METROPOLITAN MARKETS

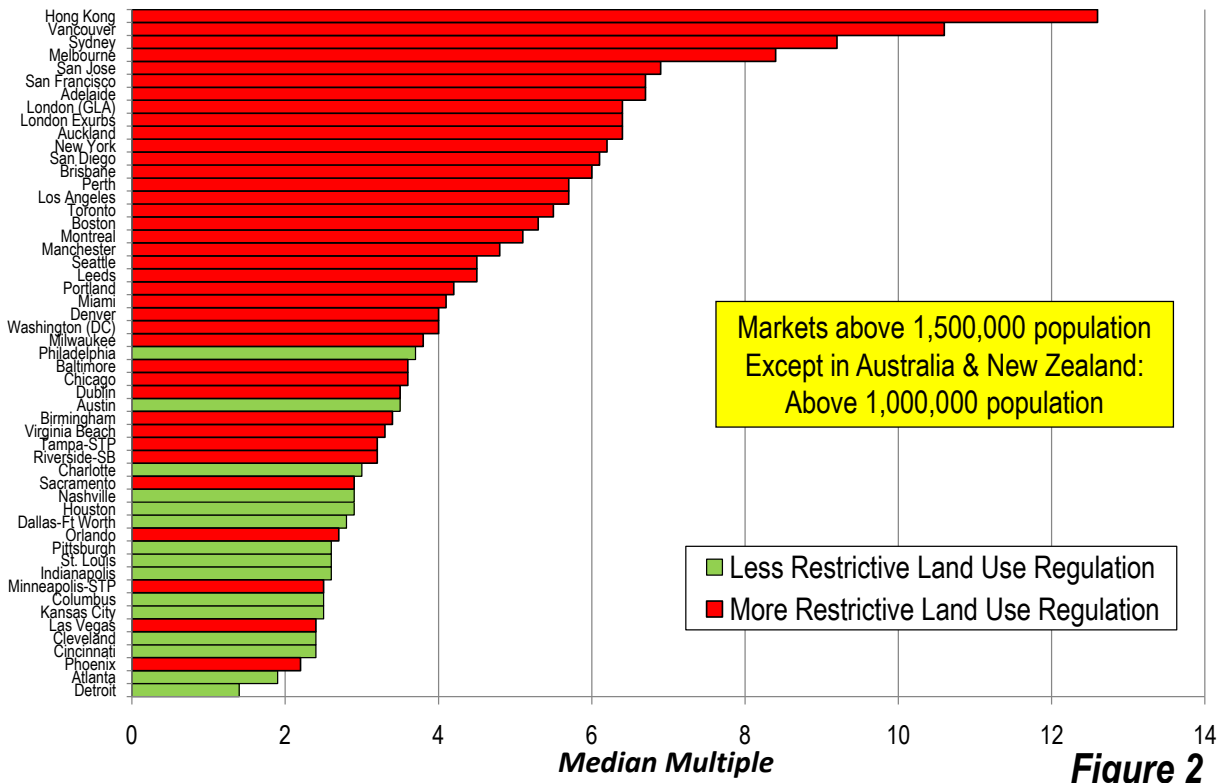


Figure 2

Summary by Nation

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

Australia: Australia's housing affordability improved from Median Multiple of 6.1 to 5.6 over the past year. Still, however, Australia exhibited the worst housing affordability of any national market outside Hong Kong. There were no affordable markets in Australia in 2011 and the overwhelming majority of markets were severely unaffordable (Table 6).

Housing Affordability: Australia

MAJOR MARKETS: 1981-2011

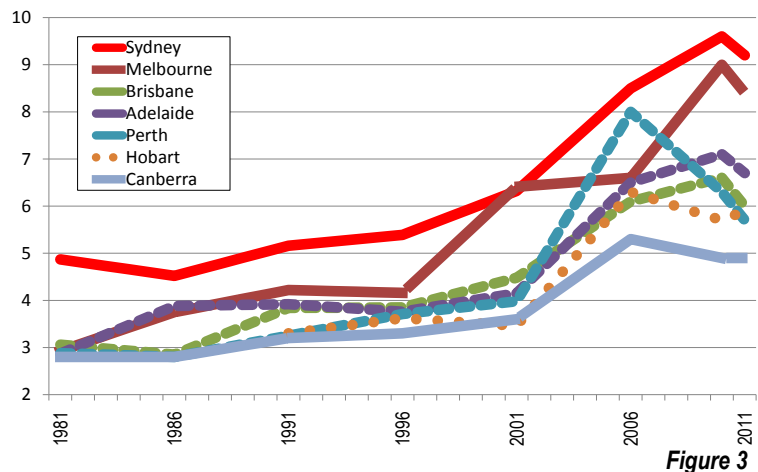


Figure 3



Australia's major metropolitan markets have a severely unaffordable Median Multiple of 6.7 more than two times the 3.0 affordability standard. Each of Australia's major markets, with the exception of Sydney had housing affordability within the 3.0 Median Multiple norm during the 1980s.

Sydney, which has had long-standing limits on housing development on the urban fringe, was the most unaffordable major market. Sydney had a Median Multiple of 9.2. Melbourne had a Median Multiple of 8.4. Adelaide had a Median Multiple of 6.7, despite being the lowest demand major market in the nation. Brisbane (6.0) and Perth (5.7) were also well above the severely unaffordable threshold. Like Sydney, each of these markets has more restrictive land use regulation and has seen its housing affordability deteriorate markedly. Housing affordability has improved substantially in Perth since 2006, when the Median Multiple was 8.0. However, Perth remains severely unaffordable (Figure 3).

Outside the major metropolitan areas, the least expensive markets were Mildura (VIC) and Shepparton (VIC) at 4.2, Launceston (TAS) at 4.5, Bunbury (WA) at 4.6, Toowoomba (QLD) at 4.7, Albury-Wodonga (NSW-VIC) and Canberra (ACT) at 4.9. All of these markets were rated seriously unaffordable. Outside the major metropolitan areas, the most expensive markets were Coff's Harbour (NSW) at 8.4, the Gold Coast (QLD) at 7.6, the Sunshine Coast (QLD) at 7.5 and Geelong (VIC) at 7.1.

Table 6 AUSTRALIA AFFORDABILITY AND SEVERE UNAFFORDABILITY	
AFFORDABLE Median Multiple: 3.0 & Under	SEVERELY UNAFFORDABLE Median Multiple 5.1 & Over
NONE	Adelaide Alice Springs Ballarat Bendigo Brisbane Bundaberg Cairns Coff's Harbor Darwin Devonport-Burnie Geelong Gold Coast Hobart
	Mackay Mandurah Melbourne Newcastle-Maitland Perth Rockingham Sunshine Coast Sydney Tamworth Townsville Wagga Wagga Wollongong

Canada: Housing in Canada is moderately unaffordable with a Median Multiple of 4.6 in major metropolitan markets and 3.4 overall. Housing was generally affordable 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, this year, Canada ranks third, behind the United States and Ireland.

Among major markets, four were moderately unaffordable and two were severely unaffordable. Among all markets, 9 were affordable, 17 were moderately unaffordable, 3 were seriously unaffordable and 6 were severely unaffordable. The four most unaffordable metropolitan markets were in British Columbia (Table 7).

Edmonton was the most affordable major market, with a Median Multiple of 3.5, while Ottawa-Gatineau had a Median Multiple of 3.7. Both of these markets were rated moderately unaffordable.



Canada's most affordable markets were Windsor (ON) at 2.2, Fredericton (NB) at 2.4, Moncton (NB) at 2.5. Other affordable markets were Saint John (NB) and Thunder Bay (ON) at 2.6. Yellowknife (NWT) and Charlottetown (PEI) at 2.9 and Saguenay (QC) at 3.0 and Trois-Rivieres (QC) at 3.0.

Vancouver, which like Sydney has largely prohibited housing development on the urban fringe for decades, experienced a significant deterioration, with housing reaching a Median Multiple of 10.6, replacing Sydney as the second most unaffordable market in the Survey, following Hong Kong. Toronto was also severely unaffordable, at 5.5, a deterioration of 40 percent in housing affordability since 2004, as that metropolitan area's "smart growth" program has taken effect. Montreal has been one of the worst performers in housing affordability, over the years of the *Demographia International Housing Affordability Survey*, with a Median Multiple of 5.1, up nearly 60 percent from 2004, at the same time as the land for development has been severely limited by an inflexible approach to agricultural zoning. Smaller British Columbia markets Abbotsford (7.0), Victoria (6.6) and Kelowna (6.6) were also severely unaffordable.

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

China (Hong Kong): The one market covered in China, Hong Kong, had the most unaffordable housing in the Survey, with a Median Multiple of 12.6. This is the most unaffordable Median Multiple in the history of the *Demographia International Housing Affordability Survey* (Los Angeles reached 11.5 in 2007).⁹

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

Ireland: Ireland house prices have now nearly returned to normal affordability, following the housing bubble. Dublin and Limerick were the least affordable markets with a Median Multiples of 3.4. Waterford (2.8) and Galway (3.0) were rated as affordable, the first such ratings in Ireland and the first outside Canada and the United States in the history of the *Demographia International Housing Affordability Survey*. For the first time, Ireland had no seriously unaffordable and no severely unaffordable markets. Ireland is the only nation without metropolitan markets in the severely unaffordable and seriously unaffordable categories (Table 9).

⁹ High house price to income ratios in have been reported in mainland China housing markets. However, there is no routine reporting system of median house prices or median household incomes at the metropolitan area level. Thus, other metropolitan areas of China are not included in the *Demographia International Housing Affordability Survey*..



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

New Zealand: Housing in New Zealand was severely unaffordable, with a Median Multiple of 5.4, nearly three-quarters above the historic affordability norm of 3.0. Housing [had been affordable in the early 1990s](#), with a Median Multiple of under 3.0.

Auckland was the least affordable market, with a Median Multiple of 6.4. Along with Auckland, Christchurch (6.3), Tauranga-Western Bay of Plenty (5.9), Dunedin (5.2) and Wellington(5.1) were severely unaffordable. Three New Zealand markets were seriously unaffordable, Palmerston North (4.1), Napier-Hastings (4.8) and Hamilton (4.8). New Zealand had no affordable markets and no moderately unaffordable markets (Table 10).

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

United Kingdom: Housing in the United Kingdom remains severely unaffordable, which is consistent with its long history of more restrictive national land use policies. The United Kingdom has a Median Multiple of 5.1, more than 60 percent above the historic maximum norm of 3.0.¹⁰

Housing [had been affordable in the late 1990s](#), with a Median Multiple of under 3.0. Today, there are no affordable markets in the United Kingdom (Table 11)

Among the major markets, Plymouth & Devon was the most unaffordable, with a Median Multiple of 7.4. London (the Greater London Authority) was second most unaffordable, with a Median Multiple of 6.9, while the London Exurbs (East & Southeast England) was third most unaffordable, with a Median Multiple of 6.4.

Bournemouth & Dorset was by far the most unaffordable of all markets, with a Median Multiple of 8.7. Swindon & Wilshire was the second most unaffordable market outside the major metropolitan areas, at 7.0.

Dundee is the first UK market to be rated moderately unaffordable in the *Demographia International Housing Affordability Survey*.

¹⁰ 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*.



Table 11
UNITED KINGDOM
AFFORDABILITY AND SEVERE UNAFFORDABILITY

AFFORDABLE Median Multiple: 3.0 & Under	SEVERELY UNAFFORDABLE Median Multiple 5.1 & Over	
NONE	Aberdeen	Newport
	Blackpool & Lancashire	Northampton & Shire
	Bournemouth & Dorset	Perth
	Bristol-Bath	Plymouth & Devon
	Edinburgh	Stoke on Trent & Staffordshire
	Leicester & Leicestershire	Swansea
	Liverpool & Merseyside	Swindon & Wiltshire
	London (GLA)	Telford & Shropshire
	London Exurbs	Warrington & Cheshire
	Newcastle & Tyneside	Warwickshire

United States: Housing in the United States was rated as affordable, with the Median Multiple of 3.0. The United States had 117 affordable markets, 64 moderately unaffordable markets, 16 seriously unaffordable markets and 14 severely unaffordable markets (Table 12). This is a remarkable improvement in housing market performance. In 2006 there were fewer than 1.3 affordable markets for each severely unaffordable market. Today, there are more than 8 affordable markets for each severely unaffordable market. A soon to be released analysis will show that the average owner occupied house value in the United States has been returned to its pre-bubble level, after adjustment for inflation and the number of home owners.¹¹

The most affordable markets were concentrated in the industrial heartland, where significant employment losses occurred during the Great Financial Crisis. Saginaw (MI) had the lowest Median Multiple, at 1.3. Other heartland metropolitan areas with unusually low Median Multiples (below 2.0) were Youngstown (OH-PA), Lansing (MI) and Flint (MI). However, the great majority of the affordable markets in the United States were in regions with better economies and had Median Multiples in the normal range of 2.0 to 3.0.

Among the 51 major markets, the Median Multiple was a moderately unaffordable 3.1. There were 24 affordable major markets, 20 moderately unaffordable, 5 seriously unaffordable and 6 severely unaffordable major markets.

Honolulu was the least affordable of all markets, with a Median Multiple of 8.7. Outside the major markets, Santa Cruz, CA (in exurban San Jose) and San Luis Obispo, CA each had a Median Multiples of 6.6 and were severely unaffordable, along with Boulder, CO (in exurban Denver), Barnstable Town, MA (in exurban Boston), Bridgeport, CT (in exurban New York), Santa Rosa, CA (in exurban San Francisco) and Oxnard-Ventura, CA (exurban Los Angeles)

There were 24 affordable major markets in the United States, including Detroit, Atlanta, Phoenix, Cincinnati, Cleveland, Las Vegas, Rochester, Columbus, Kansas City, Minneapolis – St. Paul, Buffalo, Indianapolis, Memphis, Pittsburgh, St. Louis, Jacksonville, Orlando, Dallas/Fort Worth, Houston, Nashville, Oklahoma City, Sacramento, Charlotte and Louisville.

