

DEMOGRAPHIA

7th Annual
Demographia
International Housing
Affordability
Survey:
2011

Ratings for Metropolitan Markets

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

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7th Annual Demographia International Housing Affordability Survey

Introduction

WHY AFFORDABILITY MATTERS

By Joel Kotkin

In much of the English speaking world, affordability is often conflated with cheapness and lack of economic competitiveness. Real estate developers, and the press that covers them, instead revel in driving prices to the stratosphere, identifying out of reach values with some definition of economic good.



Joel Kotkin

But what might prove a benefit to individual owners or speculators may not be so wonderful for most families or the broader society. Over the past decade, even after the housing bubble implosion, the ratio of housing prices to incomes has shown a steady increase. This process has been most evident in markets such as Los Angeles, San Francisco, New York and Boston but also occurred, particularly during the bubble, in traditional growth regions such as Phoenix, Las Vegas and across Florida.

This phenomena, as the authors of the *Demographia International Housing Affordability Survey* make clear, also extends outside the United States. Places such as greater London, Vancouver, Toronto all experience high ratios of housing cost to income. But perhaps most remarkable has been the shift in Australia, once the exemplar of modestly priced, high quality middle class housing, to now the most unaffordable housing market in the English speaking world.

The reasons for this phenomena vary, but as the authors argue convincingly, much of it has to do with regulations over land use. Over the past decade advocacy for “smart growth”, with restrictions on development on the edge of the urban fringe, has tended to drive up prices in many markets, including those, like in Australia, where land remains relatively plentiful near major cities.

This approach needs to be separated from the well-justified desire to maintain parkland around large urban centers. Parkland, held for public use, does a great service by providing urbanites with what Frederick Law Olmstead described a “a specimen of God’s handwork”.

But “smart growth” is not about sharing nature with the middle and working classes, but about limiting development along specific lines. The prevailing ideology seeks to limit “sprawl” --- that is

extended, usually affordable middle class housing – in the name of creating dense “communities” built around transit lines. Large areas which could accommodate both parks and lower-density middle class housing are essentially walled off, often left only to those wealthy enough to afford large estates and second homes.

More recently, this drive has been bolstered by claims, often specious, that high density development is better for the environment, and particularly in terms of limiting greenhouse gases. In the name of fighting climate change (aka global warming), planning advocates, politicians and their developer enablers seek to “cram” people into dense housing – even though most surveys show an overwhelming preference for less dense, single family houses.

Limits on the kind of residential living most people prefer --- in the United States this covers about 80 percent of the population --- naturally inflate the price of single family housing, particularly in desirable markets. As the *Demographia International Housing Affordability Survey* shows, the price of housing relative to income has risen to as much as five years to nearly 10 years of gross annual median income for a median priced house in certain markets. In most cases, this has taken place in wherever strong growth controls have been imposed by local authorities.

Little discussed have been the social and economic implications of such policies. Although usually thought of as “progressive” in the English speaking world, the addiction to “smart growth” can more readily be seen as socially “regressive”. In contrast to the traditional policies of left of center governments that promoted the expansion of ownership and access to the suburban “dream” for the middle class, today regressive “progressives” actually advocate the closing off of such options for potential homeowners.

Today’s “progressive”, such as the editor of the respected American planning website Planetizen, not only claim the dense urbanism is the vast preference of the next generation - a claim not supported by objective research – but also embrace the notion of renting over owning. This is a very dangerous concept, essentially promoting a form of neo-feudalism which reverses the great social achievement of dispersing property ownership.

Similarly, the economic implications of “cramming” tend to be misunderstood. To be sure there are places where high median multiples can be sustained. These include elite markets such as west and parts of central London, the upper class suburbs of that great city, Manhattan, San Francisco, parts of west Los Angeles, central Toronto and Sydney.