The most unaffordable major metropolitan market in the United States was San Jose (6.9), followed by San Francisco (6.7), San Diego (6.1), New York (6.1), Los Angeles (5.7) and Boston (5.3).

¹¹ This will appear in newgeography.com (<http://www.newgeography.com/>)



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

AFFORDABLE Median Multiple: 3.0 & Under		SEVERELY UNAFFORDABLE Median Multiple 5.1 & Over	
Akron, OH	Las Cruces, NM	Barnstable Town, MA	Oxnard-Ventura, CA
Amarillo, TX	Las Vegas, NV	Boston, MA-NH	San Diego, CA
Anchorage, AK	Lexington, KY	Boulder, CO	San Francisco-Oakland, CA
Ann Arbor, MI	Little Rock, AR	Bridgeport, CT	San Jose, CA
Appleton, WI	Louisville, KY-IN	Honolulu, HI	San Luis Obispo, CA
Atlanta, GA	Lubbock, TX	Los Angeles, CA	Santa Cruz, CA
Augusta, GA	Macon, GA	New York, NY-NJ-PA	Santa Rosa, CA
Bakersfield, CA	McAllen, TX		
Binghamton, NY	Memphis, TN-MS-AR		
Boise City ID	Merced, CA		
Buffalo, NY	Minneapolis-St. Paul, MN-WI		
Canton, OH	Mobile, AL		
Cape Coral-Fort Myers, FL	Modesto, CA		
Cedar Rapids, IA	Montgomery, AL		
Charleston, WV	Nashville, TN		
Charlotte, NC-SC	Ocala, FL		
Chattanooga, TN-GA	Ogden, UT		
Cincinnati, OH-KY-IN	Oklahoma City, OK		
Clarksville, TN	Omaha, NE-IA		
Cleveland, OH	Orlando, FL		
Columbia, SC	Palm Bay-Melbourne, FL		
Columbus, GA-AL	Peoria, IL		
Columbus, OH	Phoenix, AZ		
Dallas-Fort Worth, TX	Pittsburgh, PA		
Davenport, IA-IL	Port St. Lucie, FL		
Dayton, OH	Poughkeepsie, NY		
Deltona-Daytona Beach, FL	Prescott, AZ		
Des Moines, IA	Provo, UT		
Detroit, MI	Racine, WI		
Duluth, MN	Reading, PA		
Elkhart, IN	Reno-Sparks, NV		
Erie, PA	Roanoke, VA		
Evansville, IN	Rochester, NY		
Fargo, ND-MN	Rockford, IL		
Fayetteville, AR-MO	Sacramento, CA		
Fayetteville, NC	Saginaw, MI		
Flint, MI	Saint Louis, MO-IL		
Fort Smith, AR-OK	Savannah, GA		
Ft. Wayne, IN	Scranton-Wilkes Barre, PA		
Grand Rapids, MI	Sioux Falls, SD		
Greeley, CO	South Bend, IN		
Green Bay, WI	Spartanburg, SC		
Gulfport, MS	Springfield, IL		
Hagerstown, MD-WV	Springfield, MO		
Harrisburg, PA	Stockton, CA		
Hickory, NC	Syracuse, NY		
Holland, MI	Toledo, OH		
Houma, LA	Topeka, KS		
Houston, TX	Tucson, AZ		
Huntington, WV-KY-OH	Tulsa, OK		



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

AFFORDABLE Median Multiple: 3.0 & Under	SEVERELY UNAFFORDABLE Median Multiple 5.1 & Over
Indianapolis, IN	Tuscaloosa, AL
Jacksonville, FL	Utica, NY
Kalamazoo, MI	Vallejo, CA
Kansas City, MO-KS	Visalia, CA
Killeen, TX	Wichita, KS
Lafayette, LA	Winston-Salem, NC
Lakeland, FL	York, PA
Lansing, MI	Youngstown, OH-PA
Laredo, TX	

3. HOUSING AFFORDABILITY: INCOMPATIBLE WITH RESTRICTIVE REGULATION

The deterioration of housing affordability in many of the markets rated in the *Demographia International Housing Affordability Survey* is unprecedented based upon the available historical data. Australia and New Zealand, for example, which had legendary housing affordability from after World War II to the 1980s and 1990s have seen house prices reach levels that are double to nearly triple their historic ratio to household incomes.

The economic evidence indicates that this trend is strongly related to the implementation of more restrictive land use regulations, especially measures that create scarcity in land for housing thus drive up prices. The conclusions of Richard C. Green and Stephen Malpezzi, who have conducted substantial research on the subject, are typical:

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.

Various attempts have been made to establish indexes of land-use regulatory restrictiveness. However, no broadly-accepted index has yet been developed that effectively quantifies the gross impact of the widely differing regulatory regimes that exist in U.S. metropolitan areas.

In reviewing research in which economists have attempted to establish indexes of regulatory restrictiveness, Green and Malpezzi say that *regardless of the index used, increased levels of regulations bring about higher house prices*. Their own model indicates a strong association between more restrictive land-use regulations, higher house prices, higher rents, and diminished home building. Finally, Green and Malpezzi indicate that more restrictive regulations "increase costs, often without corresponding benefits."¹²

The extent to which house price increases are associated with land-use regulation thus varies. However, the research on the issue overwhelmingly implies an association between more restrictive land-use regulations and higher house prices as well as higher house price increases. For example, one literature review lists more than 25 studies over a period of 30 years, all of which indicate a potential for association between more restrictive

¹² Green, Richard K., and Stephen Malpezzi. *A Primer on U. S. Housing Markets and Housing Policy* (Urban Institute Press, 2003): 146.



land use regulations and higher house prices.¹³ More restrictive regulation has been associated¹⁴ with up to nearly 87 percent of house price increases, ¹⁵ up to 54 percent higher overall house prices and 61 percent higher new house prices.¹⁶

While the preponderance of the economic research supports an association between more restrictive land-use regulation and higher house prices, no specific quantitative formula is proposed to estimate or predict the extent of the association. The focus is simply on the fact that a higher house price index association emerges generally from the economic literature, the extent of which may vary substantially.

...one literature review lists more than 25 studies over a period of 30 years, all of which indicate a potential for association between more restrictive land use regulations and higher house prices

Additional 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](#).¹⁷ The research includes reports by analysts at national central banks, international economic organizations. A [bibliography of land regulation research](#) is also provided on at [performanceurbanplanning.org](#), which is maintained by co-author Hugh Pavletich.

Moreover, these more restrictive land use regulations are associated with [more price volatility](#) and, according to the Federal Reserve Bank of Dallas, [greater speculation](#).

The Principle of Competitive Land Supply

In considering this interplay, economist Anthony Downs, of The Brookings Institution in Washington, D.C., has indicated the importance of maintaining the "principle of competitive land supply."¹⁸ This is particularly important because one of the most favored more restrictive land use policies is the "urban growth boundary," which prohibits development on considerable amounts of land that would otherwise be developable, resulting in scarcity. These artificial and politically created scarcity values progressively reduce the ability of home builders, to supply new housing within the lower bands of the market. Effectively, the supply of new affordable housing is outlawed.

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. "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."

¹³ Quigley, J.M., and L. Rosenthal. "The Effects of Land Use Regulation on the Price of Housing: What do We Know? What Can We Learn" (*Cityscape*, 2005): 8, 69–138.

¹⁴ Green, Richard K., and Stephen Malpezzi. *A Primer on U. S. Housing Markets and Housing Policy* (Urban Institute Press, 2003): 146.

¹⁵ <http://depts.washington.edu/teclass/landuse/Housing051608.pdf>

¹⁶ Downs, Anthony. "Satan or Savior: 1. Regulatory Barriers to Affordable Housing," *Journal of the American Planning Association*, 58, 4 (1992): 419-22.

¹⁷ 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.

¹⁸ Downs, Anthony. *New Visions for Metropolitan America* (Brookings Institution Press, 1994).



Even authors who have promoted more restrictive land use regulation conclude in a widely-cited literature review that “. . . **the housing price effects of growth management policies depend heavily on how they are designed and implemented** (emphasis in original). If the policies tend to restrict land supplies, then housing price increases are expected.”¹⁹

The record indicates that smart growth (urban consolidation and compact cities policies) is incompatible with housing affordability

The escalation of house prices relative to incomes, from Sydney and Vancouver to London and across California testify to the failure of planning to maintain that principle. The record shows that smart growth (urban consolidation and compact cities policies) is incompatible with housing affordability.

Massive "Across the Road" Property Value Differences

The loss of a competitive land supply may be indicated in the research about Portland, Ore.; Auckland, New Zealand; and elsewhere. In Portland's Washington County (the western portion of the urban area), indicated land values are approximately 11 times as high per hectare on one side of the urban growth boundary (Figure 4) compared to the other (across the road that serves as the urban growth boundary).²⁰ An analysis of more distant properties (5 miles or 8 kilometers beyond the urban growth boundary) indicate that properties immediately inside the urban growth boundary were 21 times as valuable per hectare as the more distant properties. This larger difference is more reflective of the more genuine rural values that do not include the “artificial fringe scarcity value” or the expectation of future urban zoning potential.

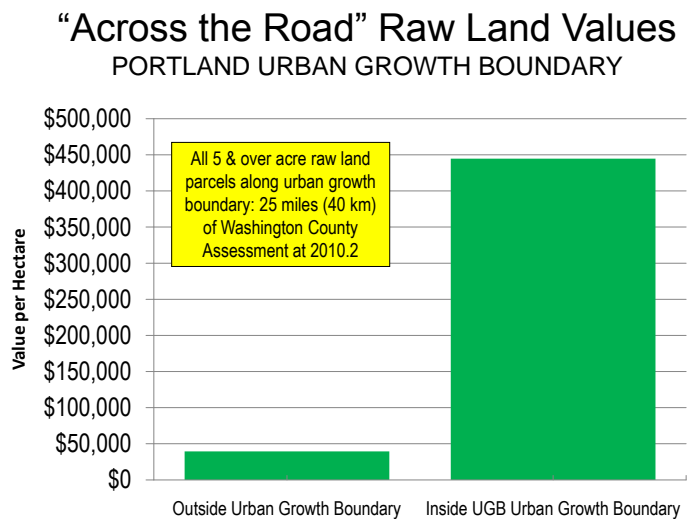


Figure 4

Land values across Auckland’s urban growth boundary averaged 10 times the prices per hectare of comparable land inside the urban growth boundary compared to just outside, according to the Chairman of the Board of the Reserve Bank of New Zealand’s research.²¹ Even larger differences have been documented in the United Kingdom's *Barker Reports* (by former

¹⁹ Nelson, Arthur C., Rolf Pendall, Casey J. Dawkins, and Gerrit J. Knapp. *The Link Between Growth Management and Housing Affordability: The Academic Evidence* (Brookings Institution, 2002): 24 (emphasis in original). <http://www.brookings.edu/reports/2002/02housingaffordability.aspx>.

²⁰ Cox, Wendell. "Housing Constraints, Natural and Regulatory," *Econ Journal Watch*, January 2011. <http://econjwatch.org/issues/volume-8-issue-1-january-2011>.

²¹ New Zealand Treasury, 2025 Task Force, *Answering the \$64,000 Question: Closing the Income Gap with Australia by 2025: First Report and Recommendations*, <http://www.2025taskforce.govt.nz/pdfs/2025tf-1streport-nov09.pdf>



Bank of England Monetary Policy Committee member Kate Barker)²² and researchers at the London School of Economics.

More Restrictive Regulation Leads to Less Competitive Metropolitan Areas

An association has also been identified between more restrictive land use regulation and slower economic growth.

Saks: Raven Saks found that where housing supply is more constrained by regulations, employment growth is likely to be less than expected. The annual differential is estimated at a reduction of 0.2 percent per one percent of growth (a 20 percent reduction in the annual growth rate)

...where housing supply is more constrained by regulations, employment growth is likely to be less than expected.

Nandwa and Ogura: Boaz Nandwa of the University of Dubai and Laudo Ogura of Grand Valley State University found that metropolitan areas with strict land-use regulation tend to have an annual productivity increase of 0.6 percent less than would be expected with less stringent regulation.

Vermeulen and Van Ommeren: Wouter Vermeulen of the Netherlands Bureau of Economic Analysis and Jos Van Ommeren of VU University (Amsterdam) associated slower employment growth in the Randstad (the largest metropolitan region in the Netherlands, consisting of Amsterdam, Rotterdam, the Hague and other municipalities) compared with surrounding regions with the housing supply limitations attributable to stronger land use regulation.

Mayo and Angel: Stephen K. Mayo and Shlomo Angel²³ cite research associating higher unemployment rates in the north of England and Scotland with the UK's more restrictive land use regulations.

Evans: Andrew Evans of the University of Reading has found that Britain's land use regulations have reduced gross national product growth.²⁴

Defining Affordable Housing Markets

Based upon the international evidence, *Demographia International Housing Affordability Survey* co-author Hugh Pavletich of [Performance Urban Planning](#), provides the following definition of an affordable housing market:

For metropolitan areas to rate as “affordable” and ensure that housing bubbles are not triggered, housing prices should not exceed 3.0 times gross annual household income.

For metropolitan areas to rate as “affordable” and ensure that housing bubbles are not triggered, housing prices should not exceed 3.0 times gross annual household income. To allow this to occur, new starter housing of an acceptable quality

²² Kate Barker (2004 and 2006). *Review of Housing Supply: Delivering Stability: Securing Our Future Housing Needs: Final Report—Recommendations*. Norwich, England: Her Majesty's Stationery Office. www.hm-treasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm and *Barker Review of Land Use Planning*, http://www.hm-treasury.gov.uk/media/4EB/AF/barker_finalreport051206.pdf.

²³ Professor Angel authored the introduction to the [5th Annual Demographia International Housing Affordability Survey](#).

²⁴ Alan W. Evans (2004), *Economics and Land Use Planning*, <http://onlinelibrary.wiley.com/book/10.1002/9780470690895>



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 (refer Demographia Survey Schedules for guidance).

The critically important Development Ratios²⁵ for this new fringe starter housing should be 17 – 23% serviced lot / section cost – the balance the actual housing construction.

Pavletich further notes that the urban fringe "is the only supply vent or inflation vent of an urban market." This reality is demonstrated by the house price experience that has occurred where planning authorities have placed a strangle-hold on the supply of land on the urban fringe.

4. PRESERVING "THE IDEAL OF A PROPERTY OWNING DEMOCRACY"

One of the principal accomplishments of high-income world societies has been the expansion of property ownership and home ownership to the majority of the population. This has contributed materially to the unprecedented prosperity that has developed. At the same time, there are dark economic clouds on the horizon. Governments in high income nations are faced with some of the most challenging times in their history. This is perhaps best illustrated by the continuing financial difficulties in the European Union and the recurring inability of the political leadership to solve the problem. Things are little different in many other parts of the high income world. In the United States, the federal government has seen its budget deficits grow to an unprecedented level, while state and local governments are mired in incredibly large financial liabilities. In this environment, the property owning middle-class seems likely to have to face significant challenges in the longer run. Housing represents the largest share of household budgets and thus, housing affordability is a major determinant of both the cost of living and the standard of living.

At the same time, the unprecedented house price increases that have occurred relative to incomes in Australia, New Zealand, the United Kingdom and Hong Kong have seriously constrained discretionary incomes for many households.

As is described below, there is incontrovertible evidence of an association between currently fashionable restrictive land use regulations and the escalation of housing prices. That, obviously, has serious implications for democracies in which middle-income households have become property owners, with a greater in their communities and a higher standard of living.

Yet, the campaign to intensify land-use regulations continues, inevitably increasing house prices and excluding young and lower income households for home ownership. Unfortunately, governments have largely ignored this reality. However, there are signs of hope.

Florida Repeals Smart Growth: The state of Florida [repealed its "growth management" law](#) in 2011. This had been an important initiative of new Governor Rick Scott and the legislature. The "growth management" legislation had forced restrictive land use planning on local governments, including land rationing for development. Not surprisingly, when housing demand increased substantially during the US housing bubble, house prices virtually nearly doubled across the state relative to household incomes, reaching levels that had not been seen in the six decades for which there is comparable data.

²⁵ 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](#).



Then, the bubble burst and house prices collapsed, indicating the destructive price volatility associated with more restrictive land use regulation (Figure 5). Now, with land rationing requirements abolished, Florida should have a better chance of maintaining housing affordability. In a related development, domestic migration to Florida was restored to the second highest in the nation in 2011, after unprecedented losses that had occurred as the housing bubble inflated to its peak and burst.

The repeal does not forbid the use of restrictive land use regulations, but it does take away the mandate. The law also importantly dismantled the state bureaucracy that had overseen and enforced the legislation.

The New Zealand Productivity Commission Housing Affordability Report:

There has been considerable concern about the effects of the unprecedented increase in house prices relative to incomes in New Zealand. The government of Prime Minister John Key commissioned a report on housing affordability by the New Zealand Productivity Commission. The draft report was released in late 2011 and squarely identified the problem.²⁶

The prevailing approach to urban planning in New Zealand has a negative influence on housing affordability in our faster growing cities.

- *The widespread planning preference for increasing residential densities and limiting greenfield development to achieve this places upward pressure on house prices across the board.*
- *Constraints on the release of new residential land creates scarcity, limits housing choice, and increases prices across the market.*
- *These impacts may be disproportionately felt by particular submarkets. Supply constraints are also encouraging speculative property investment (land banking), which further fuels prices.*
- *Prices are likely to be reflecting the significant transaction and compliance costs associated with housing development. These costs include those associated with delays encountered in releasing land and through the consenting process.*

The Commission further recommended:

An immediate release of land for residential development will ease supply

The debt accumulation and wealth effects associated with the rise in house prices may have also exacerbated New Zealand's last economic cycle.

Florida Housing Affordability: 2000-2011
MAJOR METROPOLITAN AREAS: MEDIAN MULTIPLE

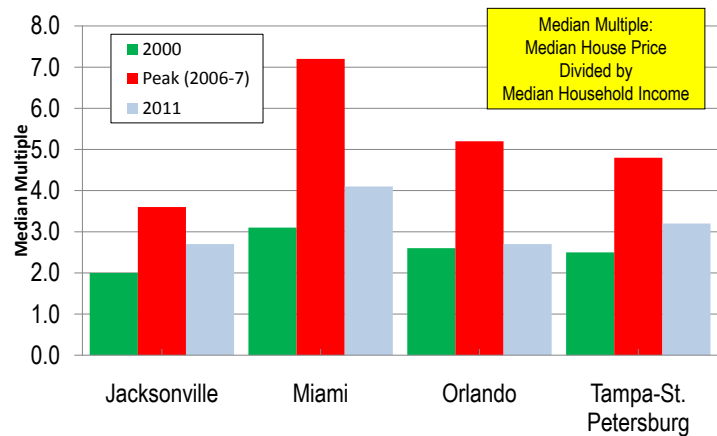


Figure 5

²⁶ New Zealand Productivity Commission, *Housing Affordability Inquiry: Draft Report*, December 2011.



constraints and reduce the pressure on prices. This should include a combination of significant tracts of both greenfield and brownfield land catering to a variety of submarkets, with an immediate focus on Auckland. The Commission considers that collaborative models for the process of identifying, assembling and releasing large scale tracts of land have merit.

More specifically, the Commission suggested liberalizing land markets on both the suburban/exurban fringe and brownfield sites. The New Zealand Productivity Commission also recognized the importance of a competitive land supply (a principle largely absent in the execution of restrictive land use planning). Specifically, the Commission recommended that local and regional authorities:

- *take a less constrained approach to the identification, consenting, release, and development of land for housing in the inner city, suburbs, and city edge*
- *adopt a strategy that allows for both intensification within existing urban boundaries and orderly expansion beyond them*
- *develop strategies that promote adequate competition between developers for the sale of construction-ready sections.*

The Commission also noted the destructive impact that restrictive land use regulation can have on both the social fabric and the health of the economy.

The rise in real house prices has been associated with general declines in housing affordability, as indicated by a number of different measures, and in the rate of home ownership. These declines have contributed to increased demand for rental accommodation and additional pressure on the social housing sector. The debt accumulation and wealth effects associated with the rise in house prices may have also exacerbated New Zealand's last economic cycle. Interest rates and exchange rates were arguably higher than they otherwise would have been during the upturn and there has been greater contraction in demand during the recession. Debt accumulation may also be a factor in ongoing economic risks.

A City (and Nation) at Risk: The New Zealand Productivity Commission's focus on Auckland is appropriate. The Auckland metropolitan area accounts for nearly one-third of the nation's population, a far larger share than the largest metropolitan areas in most high-income nations. As a result, the competitiveness of the nation is dependent upon the performance of its largest city, Auckland, more than is the case in other nations. Auckland is particularly at risk, because a governmental reorganization has established a "super-city" government that is the *only* single local government with sole general purpose jurisdiction over a metropolitan area of more than 1,000,000 population in the high-income West or Japan. The proclivity of planners at the predecessor Auckland Regional Council and now the "super-city" has been strongly in favor of more restrictive land use regulation. Because of its size relative to the nation and the lack of competition from jurisdictions within reasonable commuting distance this is a particular risk for New Zealand.

The Need for Land Release in Disaster Stricken Christchurch: Following the first of still continuing earthquakes, in early September 2010 (near 17 months ago) in New Zealand's second largest metropolitan market, Christchurch, the recovery has been delayed, because the authorities have failed to release affordable fringe land. Christchurch is rated "severely unaffordable" with a Median Multiple of 6.3. By contrast, New Orleans, which faced an unprecedented and man-made²⁷ natural disaster for a western metropolitan area (Hurricanes Rita and Katrina in 2005) was better positioned for recovery by its less draconian (though still "more restrictive") land use regulations, and today has a Median Multiple of 3.3.

²⁷ Much of the New Orleans damage was the result of failures by government authorities to properly maintain dykes and other elements of the flood control system. See Douglas Brinkley, [*The Great Deluge: Hurricane Katrina, New Orleans and the Mississippi Coast*](#).



Demographia International Housing Affordability Survey co author [Hugh Pavletich](#) is a resident of Christchurch and writes extensively on the political and planning impediments to the recovery. And too, the costs in social and economic terms, as the area seeks to cope with the adversity. Pavletich is of the view that the Christchurch earthquake events will before long lead to profound changes in urban governance and planning in New Zealand and elsewhere.

Economic Impact of Restrictive Land Use Regulation: The economic and social impacts of restrictive land use regulation were also examined by *Demographia International Housing Affordability Survey* co-author Wendell Cox in research ([The Housing Crash and Smart Growth](#)) published by the [National Center for Policy Analysis](#). Much of the housing value increase in the bubble occurred in markets with more restrictive land use regulation. Much more importantly, however, 94 percent of the major metropolitan area house value losses in the United States occurred in these markets. It was, of course these losses, concentrated in areas with more restrictive land use regulation that precipitated the Great Financial Crisis. The research noted that if housing value losses in all markets had been at the rate of major metropolitan areas with less restrictive regulation, the intensity of the losses would have been cut by three-quarters. This would have made the Great Financial Crisis less intense and might have permitted it to be avoided altogether.

New Zealand 2025 Task Force: Similar conclusions were reached by the New Zealand Treasury's *2025 Task Force*, which was charged with identifying strategies to reduce the income gap with Australia. In its [second report](#), the Task Force indicated that land reform *must result in a much more responsive supply of new land for housing when demand increases to end the current situation in New Zealand where houses, relative to incomes, are among the most expensive in the world.*

The 2025 Task Force also reiterated the social consequences of restrictive land use regulation:

Aside from the economic inefficiency involved, this situation creates a wealth transfer of dubious social merit: young families find buying a house in our major cities very difficult, while old people trading down capture a windfall gain from inflated values arising from the restrictions that are placed on opening up new land for residential investment.

Aside from the economic inefficiency involved, this situation creates a wealth transfer of dubious social merit

The Task Force report notes a huge difference in land prices between urban and rural uses:

The most valuable use of land in this country is not for grazing dairy cows (worth maybe \$20,000 per hectare in normal times), but for housing. At present, urban sections, of less than a tenth of a hectare, in middling suburbs not particularly close to city centres, sell for more than \$300,000. Council zoning restrictions and arbitrary "urban limits" prevent the release of sufficient land to lower the overall price of housing.

Social Inequity of More Restrictive Regulation: [Concerns of similar importance were identified four decades ago](#). Moreover, the social impacts of smart growth are by no means equitable. As long ago as the early 1970s, (in [The Containment of Urban England](#)), urbanologist Peter Hall noted that the social impacts of more restrictive regulation are by no means equitable. He said that the "less affluent house-owner ... has paid the greatest price for containment" (restrictive regulation). He continued: "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." Finally, Hall laments the impact of these policies on the "ideal of a property owning democracy."



SCHEDULE 1
International Housing Affordability Rankings: All Markets
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd 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	U.S.	Saginaw, MI	1.3	\$56,200	\$42,400
2	1	2	U.S.	Detroit, MI	1.4	\$66,500	\$48,700
3		3	U.S.	Lexington, KY	1.6	\$144,200	\$89,400
4		4	U.S.	Flint, MI	1.7	\$67,000	\$39,300
4		4	U.S.	Lansing, MI	1.7	\$80,100	\$48,300
4		4	U.S.	Youngstown, OH-PA	1.7	\$68,300	\$39,700
7	2	7	U.S.	Atlanta, GA	1.9	\$101,900	\$53,800
7		7	U.S.	Toledo, OH	1.9	\$80,300	\$42,000
9		9	U.S.	Akron, OH	2.0	\$93,600	\$47,000
9		9	U.S.	Evansville, IN	2.0	\$90,200	\$44,800
9		9	U.S.	Ft. Wayne, IN	2.0	\$95,700	\$47,500
12		12	U.S.	Appleton, WI	2.1	\$117,600	\$56,500
12		12	U.S.	Canton, OH	2.1	\$88,700	\$42,800
12		12	U.S.	Fort Smith, AR-OK	2.1	\$79,500	\$38,400
12		12	U.S.	Rockford, IL	2.1	\$96,900	\$46,000
16		1	Canada	Windsor, ON	2.2	\$149,900	\$67,900
16		16	U.S.	Cape Coral-Fort Myers, FL	2.2	\$99,500	\$44,400
16		16	U.S.	Fayetteville, AR-MO	2.2	\$100,300	\$45,600
16		16	U.S.	Lafayette, LA	2.2	\$106,000	\$47,300
16		16	U.S.	Ocala, FL	2.2	\$80,900	\$37,500
16	3	16	U.S.	Phoenix, AZ	2.2	\$113,700	\$50,900
16		16	U.S.	South Bend, IN	2.2	\$94,800	\$42,500
16		16	U.S.	Utica, NY	2.2	\$103,700	\$47,100
24		23	U.S.	Augusta, GA	2.3	\$106,400	\$45,500
24		23	U.S.	Dayton, OH	2.3	\$100,900	\$44,300
24		23	U.S.	Elkhart, IN	2.3	\$97,700	\$42,200
24		23	U.S.	Grand Rapids, MI	2.3	\$111,200	\$47,600
24		23	U.S.	Holland, MI	2.3	\$122,500	\$53,700
24		23	U.S.	Lakeland, FL	2.3	\$95,000	\$41,600
24		23	U.S.	Palm Bay-Melbourne, FL	2.3	\$109,600	\$46,800
24		23	U.S.	Springfield, IL	2.3	\$119,500	\$51,000
24		23	U.S.	Topeka, KS	2.3	\$104,600	\$45,900
33		2	Canada	Fredericton, NB	2.4	\$146,400	\$61,900
33	4	32	U.S.	Cincinnati, OH-KY-IN	2.4	\$126,800	\$52,100
33		32	U.S.	Clarksville, TN	2.4	\$103,000	\$42,700
33	4	32	U.S.	Cleveland, OH	2.4	\$113,600	\$46,700
33		32	U.S.	Davenport, IA-IL	2.4	\$112,400	\$46,800
33		32	U.S.	Gulfport, MS	2.4	\$103,100	\$42,300
33		32	U.S.	Houma, LA	2.4	\$114,900	\$48,700
33		32	U.S.	Kalamazoo, MI	2.4	\$104,200	\$44,100
33	4	32	U.S.	Las Vegas, NV	2.4	\$122,700	\$52,000
33		32	U.S.	Macon, GA	2.4	\$92,400	\$37,900
33		32	U.S.	Mobile, AL	2.4	\$98,800	\$40,400
33		32	U.S.	Provo, UT	2.4	\$131,300	\$54,800
33		32	U.S.	Racine, WI	2.4	\$125,800	\$52,000