Such places can survive high ratios because their markets are less national and middle income, and more global and high income. In a place such as Mayfair or New York’s Upper East Side, the buying “public” is a global one, in many ways as tied to high income markets in places like the United Arab Emirates, Moscow, Shanghai, Singapore or Tokyo as to their domestic economies. Many of the owners are not full-time residents, and consider a home in such places as just another expression of their wealth and privilege.

Yet such markets are exceptional. Most homebuyers are either natives or long-term migrants to their regions. Their concerns --- particularly affordable single family dwellings – help drive migration patterns of both businesses and individuals. Over the past decade, and particularly since the crash, economic growth (outside of that related to financial sector stimulus) and increasingly migration has

concentrated in less regulated, affordable markets, notably across the large metropolitan areas of Texas.

This is also clear from migration patterns. Virtually all the fast growing places in the English speaking world in terms of domestic migrants --- Houston, Dallas, Austin, Raleigh-Durham, Calgary – have also been those with comparatively more affordable housing prices.

Of course affordability by itself is no panacea. Many of the most affordable markets in the United States, for example, are economically distressed, particularly in the industrial heartland. The ideal for regions and countries should not just be affordability alone but affordability coupled with economic growth. But it is increasingly clear that broad based middle class prosperity depends in large part on housing affordability, and may do even more so in the future.

This makes the *Demographia International Housing Affordability* an important starting point for a much needed discussion about the future of our economies and societies.

[Joel Kotkin](#)

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Introductions to Previous Editions (Links):

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

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7th Annual Demographia International Housing Affordability Survey

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

EXECUTIVE SUMMARY

Rating Housing Affordability

The 7th Annual Demographia International Housing Affordability Survey expands coverage to 325 markets in Australia, Canada, Hong Kong, Ireland, New Zealand, the United Kingdom and the United States. This edition marks the addition of Hong Kong. The *Demographia International Housing Affordability Survey* employs the “Median Multiple” (median house price divided by gross 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
Severely Unaffordable	5.1 & Over
Seriously Unaffordable	4.1 to 5.0
Moderately Unaffordable	3.1 to 4.0
Affordable	3.0 or Less

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 3.0 or less times median household incomes in the principal affordability indexes (historical data has not been identified for Hong Kong). 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.



Housing Affordability in 2010

Housing affordability was little changed in 2010, with the most affordable markets being in the United States and Canada. The United Kingdom, Australia and New Zealand continue to experience pervasive unaffordability.

Major Metropolitan Markets: The 325 markets include 82 major metropolitan markets (those with more than 1,000,000 population).

Among these major metropolitan markets, there were 20 affordable major markets, 25 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, with the other 22 being in the United States. The seriously unaffordable markets were concentrated in the United Kingdom and the United States. The severely unaffordable were principally in the United Kingdom (9), Australia (5) and the United States (5). There were three severely unaffordable major markets in Canada (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	7.1
Canada	0	3	0	3	6	4.6
China	0	0	0	1	1	11.4
Ireland	0	0	1	0	1	4.8
New Zealand	0	0	0	1	1	6.4
United Kingdom	0	0	7	9	16	5.1
United States	20	22	5	5	52	3.3
TOTAL	20	25	13	24	82	

The most affordable major market was Atlanta, with a median house price of \$129,400, and a Median Multiple of 2.3. Indianapolis (\$120,200) and Rochester (\$121,500) tied for 2nd most affordable major market, at a Median Multiple of 2.4. Cincinnati, Cleveland and Detroit tied for 4th most affordable, with a Median Multiple of 2.5, followed by Buffalo, Las Vegas and St. Louis at 2.6. Eleven other US major markets were rated affordable, including fast growing Dallas-Fort Worth, Houston, Jacksonville and Nashville.

All major markets in Australia and New Zealand, as well as Hong Kong were severely unaffordable. Hong Kong ranked as the least affordable major market (82nd), with a median multiple of 11.4. Sydney ranked second most unaffordable, at a Median Multiple of 9.6 (81st), having slipped behind last year's most unaffordable market, Vancouver at 9.5 (which ranked 80th). Melbourne ranked 79th, with a Median Multiple of 9.0. Plymouth & Devon, San Francisco, London and Adelaide all had Median Multiples of more than 7.0 (Table ES-3).

All Markets: Among all 325 markets surveyed, there were 115 affordable markets, 106 in the United States and 9 in Canada. There were 94 moderately unaffordable markets, 74 in the United States, 17



in Canada and 3 in Ireland. There were 42 seriously unaffordable markets and 74 severely unaffordable markets. Australia had 27 severely unaffordable markets, followed by the United Kingdom with 21 and the United States with 15. Canada had 6 severely unaffordable markets, while New Zealand had 4. China's one included market, Hong Kong, was also severely unaffordable (Table ES-4).

Table ES-3
Housing Affordability: Major Metropolitan Markets (Over 1,000,000 Population)

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
AFFORDABLE MARKETS				SERIOUSLY UNAFFORDABLE MARKETS			
1	U.S.	Atlanta, GA	2.3	43	Canada	Calgary, AB	4.0
2	U.S.	Indianapolis, IN	2.4	43	U.S.	Baltimore, MD	4.0
2	U.S.	Rochester, NY	2.4	43	U.S.	Tucson, AZ	4.0
4	U.S.	Cincinnati, OH-KY-IN	2.5	SERIOUSLY UNAFFORDABLE MARKETS			
4	U.S.	Cleveland, OH	2.5	46	U.S.	Providence, RI-MA	4.2
4	U.S.	Detroit, MI	2.5	47	U.S.	Portland, OR-WA	4.4
7	U.S.	Buffalo, NY	2.6	48	U.K.	Leeds & West Yorkshire	4.6
7	U.S.	Las Vegas, NV	2.6	49	U.S.	Miami-West Palm Beach, FL	4.7
7	U.S.	Saint Louis, MO-IL	2.6	50	Ireland	Dublin	4.8
10	U.S.	Dallas-Fort Worth, TX	2.7	50	U.K.	Derby & Derbyshire	4.8
10	U.S.	Kansas City, MO-KS	2.7	50	U.K.	Nottingham & Nottinghamshire	4.8
10	U.S.	Phoenix, AZ	2.7	50	U.K.	Sheffield & South Yorkshire	4.8
10	U.S.	Pittsburgh, PA	2.7	54	U.K.	Hull & Humber	4.9
14	U.S.	Columbus, OH	2.8	55	U.K.	Glasgow	5.0
15	U.S.	Houston, TX	2.9	55	U.K.	Manchester & Greater Manchester	5.0
15	U.S.	Jacksonville, FL	2.9	55	U.S.	Boston, MA-NH	5.0
15	U.S.	Louisville, KY-IN	2.9	55	U.S.	Seattle, WA	5.0
15	U.S.	Memphis, TN-MS-AR	2.9	SEVERELY UNAFFORDABLE MARKETS			
15	U.S.	Minneapolis-St. Paul, MN-WI	2.9	59	Canada	Toronto, ON	5.1
15	U.S.	Nashville, TN	2.9	59	U.K.	Blackpool & Lancashire	5.1
MODERATELY UNAFFORDABLE MARKETS				59	U.K.	Stoke on Trent & Staffordshire	5.1
21	U.S.	Riverside-San Bernardino, CA	3.1	62	Canada	Montreal	5.2
21	U.S.	Tampa-St.Petersburg, FL	3.1	62	U.K.	Birmingham & West Midlands	5.2
23	U.S.	Oklahoma City, OK	3.2	64	U.K.	Liverpool & Merseyside	5.5
23	U.S.	Sacramento, CA	3.2	64	U.K.	Newcastle & Tyneside	5.5
23	U.S.	San Antonio, TX	3.2	66	U.K.	Bristol-Bath	5.9
26	U.S.	Austin, TX	3.3	66	U.S.	Los Angeles, CA	5.9
26	U.S.	Orlando, FL	3.3	68	U.S.	New York, NY-NJ-PA	6.1
26	U.S.	Richmond, VA	3.3	69	U.S.	San Diego, CA	6.2
29	U.S.	Birmingham, AL	3.4	70	Australia	Perth, WA	6.3
30	Canada	Edmonton, AB	3.5	71	N.Z.	Auckland	6.4
30	U.S.	New Orleans, LA	3.5	72	U.K.	London Exurbs (E & SE England)	6.5
30	U.S.	Raleigh, NC	3.5	73	Australia	Brisbane, QLD	6.6
33	Canada	Ottawa-Gatineau, ON-QC	3.6	74	U.S.	San Jose, CA	6.7
33	U.S.	Chicago, IL	3.6	75	Australia	Adelaide, SA	7.1
33	U.S.	Hartford, CT	3.6	76	U.K.	London (Greater London Authority)	7.2
36	U.S.	Milwaukee, WI	3.8	76	U.S.	San Francisco-Oakland, CA	7.2
36	U.S.	Philadelphia, PA-NJ-DE-MD	3.8	78	U.K.	Plymouth & Devon	7.5
36	U.S.	Salt Lake City, UT	3.8	79	Australia	Melbourne, VIC	9.0
36	U.S.	Washington, DC-VA-MD-WV	3.8	80	Canada	Vancouver, BC	9.5
40	U.S.	Charlotte, NC-SC	3.9	81	Australia	Sydney, NSW	9.6
40	U.S.	Denver, CO	3.9	82	China	Hong Kong	11.4
40	U.S.	Virginia Beach-Norfolk, VA-NC	3.9				