SCHEDULE 1
International Housing Affordability Rankings: All Markets
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
33	4	32	U.S.	Rochester, NY	2.4	\$123,400	\$50,800
47		3	Canada	Moncton, NB	2.5	\$146,000	\$59,100
47		45	U.S.	Boise City ID	2.5	\$119,800	\$47,800
47		45	U.S.	Columbus, GA-AL	2.5	\$131,500	\$51,600
47	8	45	U.S.	Columbus, OH	2.5	\$131,500	\$51,600
47		45	U.S.	Duluth, MN	2.5	\$105,500	\$42,600
47		45	U.S.	Hagerstown, MD-WV	2.5	\$127,700	\$51,100
47		45	U.S.	Huntington, WV-KY-OH	2.5	\$90,600	\$36,400
47	8	45	U.S.	Kansas City, MO-KS	2.5	\$135,900	\$54,500
47		45	U.S.	Laredo, TX	2.5	\$89,500	\$36,200
47	8	45	U.S.	Minneapolis-St. Paul, MN-WI	2.5	\$160,300	\$63,100
47		45	U.S.	Omaha, NE-IA	2.5	\$138,200	\$54,700
47		45	U.S.	Syracuse, NY	2.5	\$127,600	\$50,300
47		45	U.S.	York, PA	2.5	\$144,700	\$57,000
60		4	Canada	Saint John, NB	2.6	\$149,500	\$57,500
60		4	Canada	Thunder Bay, ON	2.6	\$158,800	\$61,200
60		57	U.S.	Anchorage, AK	2.6	\$188,100	\$72,300
60		57	U.S.	Ann Arbor, MI	2.6	\$145,900	\$56,500
60		57	U.S.	Binghamton, NY	2.6	\$120,500	\$46,500
60	11	57	U.S.	Buffalo, NY	2.6	\$123,700	\$46,900
60		57	U.S.	Cedar Rapids, IA	2.6	\$142,000	\$54,400
60		57	U.S.	Deltona-Daytona Beach, FL	2.6	\$109,700	\$42,000
60		57	U.S.	Erie, PA	2.6	\$112,500	\$43,000
60		57	U.S.	Fayetteville, NC	2.6	\$112,000	\$43,900
60		57	U.S.	Harrisburg, PA	2.6	\$141,000	\$54,600
60		57	U.S.	Hickory, NC	2.6	\$103,200	\$39,800
60	11	57	U.S.	Indianapolis, IN	2.6	\$129,400	\$49,400
60		57	U.S.	Killeen, TX	2.6	\$128,400	\$50,300
60	11	57	U.S.	Memphis, TN-MS-AR	2.6	\$119,300	\$45,900
60		57	U.S.	Peoria, IL	2.6	\$132,600	\$51,600
60	11	57	U.S.	Pittsburgh, PA	2.6	\$121,300	\$47,200
60		57	U.S.	Port St. Lucie, FL	2.6	\$107,300	\$41,800
60	11	57	U.S.	Saint Louis, MO-IL	2.6	\$131,700	\$51,500
79		74	U.S.	Bakersfield, CA	2.7	\$123,000	\$46,000
79		74	U.S.	Green Bay, WI	2.7	\$135,700	\$49,600
79	16	74	U.S.	Jacksonville, FL	2.7	\$139,400	\$50,900
79		74	U.S.	Merced, CA	2.7	\$115,000	\$42,900
79		74	U.S.	Modesto, CA	2.7	\$129,000	\$48,600
79	16	74	U.S.	Orlando, FL	2.7	\$127,800	\$47,000
79		74	U.S.	Savannah, GA	2.7	\$128,800	\$47,300
79		74	U.S.	Scranton-Wilkes Barre, PA	2.7	\$115,300	\$42,800
79		74	U.S.	Sioux Falls, SD	2.7	\$144,500	\$52,600
79		74	U.S.	Springfield, MO	2.7	\$108,700	\$40,500
79		74	U.S.	Visalia, CA	2.7	\$116,500	\$43,900
90		1	Ireland	Waterford	2.8	€119,000	€43,000
90		85	U.S.	Amarillo, TX	2.8	\$131,000	\$46,900
90	18	85	U.S.	Dallas-Fort Worth, TX	2.8	\$151,800	\$55,100



SCHEDULE 1
International Housing Affordability Rankings: All Markets
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
90		85	U.S.	Las Cruces, NM	2.8	\$98,900	\$35,600
90		85	U.S.	Little Rock, AR	2.8	\$128,400	\$46,500
90		85	U.S.	Lubbock, TX	2.8	\$120,300	\$42,600
90		85	U.S.	McAllen, TX	2.8	\$96,900	\$34,100
90		85	U.S.	Reading, PA	2.8	\$146,600	\$52,300
90		85	U.S.	Winston-Salem, NC	2.8	\$120,300	\$43,100
99		6	Canada	Charlottetown, PEI	2.9	\$186,000	\$63,400
99		6	Canada	Yellowknife, NWT	2.9	\$374,500	\$127,900
99		93	U.S.	Charleston, WV	2.9	\$130,100	\$44,400
99		93	U.S.	Des Moines, IA	2.9	\$157,900	\$55,300
99	19	93	U.S.	Houston, TX	2.9	\$159,500	\$54,500
99		93	U.S.	Montgomery, AL	2.9	\$132,000	\$46,000
99	19	93	U.S.	Nashville, TN	2.9	\$140,500	\$48,500
99	19	93	U.S.	Oklahoma City, OK	2.9	\$135,600	\$46,800
99		93	U.S.	Prescott, AZ	2.9	\$116,900	\$40,700
99	19	93	U.S.	Sacramento, CA	2.9	\$166,600	\$56,900
99		93	U.S.	Spartanburg, SC	2.9	\$124,100	\$42,300
99		93	U.S.	Tucson, AZ	2.9	\$131,100	\$44,800
99		93	U.S.	Tulsa, OK	2.9	\$132,500	\$45,000
99		93	U.S.	Tuscaloosa, AL	2.9	\$120,700	\$41,500
113		8	Canada	Saguenay, QC	3.0	\$157,500	\$52,900
113		8	Canada	Trois-Rivieres, QC	3.0	\$136,800	\$46,300
113		2	Ireland	Galway	3.0	€132,000	€44,000
113	23	105	U.S.	Charlotte, NC-SC	3.0	\$171,000	\$57,400
113		105	U.S.	Chattanooga, TN-GA	3.0	\$128,700	\$42,800
113		105	U.S.	Columbia, SC	3.0	\$139,700	\$45,900
113		105	U.S.	Fargo, ND-MN	3.0	\$150,900	\$50,600
113		105	U.S.	Greeley, CO	3.0	\$155,000	\$52,500
113	23	105	U.S.	Louisville, KY-IN	3.0	\$136,900	\$45,200
113		105	U.S.	Ogden, UT	3.0	\$128,800	\$42,800
113		105	U.S.	Poughkeepsie, NY	3.0	\$207,200	\$68,000
113		105	U.S.	Reno-Sparks, NV	3.0	\$153,800	\$51,300
113		105	U.S.	Roanoke, VA	3.0	\$140,000	\$46,100
113		105	U.S.	Stockton, CA	3.0	\$153,800	\$50,600
113		105	U.S.	Vallejo, CA	3.0	\$189,300	\$64,100
113		105	U.S.	Wichita, KS	3.0	\$120,900	\$40,100
129		118	U.S.	Beaumont, TX	3.1	\$129,400	\$41,800
129		118	U.S.	Florence, SC	3.1	\$116,600	\$38,100
129		118	U.S.	Fresno, CA	3.1	\$140,000	\$45,700
129		118	U.S.	Gainesville, FL	3.1	\$148,200	\$47,500
129		118	U.S.	Greensboro, NC	3.1	\$127,300	\$41,600
129		118	U.S.	Lincoln, NE	3.1	\$134,100	\$42,900
129		118	U.S.	Longview, TX	3.1	\$126,600	\$41,500
129		118	U.S.	Manchester, NH	3.1	\$216,800	\$69,100
129		118	U.S.	Medford, OR	3.1	\$127,800	\$40,600
129		118	U.S.	Norwich, CT	3.1	\$194,800	\$63,000
129		118	U.S.	Pensacola, FL	3.1	\$139,300	\$44,500



SCHEDULE 1
International Housing Affordability Rankings: All Markets
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
129	25	118	U.S.	Salt Lake City, UT	3.1	\$182,600	\$58,100
129	25	118	U.S.	San Antonio, TX	3.1	\$156,200	\$50,800
129		118	U.S.	Tyler, TX	3.1	\$133,300	\$43,700
129		118	U.S.	Waco, TX	3.1	\$123,800	\$39,600
144		10	Canada	Brantford, ON	3.2	\$209,400	\$64,500
144		10	Canada	London, ON	3.2	\$201,500	\$63,700
144		133	U.S.	Corpus Christi, TX	3.2	\$135,600	\$42,500
144		133	U.S.	Jackson, MS	3.2	\$137,100	\$43,000
144		133	U.S.	Kennewick, WA	3.2	\$181,300	\$57,000
144		133	U.S.	Kingsport, TN-VA	3.2	\$110,800	\$35,100
144		133	U.S.	Lynchburg, VA	3.2	\$135,100	\$41,700
144	27	133	U.S.	Riverside-San Bernardino, CA	3.2	\$172,100	\$54,100
144	27	133	U.S.	Tampa- St.Petersburg, FL	3.2	\$138,800	\$44,000
153		12	Canada	Regina, SK	3.3	\$244,000	\$74,200
153		12	Canada	St. Catherines-Niagara, ON	3.3	\$201,800	\$60,500
153		12	Canada	Sudbury, ON	3.3	\$203,800	\$62,700
153		3	Ireland	Cork	3.3	€145,000	€44,000
153	29	140	U.S.	Birmingham, AL	3.3	\$146,400	\$44,700
153		140	U.S.	Champaign, IL	3.3	\$154,900	\$46,400
153	29	140	U.S.	Chicago, IL	3.3	\$187,700	\$57,700
153		140	U.S.	Knoxville, TN	3.3	\$144,000	\$43,600
153	29	140	U.S.	New Orleans, LA	3.3	\$155,300	\$46,700
153		140	U.S.	Salem, OR	3.3	\$153,400	\$46,100
153	29	140	U.S.	Virginia Beach-Norfolk, VA-NC	3.3	\$190,000	\$58,000
164		15	Canada	Winnipeg, MB	3.4	\$210,200	\$62,700
164	33	4	Ireland	Dublin	3.4	€178,000	€52,000
164		4	Ireland	Limerick	3.4	€143,000	€42,000
164		147	U.S.	Allentown, PA-NJ	3.4	\$193,800	\$56,300
164		147	U.S.	Baton Rouge, LA	3.4	\$167,200	\$48,800
164		147	U.S.	College Station, TX	3.4	\$123,800	\$36,400
164		147	U.S.	Durham, NC	3.4	\$166,900	\$48,500
164		147	U.S.	Myrtle Beach, SC	3.4	\$143,600	\$42,000
164		147	U.S.	Naples, FL	3.4	\$183,500	\$53,300
164		147	U.S.	Olympia, WA	3.4	\$208,700	\$61,700
164		147	U.S.	Worcester, MA	3.4	\$213,500	\$61,900
175		16	Canada	Barrie, ON	3.5	\$264,500	\$75,200
175	34	16	Canada	Edmonton, AB	3.5	\$293,000	\$84,100
175		16	Canada	Guelph, ON	3.5	\$265,500	\$75,200
175		16	Canada	Halifax, NS	3.5	\$227,200	\$64,200
175		16	Canada	St. John's, NL	3.5	\$238,900	\$68,900
175		155	U.S.	Albany, NY	3.5	\$198,600	\$56,400
175	34	155	U.S.	Austin, TX	3.5	\$195,200	\$56,400
175		155	U.S.	Greenville, SC	3.5	\$149,100	\$43,100
175		155	U.S.	Huntsville, AL	3.5	\$127,600	\$36,200
175		155	U.S.	Spokane, WA	3.5	\$166,700	\$47,600
185		21	Canada	Kingston, ON	3.6	\$227,000	\$63,300
185		160	U.S.	Albuquerque, NM	3.6	\$173,400	\$47,900



SCHEDULE 1
International Housing Affordability Rankings: All Markets
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
185	36	160	U.S.	Baltimore, MD	3.6	\$238,800	\$65,500
185		160	U.S.	Sarasota-Bradenton, FL	3.6	\$166,400	\$45,800
185		160	U.S.	Tallahassee, FL	3.6	\$150,100	\$42,000
185		160	U.S.	Yakima, WA	3.6	\$147,700	\$41,100
191		22	Canada	Kitchener, ON	3.7	\$270,400	\$72,900
191	37	22	Canada	Ottawa-Gatineau, ON-QC	3.7	\$282,500	\$75,900
191		165	U.S.	Colorado Springs, CO	3.7	\$193,700	\$52,300
191		165	U.S.	El Paso, TX	3.7	\$135,700	\$36,400
191	37	165	U.S.	Hartford, CT	3.7	\$232,900	\$63,800
191	37	165	U.S.	Philadelphia, PA-NJ-DE-MD	3.7	\$219,600	\$58,700
191		165	U.S.	Trenton, NJ	3.7	\$263,200	\$71,800
198		24	Canada	Peterborough, ON	3.8	\$225,800	\$60,000
198		24	Canada	Quebec, QC	3.8	\$214,800	\$56,500
198		170	U.S.	Asheville, NC	3.8	\$163,500	\$42,600
198		170	U.S.	Bellingham, WA	3.8	\$191,300	\$50,500
198		170	U.S.	Madison, WI	3.8	\$220,100	\$58,200
198	40	170	U.S.	Milwaukee, WI	3.8	\$192,300	\$50,300
198		170	U.S.	Portland, ME	3.8	\$219,600	\$57,200
198	40	170	U.S.	Raleigh, NC	3.8	\$224,300	\$58,500
206	42	26	Canada	Calgary, AB	3.9	\$353,700	\$91,400
206		176	U.S.	Brownsville, TX	3.9	\$123,800	\$32,100
208		27	Canada	Saskatoon, SK	4.0	\$274,700	\$68,300
208		27	Canada	Sherbrooke, QC	4.0	\$192,200	\$48,200
208		1	U.K.	Dundee	4.0	£110,100	£27,200
208	43	177	U.S.	Denver, CO	4.0	\$235,600	\$59,400
208		177	U.S.	Fort Collins, CO	4.0	\$220,000	\$54,800
208		177	U.S.	Shreveport, LA	4.0	\$164,000	\$41,200
208		177	U.S.	Springfield, MA	4.0	\$197,500	\$49,800
208	43	177	U.S.	Washington, DC-VA-MD-WV	4.0	\$340,900	\$85,500
216		1	N.Z.	Palmerston North-Manawatu	4.1	\$231,700	\$56,800
216		182	U.S.	Atlantic City, NJ	4.1	\$220,600	\$53,200
216		182	U.S.	Charleston, SC	4.1	\$201,200	\$48,600
216	45	182	U.S.	Miami-West Palm Beach, FL	4.1	\$187,600	\$45,900
216		182	U.S.	New Haven, CT	4.1	\$235,400	\$57,700
221		1	Australia	Mildura, VIC	4.2	\$207,000	\$49,300
221		1	Australia	Shepparton, VIC	4.2	\$236,000	\$55,600
221		29	Canada	Hamilton, ON	4.2	\$292,700	\$69,000
221		2	U.K.	Falkirk	4.2	£105,000	£25,300
221		186	U.S.	Bremerton, WA	4.2	\$239,900	\$56,900
221		186	U.S.	Chico, CA	4.2	\$175,000	\$42,100
221	46	186	U.S.	Portland, OR-WA	4.2	\$223,200	\$53,700
221		186	U.S.	Wilmington, NC	4.2	\$190,000	\$45,300
229	47	190	U.S.	Providence, RI-MA	4.3	\$224,900	\$52,500
229	47	190	U.S.	Richmond, VA	4.3	\$177,900	\$41,300
231		3	Australia	Launceston	4.5	\$272,300	\$60,900
231	49	3	U.K.	Leeds & West Yorkshire	4.5	£126,000	£27,900
231	49	3	U.K.	Sheffield & South Yorkshire	4.5	£114,000	£25,200



SCHEDULE 1
International Housing Affordability Rankings: All Markets
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
231		192	U.S.	Eugene, OR	4.5	\$182,800	\$40,700
231		192	U.S.	Lancaster, PA	4.5	\$162,300	\$36,000
231	49	192	U.S.	Seattle, WA	4.5	\$286,200	\$63,800
237		4	Australia	Bunbury	4.6	\$362,500	\$78,600
237		5	U.K.	Belfast	4.6	£119,200	£26,000
237		195	U.S.	Salinas, CA	4.6	\$255,000	\$55,100
240		5	Australia	Toowoomba	4.7	\$275,000	\$58,400
241		6	Australia	Albury-Wodonga	4.8	\$274,000	\$57,200
241		2	N.Z.	Hamilton-Waikato	4.8	\$303,900	\$62,700
241		2	N.Z.	Napier-Hastings	4.8	\$265,300	\$55,200
241	52	6	U.K.	Derby & Derbyshire	4.8	£127,000	£26,300
241	52	6	U.K.	Hull & Humber	4.8	£124,000	£25,600
241	52	6	U.K.	Manchester & Greater Manchester	4.8	£123,000	£25,700
241		6	U.K.	Middlesborough & Durham	4.8	£108,400	£22,400
241		196	U.S.	Santa Barbara, CA	4.8	\$276,000	\$57,400
249		7	Australia	Canberra	4.9	\$513,000	\$105,100
249	55	10	U.K.	Birmingham & West Midlands	4.9	£126,600	£25,600
249	55	10	U.K.	Glasgow	4.9	£118,600	£24,300
249	55	10	U.K.	Nottingham & Nottinghamshire	4.9	£123,400	£25,400
249		197	U.S.	Burlington, VT	4.9	\$270,100	\$55,400
254		13	U.K.	Cardiff	5.0	£128,500	£25,900
255		8	Australia	Rockingham	5.1	\$312,000	\$61,600
255		8	Australia	Townsville	5.1	\$358,000	\$70,500
255	58	30	Canada	Montreal, QC	5.1	\$281,700	\$54,700
255		4	N.Z.	Wellington	5.1	\$370,000	\$72,000
255	58	14	U.K.	Blackpool & Lancashire	5.1	£119,300	£23,300
255		14	U.K.	Leicester & Leicestershire	5.1	£145,500	£28,400
255		14	U.K.	Northampton & Northamptonshire	5.1	£150,500	£29,700
255		14	U.K.	Perth	5.1	£150,000	£29,200
255	58	14	U.K.	Stoke on Trent & Staffordshire	5.1	£131,200	£25,600
255		14	U.K.	Swansea	5.1	£120,700	£23,900
265		10	Australia	Cairns	5.2	\$350,500	\$67,400
265		10	Australia	Devonport-Burnie	5.2	\$257,000	\$49,200
265		10	Australia	Wagga Wagga	5.2	\$293,000	\$56,300
265		5	N.Z.	Dunedin	5.2	\$249,700	\$47,900
265	61	20	U.K.	Liverpool & Merseyside	5.2	£120,000	£23,000
265	61	20	U.K.	Newcastle & Tyneside	5.2	£123,000	£23,700
265		20	U.K.	Warwickshire	5.2	£173,000	£33,300
272		13	Australia	Tamworth	5.3	\$259,000	\$48,600
272	63	198	U.S.	Boston, MA-NH	5.3	\$367,700	\$68,800
274		14	Australia	Bendigo	5.4	\$277,500	\$51,700
274		199	U.S.	Oxnard-Ventura, CA	5.4	\$390,000	\$72,700
276		15	Australia	Alice Springs	5.5	\$440,000	\$79,600
276		15	Australia	Ballarat	5.5	\$285,000	\$52,200
276	64	31	Canada	Toronto, ON	5.5	\$406,400	\$73,600
276		23	U.K.	Aberdeen	5.5	£168,600	£30,800
276		23	U.K.	Newport	5.5	£147,300	£26,700



SCHEDULE 1
International Housing Affordability Rankings: All Markets
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
281		17	Australia	Mackay	5.6	\$410,000	\$73,300
281		25	U.K.	Edinburgh	5.6	£153,200	£27,200
281		200	U.S.	Bridgeport, CT	5.6	\$421,900	\$75,700
281		200	U.S.	Santa Rosa, CA	5.6	\$333,000	\$59,700
285	65	18	Australia	Perth	5.7	\$450,000	\$78,900
285		202	U.S.	Barnstable Town, MA	5.7	\$318,900	\$55,900
285	65	202	U.S.	Los Angeles, CA	5.7	\$324,800	\$57,300
288	67	26	U.K.	Bristol-Bath	5.8	£186,500	£31,900
288		204	U.S.	Boulder, CO	5.8	\$360,100	\$62,600
290		19	Australia	Hobart	5.9	\$345,000	\$58,900
290		19	Australia	Mandurah	5.9	\$367,300	\$62,700
290		6	N.Z.	Tauranga-Western Bay of Plenty	5.9	\$334,100	\$56,600
293	68	21	Australia	Brisbane	6.0	\$427,500	\$71,500
294		22	Australia	Darwin	6.1	\$507,250	\$82,500
294	69	205	U.S.	San Diego, CA	6.1	\$369,800	\$60,600
296		23	Australia	Bundaberg	6.2	\$270,000	\$43,600
296	70	206	U.S.	New York, NY-NJ-PA	6.2	\$389,600	\$62,600
298		7	N.Z.	Christchurch	6.3	\$354,600	\$55,900
299	71	8	N.Z.	Auckland	6.4	\$464,400	\$72,500
299	71	27	U.K.	London Exurbs (E & SE England)	6.4	£207,000	£32,100
299		27	U.K.	Warrington & Cheshire	6.4	£162,500	£25,500
302		29	U.K.	Telford & Shropshire	6.5	£161,200	£24,900
303		32	Canada	Kelowna, BC	6.6	\$385,100	\$58,100
303		207	U.S.	San Luis Obispo, CA	6.6	\$360,000	\$54,600
303		207	U.S.	Santa Cruz, CA	6.6	\$408,000	\$61,800
306	73	24	Australia	Adelaide	6.7	\$385,000	\$57,300
306		24	Australia	Newcastle-Maitland	6.7	\$365,000	\$54,300
306	73	209	U.S.	San Francisco-Oakland, CA	6.7	\$491,900	\$73,800
309		33	Canada	Victoria, BC	6.8	\$417,300	\$61,600
310		26	Australia	Wollongong	6.9	\$403,000	\$58,200
310	75	30	U.K.	London (GLA)	6.9	£290,000	£41,800
310	75	210	U.S.	San Jose, CA	6.9	\$587,500	\$84,900
313		34	Canada	Abbotsford, BC	7.0	\$443,700	\$63,000
313		31	U.K.	Swindon & Wiltshire	7.0	£183,900	£26,400
315		27	Australia	Geelong	7.1	\$390,000	\$55,300
316	77	32	U.K.	Plymouth & Devon	7.4	£179,500	£24,200
317		28	Australia	Sunshine Coast	7.5	\$430,000	\$57,000
318		29	Australia	Gold Coast	7.6	\$470,000	\$61,900
319		30	Australia	Coff's Harbor	8.3	\$354,000	\$42,500
320	78	31	Australia	Melbourne	8.4	\$567,000	\$67,700
321		33	U.K.	Bournemouth & Dorset	8.7	£215,800	£24,700
321		211	U.S.	Honolulu, HI	8.7	\$599,700	\$69,300
323	79	32	Australia	Sydney	9.2	\$637,600	\$69,400
324	80	35	Canada	Vancouver, BC	10.6	\$678,500	\$63,800
325	81	1	China	Hong Kong	12.6	\$3,148,000	\$249,000

Financial data in local currency.
 England and Wales data: 2011, 2nd Quarter



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
306	73	24	Australia	Adelaide	6.7	\$385,000	\$57,300
241		6	Australia	Albury-Wodonga	4.8	\$274,000	\$57,200
276		15	Australia	Alice Springs	5.5	\$440,000	\$79,600
276		15	Australia	Ballarat	5.5	\$285,000	\$52,200
274		14	Australia	Bendigo	5.4	\$277,500	\$51,700
293	68	21	Australia	Brisbane	6.0	\$427,500	\$71,500
237		4	Australia	Bunbury	4.6	\$362,500	\$78,600
296		23	Australia	Bundaberg	6.2	\$270,000	\$43,600
265		10	Australia	Cairns	5.2	\$350,500	\$67,400
249		7	Australia	Canberra	4.9	\$513,000	\$105,100
319		30	Australia	Coff's Harbor	8.3	\$354,000	\$42,500
294		22	Australia	Darwin	6.1	\$507,250	\$82,500
265		10	Australia	Devonport-Burnie	5.2	\$257,000	\$49,200
315		27	Australia	Geelong	7.1	\$390,000	\$55,300
318		29	Australia	Gold Coast	7.6	\$470,000	\$61,900
290		19	Australia	Hobart	5.9	\$345,000	\$58,900
231		3	Australia	Launceston	4.5	\$272,300	\$60,900
281		17	Australia	Mackay	5.6	\$410,000	\$73,300
290		19	Australia	Mandurah	5.9	\$367,300	\$62,700
320	78	31	Australia	Melbourne	8.4	\$567,000	\$67,700
221		1	Australia	Mildura, VIC	4.2	\$207,000	\$49,300
306		24	Australia	Newcastle-Maitland	6.7	\$365,000	\$54,300
285	65	18	Australia	Perth	5.7	\$450,000	\$78,900
255		8	Australia	Rockingham	5.1	\$312,000	\$61,600
221		1	Australia	Shepparton, VIC	4.2	\$236,000	\$55,600
317		28	Australia	Sunshine Coast	7.5	\$430,000	\$57,000
323	79	32	Australia	Sydney	9.2	\$637,600	\$69,400
272		13	Australia	Tamworth	5.3	\$259,000	\$48,600
240		5	Australia	Toowoomba	4.7	\$275,000	\$58,400
255		8	Australia	Townsville	5.1	\$358,000	\$70,500
265		10	Australia	Wagga Wagga	5.2	\$293,000	\$56,300
310		26	Australia	Wollongong	6.9	\$403,000	\$58,200
				Median	5.6		
313		34	Canada	Abbotsford, BC	7.0	\$443,700	\$63,000
175		16	Canada	Barrie, ON	3.5	\$264,500	\$75,200
144		10	Canada	Brantford, ON	3.2	\$209,400	\$64,500
206	42	26	Canada	Calgary, AB	3.9	\$353,700	\$91,400
99		6	Canada	Charlottetown, PEI	2.9	\$186,000	\$63,400
175	34	16	Canada	Edmonton, AB	3.5	\$293,000	\$84,100
33		2	Canada	Fredericton, NB	2.4	\$146,400	\$61,900
175		16	Canada	Guelph, ON	3.5	\$265,500	\$75,200
175		16	Canada	Halifax, NS	3.5	\$227,200	\$64,200
221		29	Canada	Hamilton, ON	4.2	\$292,700	\$69,000
303		32	Canada	Kelowna, BC	6.6	\$385,100	\$58,100
185		21	Canada	Kingston, ON	3.6	\$227,000	\$63,300