Table ES-4 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	5	27	32	6.1
Canada	9	17	3	6	35	3.4
China (Hong Kong)	0	0	0	1	1	11.4
Ireland	0	3	2	0	5	4.0
New Zealand	0	0	4	4	8	5.3
United Kingdom	0	0	12	21	33	5.2
United States	106	74	16	15	211	3.0
TOTAL	115	94	42	74	325	

The Importance of Housing Affordability

Housing affordability is a major contributor to both the cost of living and the standard of living, because housing represents the largest item in household budgets. As late as the 1980s and 1990s, housing was affordable in nearly all the major metropolitan areas included in the *Demographia International Housing Affordability Survey*. Since that time, however, housing affordability has become a thing of the past, virtually across Australia, New Zealand and the United Kingdom and in some markets of Ireland, Canada and the United States.

The Inevitable Price Increases: House prices have skyrocketed principally because of more restrictive land use regulations that have virtually prohibited new house construction on or beyond the urban fringe. This is particularly evident where there are "urban containment" measures, such as urban growth boundaries. Land value differentials of ten or more times, have been documented immediately across urban growth boundaries (such as in Portland and Auckland). These adjacent properties have values (referred to as "urban echo values") that are substantially higher than true rural values.

Pervasive House Price Increases: Further, the house price escalation has occurred in large markets or small and where demand is strong or weak. Markets like Liverpool, Glasgow and Adelaide have severely unaffordable housing, despite their relatively modest growth rates or even loss rates. A small market like Wallan (VIC), Australia, with a population of only 5,000, also has severely unaffordable housing, This is despite the fact that Wallan is surrounded by cheap agricultural land, only a small part of which would be necessary for the prices of new houses and land to drop by one-half or more.

Higher land prices have been the principal contributor to rapidly increasing housing prices in unaffordable markets. These land prices *include* the cost increasing influence of land supply restrictions (such as urban growth boundaries), excessive infrastructure fees and other overly strict land use regulations. In Australia, 95 percent of the increase in *inflation adjusted* new house (and land) costs were attributable to land, rather than construction from 1993 to 2006. In more restrictively



regulated San Diego, house prices were 250 percent higher than in Dallas-Fort Worth in 2007, yet cost only 15 percent more to build.