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
191		22	Canada	Kitchener, ON	3.7	\$270,400	\$72,900
144		10	Canada	London, ON	3.2	\$201,500	\$63,700
47		3	Canada	Moncton, NB	2.5	\$146,000	\$59,100
255	58	30	Canada	Montreal, QC	5.1	\$281,700	\$54,700
191	37	22	Canada	Ottawa-Gatineau, ON-QC	3.7	\$282,500	\$75,900
198		24	Canada	Peterborough, ON	3.8	\$225,800	\$60,000
198		24	Canada	Quebec, QC	3.8	\$214,800	\$56,500
153		12	Canada	Regina, SK	3.3	\$244,000	\$74,200
113		8	Canada	Saguenay, QC	3.0	\$157,500	\$52,900
60		4	Canada	Saint John, NB	2.6	\$149,500	\$57,500
175		16	Canada	St. John's, NL	3.5	\$238,900	\$68,900
208		27	Canada	Saskatoon, SK	4.0	\$274,700	\$68,300
153		12	Canada	St. Catharines-Niagara, ON	3.3	\$201,800	\$60,500
208		27	Canada	Sherbrooke, QC	4.0	\$192,200	\$48,200
153		12	Canada	Sudbury, ON	3.3	\$203,800	\$62,700
60		4	Canada	Thunder Bay, ON	2.6	\$158,800	\$61,200
276	64	31	Canada	Toronto, ON	5.5	\$406,400	\$73,600
113		8	Canada	Trois-Rivieres, QC	3.0	\$136,800	\$46,300
324	80	35	Canada	Vancouver, BC	10.6	\$678,500	\$63,800
309		33	Canada	Victoria, BC	6.8	\$417,300	\$61,600
16		1	Canada	Windsor, ON	2.2	\$149,900	\$67,900
164		15	Canada	Winnipeg, MB	3.4	\$210,200	\$62,700
99		6	Canada	Yellowknife, NWT	2.9	\$374,500	\$127,900
				Median	3.5		
325	81	1	China	Hong Kong	12.6	\$3,148,000	\$249,000
153		3	Ireland	Cork	3.3	€145,000	€44,000
164	33	4	Ireland	Dublin	3.4	€178,000	€52,000
113		2	Ireland	Galway	3.0	€132,000	€44,000
164		4	Ireland	Limerick	3.4	€143,000	€42,000
90		1	Ireland	Waterford	2.8	€119,000	€43,000
				Median	3.3		
299	71	8	N.Z.	Auckland	6.4	\$464,400	\$72,500
298		7	N.Z.	Christchurch	6.3	\$354,600	\$55,900
265		5	N.Z.	Dunedin	5.2	\$249,700	\$47,900
241		2	N.Z.	Hamilton-Waikato	4.8	\$303,900	\$62,700
241		2	N.Z.	Napier-Hastings	4.8	\$265,300	\$55,200
216		1	N.Z.	Palmerston North-Manawatu	4.1	\$231,700	\$56,800
290		6	N.Z.	Tauranga-Western Bay of Plenty	5.9	\$334,100	\$56,600
255		4	N.Z.	Wellington	5.1	\$370,000	\$72,000
				Median	5.2		
276		23	U.K.	Aberdeen	5.5	£168,600	£30,800
237		5	U.K.	Belfast	4.6	£119,200	£26,000



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
249	55	10	U.K.	Birmingham & West Midlands	4.9	£126,600	£25,600
255	58	14	U.K.	Blackpool & Lancashire	5.1	£119,300	£23,300
321		33	U.K.	Bournemouth & Dorset	8.7	£215,800	£24,700
288	67	26	U.K.	Bristol-Bath	5.8	£186,500	£31,900
254		13	U.K.	Cardiff	5.0	£128,500	£25,900
241	52	6	U.K.	Derby & Derbyshire	4.8	£127,000	£26,300
208		1	U.K.	Dundee	4.0	£110,100	£27,200
281		25	U.K.	Edinburgh	5.6	£153,200	£27,200
221		2	U.K.	Falkirk	4.2	£105,000	£25,300
249	55	10	U.K.	Glasgow	4.9	£118,600	£24,300
241	52	6	U.K.	Hull & Humber	4.8	£124,000	£25,600
231	49	3	U.K.	Leeds & West Yorkshire	4.5	£126,000	£27,900
255		14	U.K.	Leicester & Leicestershire	5.1	£145,500	£28,400
265	61	20	U.K.	Liverpool & Merseyside	5.2	£120,000	£23,000
310	75	30	U.K.	London (GLA)	6.9	£290,000	£41,800
299	71	27	U.K.	London Exurbs (E & SE England)	6.4	£207,000	£32,100
241	52	6	U.K.	Manchester & Greater Manchester	4.8	£123,000	£25,700
241		6	U.K.	Middlesborough & Durham	4.8	£108,400	£22,400
265	61	20	U.K.	Newcastle & Tyneside	5.2	£123,000	£23,700
276		23	U.K.	Newport	5.5	£147,300	£26,700
255		14	U.K.	Northampton & Northamptonshire	5.1	£150,500	£29,700
249	55	10	U.K.	Nottingham & Nottinghamshire	4.9	£123,400	£25,400
255		14	U.K.	Perth	5.1	£150,000	£29,200
316	77	32	U.K.	Plymouth & Devon	7.4	£179,500	£24,200
231	49	3	U.K.	Sheffield & South Yorkshire	4.5	£114,000	£25,200
255	58	14	U.K.	Stoke on Trent & Staffordshire	5.1	£131,200	£25,600
255		14	U.K.	Swansea	5.1	£120,700	£23,900
313		31	U.K.	Swindon & Wiltshire	7.0	£183,900	£26,400
302		29	U.K.	Telford & Shropshire	6.5	£161,200	£24,900
299		27	U.K.	Warrington & Cheshire	6.4	£162,500	£25,500
265		20	U.K.	Warwickshire	5.2	£173,000	£33,300
				Median	5.1		
9		9	U.S.	Akron, OH	2.0	\$93,600	\$47,000
175		155	U.S.	Albany, NY	3.5	\$198,600	\$56,400
185		160	U.S.	Albuquerque, NM	3.6	\$173,400	\$47,900
164		147	U.S.	Allentown, PA-NJ	3.4	\$193,800	\$56,300
90		85	U.S.	Amarillo, TX	2.8	\$131,000	\$46,900
60		57	U.S.	Anchorage, AK	2.6	\$188,100	\$72,300
60		57	U.S.	Ann Arbor, MI	2.6	\$145,900	\$56,500
12		12	U.S.	Appleton, WI	2.1	\$117,600	\$56,500
198		170	U.S.	Asheville, NC	3.8	\$163,500	\$42,600
7	2	7	U.S.	Atlanta, GA	1.9	\$101,900	\$53,800
216		182	U.S.	Atlantic City, NJ	4.1	\$220,600	\$53,200
24		23	U.S.	Augusta, GA	2.3	\$106,400	\$45,500
175	34	155	U.S.	Austin, TX	3.5	\$195,200	\$56,400



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
79		74	U.S.	Bakersfield, CA	2.7	\$123,000	\$46,000
185	36	160	U.S.	Baltimore, MD	3.6	\$238,800	\$65,500
285		202	U.S.	Barnstable Town, MA	5.7	\$318,900	\$55,900
164		147	U.S.	Baton Rouge, LA	3.4	\$167,200	\$48,800
129		118	U.S.	Beaumont, TX	3.1	\$129,400	\$41,800
198		170	U.S.	Bellingham, WA	3.8	\$191,300	\$50,500
60		57	U.S.	Binghamton, NY	2.6	\$120,500	\$46,500
153	29	140	U.S.	Birmingham, AL	3.3	\$146,400	\$44,700
47		45	U.S.	Boise City ID	2.5	\$119,800	\$47,800
272	63	198	U.S.	Boston, MA-NH	5.3	\$367,700	\$68,800
288		204	U.S.	Boulder, CO	5.8	\$360,100	\$62,600
221		186	U.S.	Bremerton, WA	4.2	\$239,900	\$56,900
281		200	U.S.	Bridgeport, CT	5.6	\$421,900	\$75,700
206		176	U.S.	Brownsville, TX	3.9	\$123,800	\$32,100
60	11	57	U.S.	Buffalo, NY	2.6	\$123,700	\$46,900
249		197	U.S.	Burlington, VT	4.9	\$270,100	\$55,400
12		12	U.S.	Canton, OH	2.1	\$88,700	\$42,800
16		16	U.S.	Cape Coral-Fort Myers, FL	2.2	\$99,500	\$44,400
60		57	U.S.	Cedar Rapids, IA	2.6	\$142,000	\$54,400
153		140	U.S.	Champaign, IL	3.3	\$154,900	\$46,400
216		182	U.S.	Charleston, SC	4.1	\$201,200	\$48,600
99		93	U.S.	Charleston, WV	2.9	\$130,100	\$44,400
113	23	105	U.S.	Charlotte, NC-SC	3.0	\$171,000	\$57,400
113		105	U.S.	Chattanooga, TN-GA	3.0	\$128,700	\$42,800
153	29	140	U.S.	Chicago, IL	3.3	\$187,700	\$57,700
221		186	U.S.	Chico, CA	4.2	\$175,000	\$42,100
33	4	32	U.S.	Cincinnati, OH-KY-IN	2.4	\$126,800	\$52,100
33		32	U.S.	Clarksville, TN	2.4	\$103,000	\$42,700
33	4	32	U.S.	Cleveland, OH	2.4	\$113,600	\$46,700
164		147	U.S.	College Station, TX	3.4	\$123,800	\$36,400
191		165	U.S.	Colorado Springs, CO	3.7	\$193,700	\$52,300
113		105	U.S.	Columbia, SC	3.0	\$139,700	\$45,900
47		45	U.S.	Columbus, GA-AL	2.5	\$131,500	\$51,600
47	8	45	U.S.	Columbus, OH	2.5	\$131,500	\$51,600
144		133	U.S.	Corpus Christi, TX	3.2	\$135,600	\$42,500
90	18	85	U.S.	Dallas-Fort Worth, TX	2.8	\$151,800	\$55,100
33		32	U.S.	Davenport, IA-IL	2.4	\$112,400	\$46,800
24		23	U.S.	Dayton, OH	2.3	\$100,900	\$44,300
60		57	U.S.	Deltona-Daytona Beach, FL	2.6	\$109,700	\$42,000
208	43	177	U.S.	Denver, CO	4.0	\$235,600	\$59,400
99		93	U.S.	Des Moines, IA	2.9	\$157,900	\$55,300
2	1	2	U.S.	Detroit, MI	1.4	\$66,500	\$48,700
47		45	U.S.	Duluth, MN	2.5	\$105,500	\$42,600
164		147	U.S.	Durham, NC	3.4	\$166,900	\$48,500
191		165	U.S.	El Paso, TX	3.7	\$135,700	\$36,400
24		23	U.S.	Elkhart, IN	2.3	\$97,700	\$42,200
60		57	U.S.	Erie, PA	2.6	\$112,500	\$43,000



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
231		192	U.S.	Eugene, OR	4.5	\$182,800	\$40,700
9		9	U.S.	Evansville, IN	2.0	\$90,200	\$44,800
113		105	U.S.	Fargo, ND-MN	3.0	\$150,900	\$50,600
16		16	U.S.	Fayetteville, AR-MO	2.2	\$100,300	\$45,600
60		57	U.S.	Fayetteville, NC	2.6	\$112,000	\$43,900
4		4	U.S.	Flint, MI	1.7	\$67,000	\$39,300
129		118	U.S.	Florence, SC	3.1	\$116,600	\$38,100
208		177	U.S.	Fort Collins, CO	4.0	\$220,000	\$54,800
12		12	U.S.	Fort Smith, AR-OK	2.1	\$79,500	\$38,400
129		118	U.S.	Fresno, CA	3.1	\$140,000	\$45,700
9		9	U.S.	Ft. Wayne, IN	2.0	\$95,700	\$47,500
129		118	U.S.	Gainesville, FL	3.1	\$148,200	\$47,500
24		23	U.S.	Grand Rapids, MI	2.3	\$111,200	\$47,600
113		105	U.S.	Greeley, CO	3.0	\$155,000	\$52,500
79		74	U.S.	Green Bay, WI	2.7	\$135,700	\$49,600
129		118	U.S.	Greensboro, NC	3.1	\$127,300	\$41,600
175		155	U.S.	Greenville, SC	3.5	\$149,100	\$43,100
33		32	U.S.	Gulfport, MS	2.4	\$103,100	\$42,300
47		45	U.S.	Hagerstown, MD-WV	2.5	\$127,700	\$51,100
60		57	U.S.	Harrisburg, PA	2.6	\$141,000	\$54,600
191	37	165	U.S.	Hartford, CT	3.7	\$232,900	\$63,800
60		57	U.S.	Hickory, NC	2.6	\$103,200	\$39,800
24		23	U.S.	Holland, MI	2.3	\$122,500	\$53,700
321		211	U.S.	Honolulu, HI	8.7	\$599,700	\$69,300
33		32	U.S.	Houma, LA	2.4	\$114,900	\$48,700
99	19	93	U.S.	Houston, TX	2.9	\$159,500	\$54,500
47		45	U.S.	Huntington, WV-KY-OH	2.5	\$90,600	\$36,400
175		155	U.S.	Huntsville, AL	3.5	\$127,600	\$36,200
60	11	57	U.S.	Indianapolis, IN	2.6	\$129,400	\$49,400
144		133	U.S.	Jackson, MS	3.2	\$137,100	\$43,000
79	16	74	U.S.	Jacksonville, FL	2.7	\$139,400	\$50,900
33		32	U.S.	Kalamazoo, MI	2.4	\$104,200	\$44,100
47	8	45	U.S.	Kansas City, MO-KS	2.5	\$135,900	\$54,500
144		133	U.S.	Kennewick, WA	3.2	\$181,300	\$57,000
60		57	U.S.	Killeen, TX	2.6	\$128,400	\$50,300
144		133	U.S.	Kingsport, TN-VA	3.2	\$110,800	\$35,100
153		140	U.S.	Knoxville, TN	3.3	\$144,000	\$43,600
16		16	U.S.	Lafayette, LA	2.2	\$106,000	\$47,300
24		23	U.S.	Lakeland, FL	2.3	\$95,000	\$41,600
231		192	U.S.	Lancaster, PA	4.5	\$162,300	\$36,000
4		4	U.S.	Lansing, MI	1.7	\$80,100	\$48,300
47		45	U.S.	Laredo, TX	2.5	\$89,500	\$36,200
90		85	U.S.	Las Cruces, NM	2.8	\$98,900	\$35,600
33	4	32	U.S.	Las Vegas, NV	2.4	\$122,700	\$52,000
3		3	U.S.	Lexington, KY	1.6	\$144,200	\$89,400
129		118	U.S.	Lincoln, NE	3.1	\$134,100	\$42,900
90		85	U.S.	Little Rock, AR	2.8	\$128,400	\$46,500



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
129		118	U.S.	Longview, TX	3.1	\$126,600	\$41,500
285	65	202	U.S.	Los Angeles, CA	5.7	\$324,800	\$57,300
113	23	105	U.S.	Louisville, KY-IN	3.0	\$136,900	\$45,200
90		85	U.S.	Lubbock, TX	2.8	\$120,300	\$42,600
144		133	U.S.	Lynchburg, VA	3.2	\$135,100	\$41,700
33		32	U.S.	Macon, GA	2.4	\$92,400	\$37,900
198		170	U.S.	Madison, WI	3.8	\$220,100	\$58,200
129		118	U.S.	Manchester, NH	3.1	\$216,800	\$69,100
90		85	U.S.	McAllen, TX	2.8	\$96,900	\$34,100
129		118	U.S.	Medford, OR	3.1	\$127,800	\$40,600
60	11	57	U.S.	Memphis, TN-MS-AR	2.6	\$119,300	\$45,900
79		74	U.S.	Merced, CA	2.7	\$115,000	\$42,900
216	45	182	U.S.	Miami-West Palm Beach, FL	4.1	\$187,600	\$45,900
198	40	170	U.S.	Milwaukee, WI	3.8	\$192,300	\$50,300
47	8	45	U.S.	Minneapolis-St. Paul, MN-WI	2.5	\$160,300	\$63,100
33		32	U.S.	Mobile, AL	2.4	\$98,800	\$40,400
79		74	U.S.	Modesto, CA	2.7	\$129,000	\$48,600
99		93	U.S.	Montgomery, AL	2.9	\$132,000	\$46,000
164		147	U.S.	Myrtle Beach, SC	3.4	\$143,600	\$42,000
164		147	U.S.	Naples, FL	3.4	\$183,500	\$53,300
99	19	93	U.S.	Nashville, TN	2.9	\$140,500	\$48,500
216		182	U.S.	New Haven, CT	4.1	\$235,400	\$57,700
153	29	140	U.S.	New Orleans, LA	3.3	\$155,300	\$46,700
296	70	206	U.S.	New York, NY-NJ-PA	6.2	\$389,600	\$62,600
129		118	U.S.	Norwich, CT	3.1	\$194,800	\$63,000
16		16	U.S.	Ocala, FL	2.2	\$80,900	\$37,500
113		105	U.S.	Ogden, UT	3.0	\$128,800	\$42,800
99	19	93	U.S.	Oklahoma City, OK	2.9	\$135,600	\$46,800
164		147	U.S.	Olympia, WA	3.4	\$208,700	\$61,700
47		45	U.S.	Omaha, NE-IA	2.5	\$138,200	\$54,700
79	16	74	U.S.	Orlando, FL	2.7	\$127,800	\$47,000
274		199	U.S.	Oxnard-Ventura, CA	5.4	\$390,000	\$72,700
24		23	U.S.	Palm Bay-Melbourne, FL	2.3	\$109,600	\$46,800
129		118	U.S.	Pensacola, FL	3.1	\$139,300	\$44,500
60		57	U.S.	Peoria, IL	2.6	\$132,600	\$51,600
191	37	165	U.S.	Philadelphia, PA-NJ-DE-MD	3.7	\$219,600	\$58,700
16	3	16	U.S.	Phoenix, AZ	2.2	\$113,700	\$50,900
60	11	57	U.S.	Pittsburgh, PA	2.6	\$121,300	\$47,200
60		57	U.S.	Port St. Lucie, FL	2.6	\$107,300	\$41,800
198		170	U.S.	Portland, ME	3.8	\$219,600	\$57,200
221	46	186	U.S.	Portland, OR-WA	4.2	\$223,200	\$53,700
113		105	U.S.	Poughkeepsie, NY	3.0	\$207,200	\$68,000
99		93	U.S.	Prescott, AZ	2.9	\$116,900	\$40,700
229	47	190	U.S.	Providence, RI-MA	4.3	\$224,900	\$52,500
33		32	U.S.	Provo, UT	2.4	\$131,300	\$54,800
33		32	U.S.	Racine, WI	2.4	\$125,800	\$52,000
198	40	170	U.S.	Raleigh, NC	3.8	\$224,300	\$58,500



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
90		85	U.S.	Reading, PA	2.8	\$146,600	\$52,300
113		105	U.S.	Reno-Sparks, NV	3.0	\$153,800	\$51,300
229	47	190	U.S.	Richmond, VA	4.3	\$177,900	\$41,300
144	27	133	U.S.	Riverside-San Bernardino, CA	3.2	\$172,100	\$54,100
113		105	U.S.	Roanoke, VA	3.0	\$140,000	\$46,100
33	4	32	U.S.	Rochester, NY	2.4	\$123,400	\$50,800
12		12	U.S.	Rockford, IL	2.1	\$96,900	\$46,000
99	19	93	U.S.	Sacramento, CA	2.9	\$166,600	\$56,900
1		1	U.S.	Saginaw, MI	1.3	\$56,200	\$42,400
60	11	57	U.S.	Saint Louis, MO-IL	2.6	\$131,700	\$51,500
153		140	U.S.	Salem, OR	3.3	\$153,400	\$46,100
237		195	U.S.	Salinas, CA	4.6	\$255,000	\$55,100
129	25	118	U.S.	Salt Lake City, UT	3.1	\$182,600	\$58,100
129	25	118	U.S.	San Antonio, TX	3.1	\$156,200	\$50,800
294	69	205	U.S.	San Diego, CA	6.1	\$369,800	\$60,600
306	73	209	U.S.	San Francisco-Oakland, CA	6.7	\$491,900	\$73,800
310	75	210	U.S.	San Jose, CA	6.9	\$587,500	\$84,900
303		207	U.S.	San Luis Obispo, CA	6.6	\$360,000	\$54,600
241		196	U.S.	Santa Barbara, CA	4.8	\$276,000	\$57,400
303		207	U.S.	Santa Cruz, CA	6.6	\$408,000	\$61,800
281		200	U.S.	Santa Rosa, CA	5.6	\$333,000	\$59,700
185		160	U.S.	Sarasota-Bradenton, FL	3.6	\$166,400	\$45,800
79		74	U.S.	Savannah, GA	2.7	\$128,800	\$47,300
79		74	U.S.	Scranton-Wilkes Barre, PA	2.7	\$115,300	\$42,800
231	49	192	U.S.	Seattle, WA	4.5	\$286,200	\$63,800
208		177	U.S.	Shreveport, LA	4.0	\$164,000	\$41,200
79		74	U.S.	Sioux Falls, SD	2.7	\$144,500	\$52,600
16		16	U.S.	South Bend, IN	2.2	\$94,800	\$42,500
99		93	U.S.	Spartanburg, SC	2.9	\$124,100	\$42,300
175		155	U.S.	Spokane, WA	3.5	\$166,700	\$47,600
24		23	U.S.	Springfield, IL	2.3	\$119,500	\$51,000
208		177	U.S.	Springfield, MA	4.0	\$197,500	\$49,800
79		74	U.S.	Springfield, MO	2.7	\$108,700	\$40,500
113		105	U.S.	Stockton, CA	3.0	\$153,800	\$50,600
47		45	U.S.	Syracuse, NY	2.5	\$127,600	\$50,300
185		160	U.S.	Tallahassee, FL	3.6	\$150,100	\$42,000
144	27	133	U.S.	Tampa-St. Petersburg, FL	3.2	\$138,800	\$44,000
7		7	U.S.	Toledo, OH	1.9	\$80,300	\$42,000
24		23	U.S.	Topeka, KS	2.3	\$104,600	\$45,900
191		165	U.S.	Trenton, NJ	3.7	\$263,200	\$71,800
99		93	U.S.	Tucson, AZ	2.9	\$131,100	\$44,800
99		93	U.S.	Tulsa, OK	2.9	\$132,500	\$45,000
99		93	U.S.	Tuscaloosa, AL	2.9	\$120,700	\$41,500
129		118	U.S.	Tyler, TX	3.1	\$133,300	\$43,700
16		16	U.S.	Utica, NY	2.2	\$103,700	\$47,100
113		105	U.S.	Vallejo, CA	3.0	\$189,300	\$64,100
153	29	140	U.S.	Virginia Beach-Norfolk, VA-NC	3.3	\$190,000	\$58,000



SCHEDULE 2
National Housing Affordability Rankings
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
79		74	U.S.	Visalia, CA	2.7	\$116,500	\$43,900
129		118	U.S.	Waco, TX	3.1	\$123,800	\$39,600
208	43	177	U.S.	Washington, DC-VA-MD-WV	4.0	\$340,900	\$85,500
113		105	U.S.	Wichita, KS	3.0	\$120,900	\$40,100
221		186	U.S.	Wilmington, NC	4.2	\$190,000	\$45,300
90		85	U.S.	Winston-Salem, NC	2.8	\$120,300	\$43,100
164		147	U.S.	Worcester, MA	3.4	\$213,500	\$61,900
185		160	U.S.	Yakima, WA	3.6	\$147,700	\$41,100
47		45	U.S.	York, PA	2.5	\$144,700	\$57,000
4		4	U.S.	Youngstown, OH-PA	1.7	\$68,300	\$39,700
				Median	3.0		
Financial data in local currency							
England and Wales data: 2011, 2nd Quarter							