Retarding the Standard of Living: The escalation of house prices has been financially damaging to households. Virtually all of the major markets in Australia, the United Kingdom and New Zealand and some in the United States and Canada now have seriously unaffordable or severely unaffordable housing. In many of these markets house prices have doubled relative to incomes and tripled in some cases. As a result, households in Sydney and Melbourne can expect to pay a regulation premium of more than \$750,000 in principal and interest (at current rates) relative to the historic affordable norm. The premium in Vancouver is at least \$750,000, \$450,000 in Auckland, \$200,000 in Montreal, \$400,000 in San Diego, £300,000 in London and £100,000 in Liverpool.

This is money that households do not have for purchasing other goods and services, the result of which can be to diminish job creation and growth in commercial sectors, such as retailing. Just as surely as supply restraints by petroleum exporters raises prices, land supply restraints lead to higher prices for housing.

Metropolitan Area Competitiveness: The cost of unaffordable housing extends to metropolitan area competitiveness. This is illustrated by an analysis of housing costs, using the Median Multiple, for more than 500 United States metropolitan areas. Between 2000 and 2009, the more unaffordable metropolitan areas lost 9.6 percent of their residents (4.7 million) by domestic migration to other areas, nearly 10 percent of their 2000 population. By contrast, the less expensive metropolitan areas gained 4.2 million domestic migrants (2.3 percent of their population).

Of course the migration of households between metropolitan areas is the result of a number of factors. But the unprecedented housing affordability differences that have developed in US metropolitan areas are strongly associated with domestic migration trends. All things being equal, households will be drawn to less costly metropolitan areas and away from more costly metropolitan areas, as they seek to enhance their overall standard of living.

OECD Call to "Ease Supply Restraints:" A report on international housing markets by the Organization for Economic Co-operation and Development (OECD) expressed concern about planning regulations and their role in driving up prices and increasing price volatility, [recommending that nations:](#)

Increase responsiveness of new housing supply to market demand. Countries should reassess licensing procedures that limit new housing starts and reconsider land-use regulations that unduly prevent development. More responsive supply can limit price volatility, excessive price increases and encourage labour mobility.

The OECD singled out Australia and the United Kingdom, recommending the need to ease land use restrictions because of their price inflation impacts. As this *Demographia International Housing Affordability Survey* indicates, the majority of metropolitan markets in Australia and the United Kingdom are severely unaffordable, while the others are seriously unaffordable.



7th Annual Demographia International Housing Affordability Survey

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

1. RATING HOUSING AFFORDABILITY

The *7th Annual Demographia International Housing Affordability Survey*. The *Survey* covers housing affordability in metropolitan markets in Australia, Canada, Ireland, New Zealand, the United Kingdom, the United States and Hong Kong in China. This edition adds Hong Kong and is expanded from 272 to 325 metropolitan markets.

The *Demographia International Housing Affordability Survey* is unique in providing standardized comparisons of housing affordability between international housing markets. The *7th Annual Demographia International Housing Affordability Survey* includes estimates from the September quarter (third quarter) of 2010.

Many reviews of international housing affordability focus on national data, which can mask significant differences between metropolitan markets. Metropolitan real estate markets can vary significantly in house price trends, as the experience in the United States indicated during the housing bubble.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 incomes.

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](#).⁴ More elaborate indicators, which often mix housing affordability and

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.

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.



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 Breward, 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.

The Median Multiple is a reliable and easily understood 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.

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 of 3.0 or less continues in many housing markets of the United States and Canada and [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.

Thus, the historical evidence in six nations is of similar housing affordability. 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 Zealand⁶ 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.

Housing Affordability Ratings: The *7th 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 1).