SCHEDULE 3
International Housing Affordability Rankings: Major Markets (Over 1,000,000 Population)
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
2	1	2	U.S.	Detroit, MI	1.4	\$66,500	\$48,700
7	2	7	U.S.	Atlanta, GA	1.9	\$101,900	\$53,800
16	3	16	U.S.	Phoenix, AZ	2.2	\$113,700	\$50,900
33	4	32	U.S.	Cincinnati, OH-KY-IN	2.4	\$126,800	\$52,100
33	4	32	U.S.	Cleveland, OH	2.4	\$113,600	\$46,700
33	4	32	U.S.	Las Vegas, NV	2.4	\$122,700	\$52,000
33	4	32	U.S.	Rochester, NY	2.4	\$123,400	\$50,800
47	8	45	U.S.	Columbus, OH	2.5	\$131,500	\$51,600
47	8	45	U.S.	Kansas City, MO-KS	2.5	\$135,900	\$54,500
47	8	45	U.S.	Minneapolis-St. Paul, MN-WI	2.5	\$160,300	\$63,100
60	11	57	U.S.	Buffalo, NY	2.6	\$123,700	\$46,900
60	11	57	U.S.	Indianapolis, IN	2.6	\$129,400	\$49,400
60	11	57	U.S.	Memphis, TN-MS-AR	2.6	\$119,300	\$45,900
60	11	57	U.S.	Pittsburgh, PA	2.6	\$121,300	\$47,200
60	11	57	U.S.	Saint Louis, MO-IL	2.6	\$131,700	\$51,500
79	16	74	U.S.	Jacksonville, FL	2.7	\$139,400	\$50,900
79	16	74	U.S.	Orlando, FL	2.7	\$127,800	\$47,000
90	18	85	U.S.	Dallas-Fort Worth, TX	2.8	\$151,800	\$55,100
99	19	93	U.S.	Houston, TX	2.9	\$159,500	\$54,500
99	19	93	U.S.	Nashville, TN	2.9	\$140,500	\$48,500
99	19	93	U.S.	Oklahoma City, OK	2.9	\$135,600	\$46,800
99	19	93	U.S.	Sacramento, CA	2.9	\$166,600	\$56,900
113	23	105	U.S.	Charlotte, NC-SC	3.0	\$171,000	\$57,400
113	23	105	U.S.	Louisville, KY-IN	3.0	\$136,900	\$45,200
129	25	118	U.S.	Salt Lake City, UT	3.1	\$182,600	\$58,100
129	25	118	U.S.	San Antonio, TX	3.1	\$156,200	\$50,800
144	27	133	U.S.	Riverside-San Bernardino, CA	3.2	\$172,100	\$54,100
144	27	133	U.S.	Tampa-St. Petersburg, FL	3.2	\$138,800	\$44,000
153	29	140	U.S.	Birmingham, AL	3.3	\$146,400	\$44,700
153	29	140	U.S.	Chicago, IL	3.3	\$187,700	\$57,700
153	29	140	U.S.	New Orleans, LA	3.3	\$155,300	\$46,700
153	29	140	U.S.	Virginia Beach-Norfolk, VA-NC	3.3	\$190,000	\$58,000
164	33	4	Ireland	Dublin	3.4	€178,000	€52,000
175	34	155	U.S.	Austin, TX	3.5	\$195,200	\$56,400
175	34	16	Canada	Edmonton, AB	3.5	\$293,000	\$84,100
185	36	160	U.S.	Baltimore, MD	3.6	\$238,800	\$65,500
191	37	165	U.S.	Hartford, CT	3.7	\$232,900	\$63,800
191	37	22	Canada	Ottawa-Gatineau, ON-QC	3.7	\$282,500	\$75,900
191	37	165	U.S.	Philadelphia, PA-NJ-DE-MD	3.7	\$219,600	\$58,700
198	40	170	U.S.	Milwaukee, WI	3.8	\$192,300	\$50,300
198	40	170	U.S.	Raleigh, NC	3.8	\$224,300	\$58,500
206	42	26	Canada	Calgary, AB	3.9	\$353,700	\$91,400
208	43	177	U.S.	Denver, CO	4.0	\$235,600	\$59,400
208	43	177	U.S.	Washington, DC-VA-MD-WV	4.0	\$340,900	\$85,500



SCHEDULE 3
International Housing Affordability Rankings: Major Markets (Over 1,000,000 Population)
Using Median Multiple (Median House Price/Median Household Income)
2011 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
216	45	182	U.S.	Miami-West Palm Beach, FL	4.1	\$187,600	\$45,900
221	46	186	U.S.	Portland, OR-WA	4.2	\$223,200	\$53,700
229	47	190	U.S.	Providence, RI-MA	4.3	\$224,900	\$52,500
229	47	190	U.S.	Richmond, VA	4.3	\$177,900	\$41,300
231	49	3	U.K.	Leeds & West Yorkshire	4.5	£126,000	£27,900
231	49	192	U.S.	Seattle, WA	4.5	\$286,200	\$63,800
231	49	3	U.K.	Sheffield & South Yorkshire	4.5	£114,000	£25,200
241	52	6	U.K.	Derby & Derbyshire	4.8	£127,000	£26,300
241	52	6	U.K.	Hull & Humber	4.8	£124,000	£25,600
241	52	6	U.K.	Manchester & Greater Manchester	4.8	£123,000	£25,700
249	55	10	U.K.	Birmingham & West Midlands	4.9	£126,600	£25,600
249	55	10	U.K.	Glasgow	4.9	£118,600	£24,300
249	55	10	U.K.	Nottingham & Nottinghamshire	4.9	£123,400	£25,400
255	58	14	U.K.	Blackpool & Lancashire	5.1	£119,300	£23,300
255	58	30	Canada	Montreal, QC	5.1	\$281,700	\$54,700
255	58	14	U.K.	Stoke on Trent & Staffordshire	5.1	£131,200	£25,600
265	61	20	U.K.	Liverpool & Merseyside	5.2	£120,000	£23,000
265	61	20	U.K.	Newcastle & Tyneside	5.2	£123,000	£23,700
272	63	198	U.S.	Boston, MA-NH	5.3	\$367,700	\$68,800
276	64	31	Canada	Toronto, ON	5.5	\$406,400	\$73,600
285	65	202	U.S.	Los Angeles, CA	5.7	\$324,800	\$57,300
285	65	18	Australia	Perth	5.7	\$450,000	\$78,900
288	67	26	U.K.	Bristol-Bath	5.8	£186,500	£31,900
293	68	21	Australia	Brisbane	6.0	\$427,500	\$71,500
294	69	205	U.S.	San Diego, CA	6.1	\$369,800	\$60,600
296	70	206	U.S.	New York, NY-NJ-PA	6.2	\$389,600	\$62,600
299	71	8	N.Z.	Auckland	6.4	\$464,400	\$72,500
299	71	27	U.K.	London Exurbs (E & SE England)	6.4	£207,000	£32,100
306	73	24	Australia	Adelaide	6.7	\$385,000	\$57,300
306	73	209	U.S.	San Francisco-Oakland, CA	6.7	\$491,900	\$73,800
310	75	30	U.K.	London (GLA)	6.9	£290,000	£41,800
310	75	210	U.S.	San Jose, CA	6.9	\$587,500	\$84,900
316	77	32	U.K.	Plymouth & Devon	7.4	£179,500	£24,200
320	78	31	Australia	Melbourne	8.4	\$567,000	\$67,700
323	79	32	Australia	Sydney	9.2	\$637,600	\$69,400
324	80	35	Canada	Vancouver, BC	10.6	\$678,500	\$63,800
325	81	1	China	Hong Kong	12.6	\$3,148,000	\$249,000

Financial data in local currency
 England and Wales data: 2011, 2nd Quarter



ANNEX 1: 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.

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 23 counties in three states in the New York metropolitan area,²⁸ and include housing that 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 recently developed 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 compared to Median Multiples in other countries.](#) This inappropriate practice portrays Australian housing affordability as considerably more favorable than the reality, because *average* household incomes are materially higher than *median* household incomes. Average/median multiples and Median Multiples are not comparable.

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.

Demographia receives periodic requests to expand its coverage to other nations. The addition of continental European nations, mainland China, Singapore 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. The authors are pleased to receive information that could lead to expanding the *Survey*.

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 and the United Kingdom.²⁹

Methods: Median house price information is obtained from the leading national industry reporting agencies, based upon the housing stock included in such sources. Where only average house prices are available, median house prices are estimated from historic conversion factors. The principal source of the base house

²⁸ As defined by the United States Bureau of Management and the Budget.

²⁹ See [2nd Annual Demographia International Housing Affordability Survey](#), Pages 16-18.



price data is historic real estate industry time series that have generally become established in the respective nations as authoritative and representative sources.

Median household income data is generally estimated beginning with an authoritative source (national statistics bureau data) base for each metropolitan market. This base is then adjusted to account for changes to produce an up-to-date estimate, using the best available indicators of median income growth.

In the United States, the United Kingdom, New Zealand, Ireland and Hong Kong, specific metropolitan area interim adjustments are possible from data sources. However, in Canada and Australia, it is necessary to use more general provincial or state level data. It might be assumed that the major metropolitan areas would experience larger increases in income and that the use of state or provincial data would tend to make their housing look less affordable than it really is as a result.

However a [review of census data](#) between 2001 and 2006 in both Australia and Canada indicated, surprisingly, provincial and state incomes have risen at a higher rate than in some metropolitan markets. For example, corresponding provincial and state incomes rose faster than incomes in the Toronto, Sydney, Melbourne, Brisbane and Vancouver metropolitan areas.

Median house price estimates are provided for the 3rd quarter of 2011 (September quarter), or for the month of September where September quarter data is not available. In England and Wales, the house prices are from the 2nd quarter of 2011, because the later data had not been made available by publication time. Data for some smaller Australian markets is for months in the September quarter.

Caution is urged in time-series comparisons. 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."³⁰

Sources: The following principal sources have been consulted:

- AMP Banking (Australia)
- 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)

³⁰ 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.



Harvard University Joint Center on Housing
 Housing Industry Association (Australia)
 Ireland Environment, Heritage and Local Government
 John Burns Real Estate Consulting
 Land Registry: Government of Hong Kong
 Land Registry of England and Wales
 National Association of Home Builders (USA)
 National Association of Realtors (USA)
 National Statistics (United Kingdom)
 Nationwide Building Society (UK)
 Permanent TSB (Ireland)
 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 Council, Division of the Property Council of Australia
 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: National Housing Affordability: From data in this report.

Figure 2: Housing Affordability & Land Regulation: All markets with a population of 1,500,000 or more are included, plus Auckland. In the United States, more restrictive land use 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, more restrictive land use metropolitan markets are identified based upon their widespread use of land rationing strategies, such as the pervasive compact development (urban consolidation or smart growth) policies in the United Kingdom (the Town and Country Planning Act), Australia, Ireland (the National Spatial Strategy) and New Zealand. Vancouver and Toronto



(like the markets in the UK, Australia and New Zealand) have formal metropolitan or land rationing programs and are also considered to be more restrictive markets. Montreal is classified as a more restrictive market because its agricultural preservation zone is now reported as limiting development on the urban fringe. Under each of these more restrictive land use regulation regimes, 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 operate in less restrictive markets. Markets that are not classified as “more restrictive” are classified as “less restrictive” (or “demand-driven”).

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

Figure 4: "Across the Road" Raw Land Values: See: Wendell Cox, *Property Values 11 Times Higher Across Portland's Urban Growth Boundary*, at <http://www.newgeography.com/content/001808-property-values-11-times-higher-across-portlands-urban-growth-boundary>.

Figure 5: Florida Housing Affordability: 2000-2011: Data from this report and from Harvard University Joint Center on Housing.

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
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
- Suburban Dublin, Ireland
- Suburban Auckland, New Zealand
- Suburban Adelaide, Australia



ANNEX 2: INTRODUCTIONS TO PREVIOUS EDITIONS (INTERNET LINKS)

7th Annual Demographia International Housing Affordability Survey

[Joel Kotkin](#), Chapman University (California) and [newgeography.com](#)

6th Annual Demographia International Housing Affordability Survey

[Dr. Tony Recsei](#), Save Our Suburbs (Sydney)

5th Annual Demographia International Housing Affordability Survey

[Dr. Shlomo Angel](#), New York University and Princeton University

4th Annual Demographia International Housing Affordability Survey

[Dr. Donald Brash](#), Former Governor Reserve Bank of New Zealand

ANNEX 3: RESOURCES FOR ADDITIONAL RESEARCH

[Catalogue of Academic Land Use Research](#)

This bibliography, compiled by [performanceurbanplanning.org](#) provides references, and where possible internet links to the most important research on land use policy and housing. Links are also provided to the web pages of important researchers in the field.

[Literature Review: Smart Growth, Compact Cities & More Restrictive Land Use Regulation](#)

This literature review covers more restrictive land use regulation (also labeled as smart growth, growth management, livability, urban containment, urban consolidation or compact city policy). This review covers (1) research by Central and Reserve Banks and international economic organizations (2) academic price research, (3) research on price volatility and speculation (4) research cited to refute the association, (5) the principle of competitive land supply, (6) research on the housing bubble and (7) research the impact on metropolitan economies



BIOGRAPHIES

Wendell Cox

Wendell Cox is co-author of the *Demographia International Housing Affordability Survey*. He is 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) since 2002. He is vice-president of CODATU, a Lyon based international research organization dedicated to improving transport in developing world urban areas.

He is also associated with various public policy organizations, such as the Heritage Foundation (Washington), the Heartland Institute (Chicago), the Cato Institute (Washington), the Frontier Centre (Winnipeg), 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 sponsors three internet web sites, including www.demographia.com, www.rentalcartours.net and www.publicpurpose.com. The Public Purpose 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](#). Demographia annually publishes the [only annual list of world urban areas](#) (agglomerations) over 500,000 population that includes urban land area and population density estimates. He is also a contributing editor at newgeography.com.

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

Hugh Pavletich

Hugh Pavletich co-author of the *Demographia International Housing Affordability Survey*. He operates the website [Performance Urban Planning](#) and is the Managing Director of Pavletich Properties Ltd, a commercial property development and investment company, based at Christchurch, South Island, New Zealand.

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*. Hugh's articles and submissions with a focus on exploring solutions are at www.PerformanceUrbanPlanning.org.

Robert Bruegmann, PhD

Robert Bruegmann is an historian and critic of the built environment. He received his PhD in art history from the University of Pennsylvania in 1976 and since 1979 has been at the University of Illinois at Chicago where he is currently Professor Emeritus of Art History, Architecture and Urban Planning. Among his books are *The Architects and the City: Holabird & Roche of Chicago 1880-1918*, published in 1998, *Sprawl: A Compact History*, 2005, and *The Architecture of Harry Weese*, 2010. His main areas of research are in the history of architecture, urban planning, landscape and historic preservation.

DEMOGRAPHIA

Demographia
(Wendell Cox Consultancy)
P.O. Box 841
Belleville, Illinois 62269 USA
(St. Louis Metropolitan Region)
www.demographia.com
demographia2@earthlink.net
Contact: Wendell Cox
+1.618.632.8507: United States

Performance Urban Planning

Performance Urban Planning
[HP1]Christchurch, New Zealand
www.performanceurbanplanning.org/
hugh.pavletich@xtra.co.nz
Contact: Hugh Pavletich
+64.3.343.9944