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 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)



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

2. HOUSING AFFORDABILITY IN 2010

Among the 325 markets, 115 were affordable, 94 were moderately unaffordable, 42 were seriously unaffordable and 74 were severely unaffordable. For the first time, this edition provides a separate analysis of major metropolitan areas (those with more than 1,000,000 population). There were 82 major metropolitan markets, which included 20 affordable markets, 25 moderately unaffordable markets, 13 seriously unaffordable markets and 24 severely unaffordable markets (Table 2)

Rating	Median Multiple	Major Markets (Number)	All Markets (Number)
Affordable	3.0 or Less	20	115
Moderately Unaffordable	3.1 to 4.0	25	94
Seriously Unaffordable	4.1 to 5.0	13	42
Severely Unaffordable	5.1 & Over	24	74
TOTAL		82	325

Major Metropolitan Markets: All of the affordable major markets were in the United States while three of the moderately unaffordable markets were in Canada, with the other 22 being in the United States. The major metropolitan markets in Australia were all severely unaffordable, while more than one-half of the major markets in the United Kingdom were severely unaffordable (Table 3).

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	7.1
Canada	0	3	0	3	6	4.6
China (Hong Kong)	0	0	0	1	1	11.4
Ireland	0	0	1	0	1	4.8
New Zealand	0	0	0	1	1	6.4
United Kingdom	0	0	7	9	16	5.1
United States	20	22	5	5	52	3.3
TOTAL	20	25	13	24	82	



The most affordable major market (over 1,000,000 population) was Atlanta, with a median house price of \$129,400, and a Median Multiple of 2.3. Indianapolis (\$120,200) and Rochester (\$121,500) tied for 2nd most affordable major market, at a Median Multiple of 2.4. Cincinnati, Cleveland and Detroit tied for 4th most affordable, with a Median Multiple of 2.5, followed by Buffalo, Las Vegas and St. Louis at 2.6. Eleven other US major markets were rated affordable, including fast growing Dallas-Fort Worth (2.7), Houston (2.9), Jacksonville (2.9) and Nashville (2.9).

All major markets in Australia and New Zealand, as well as Hong Kong were severely unaffordable.

Hong Kong ranked as the least affordable major market (82nd), with a median multiple of 11.4. Sydney ranked second least affordable (81st), with a Median Multiple of 9.6, having slipped behind last year's most unaffordable market, Vancouver at 9.5, which ranked 80th. Melbourne ranked 79th, with a Median Multiple of 9.0. Plymouth & Devon, San Francisco, London and Adelaide all had Median Multiples of more than 7.0 (Table 4).

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 1 and Table 5).

All Markets: The 325 markets are ranked by housing affordability in Schedule 1. All of the 115 affordable markets (having a Median Multiple of 3.0 or below) were in Canada and the United States (Table 5). There were 106 affordable markets in the United States and 9 affordable markets in Canada. There were no affordable markets in Australia, Ireland, New Zealand or the United Kingdom.

The 94 moderately unaffordable markets were split between the United States (74), Canada (17) and Ireland (3). There were no moderately unaffordable markets in Australia, New Zealand or the United Kingdom.

The metropolitan markets of Australia, New Zealand and the United Kingdom were concentrated in the seriously unaffordable and severely unaffordable categories.

Hong Kong was the least affordable market, while Sydney became less affordable than Vancouver..

- The concentration of severe unaffordability was particularly stark in Australia, where approximately 85 percent of the metropolitan markets were severely unaffordable.
- Nearly two-thirds of the metropolitan markets in the United Kingdom were severely unaffordable.
- One-half of the metropolitan markets in New Zealand were severely unaffordable.

The concentration of severe unaffordability was less in Canada (approximately one-sixth of markets) and the United States, where 7 percent of markets were severely unaffordable (Table 6).



Table 4
Housing Affordability: Major Metropolitan Markets (Over 1,000,000 Population)

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
AFFORDABLE MARKETS							
1	U.S.	Atlanta, GA	2.3	43	Canada	Calgary, AB	4.0
2	U.S.	Indianapolis, IN	2.4	43	U.S.	Baltimore, MD	4.0
2	U.S.	Rochester, NY	2.4	43	U.S.	Tucson, AZ	4.0
4	U.S.	Cincinnati, OH-KY-IN	2.5	SERIOUSLY UNAFFORDABLE MARKETS			
4	U.S.	Cleveland, OH	2.5	46	U.S.	Providence, RI-MA	4.2
4	U.S.	Detroit, MI	2.5	47	U.S.	Portland, OR-WA	4.4
7	U.S.	Buffalo, NY	2.6	48	U.K.	Leeds & West Yorkshire	4.6
7	U.S.	Las Vegas, NV	2.6	49	U.S.	Miami-West Palm Beach, FL	4.7
7	U.S.	Saint Louis, MO-IL	2.6	50	Ireland	Dublin	4.8
10	U.S.	Dallas-Fort Worth, TX	2.7	50	U.K.	Derby & Derbyshire	4.8
10	U.S.	Kansas City, MO-KS	2.7	50	U.K.	Nottingham & Nottinghamshire	4.8
10	U.S.	Phoenix, AZ	2.7	50	U.K.	Sheffield & South Yorkshire	4.8
10	U.S.	Pittsburgh, PA	2.7	54	U.K.	Hull & Humber	4.9
14	U.S.	Columbus, OH	2.8	55	U.K.	Glasgow	5.0
15	U.S.	Houston, TX	2.9	55	U.K.	Manchester & Greater Manchester	5.0
15	U.S.	Jacksonville, FL	2.9	55	U.S.	Boston, MA-NH	5.0
15	U.S.	Louisville, KY-IN	2.9	55	U.S.	Seattle, WA	5.0
15	U.S.	Memphis, TN-MS-AR	2.9	SEVERELY UNAFFORDABLE MARKETS			
15	U.S.	Minneapolis-St. Paul, MN-WI	2.9	59	Canada	Toronto, ON	5.1
15	U.S.	Nashville, TN	2.9	59	U.K.	Blackpool & Lancashire	5.1
MODERATELY UNAFFORDABLE MARKETS							
21	U.S.	Riverside-San Bernardino, CA	3.1	59	U.K.	Stoke on Trent & Staffordshire	5.1
21	U.S.	Tampa-St.Petersburg, FL	3.1	62	Canada	Montreal	5.2
23	U.S.	Oklahoma City, OK	3.2	62	U.K.	Birmingham & West Midlands	5.2
23	U.S.	Sacramento, CA	3.2	64	U.K.	Liverpool & Merseyside	5.5
23	U.S.	San Antonio, TX	3.2	64	U.K.	Newcastle & Tyneside	5.5
26	U.S.	Austin, TX	3.3	66	U.K.	Bristol-Bath	5.9
26	U.S.	Orlando, FL	3.3	66	U.S.	Los Angeles, CA	5.9
26	U.S.	Richmond, VA	3.3	68	U.S.	New York, NY-NJ-PA	6.1
29	U.S.	Birmingham, AL	3.4	69	U.S.	San Diego, CA	6.2
30	Canada	Edmonton, AB	3.5	70	Australia	Perth, WA	6.3
30	U.S.	New Orleans, LA	3.5	71	N.Z.	Auckland	6.4
30	U.S.	Raleigh, NC	3.5	72	U.K.	London Exurbs (E & SE England)	6.5
33	Canada	Ottawa-Gatineau, ON-QC	3.6	73	Australia	Brisbane, QLD	6.6
33	U.S.	Chicago, IL	3.6	74	U.S.	San Jose, CA	6.7
33	U.S.	Hartford, CT	3.6	75	Australia	Adelaide, SA	7.1
36	U.S.	Milwaukee, WI	3.8	76	U.K.	London (Greater London Authority)	7.2
36	U.S.	Philadelphia, PA-NJ-DE-MD	3.8	76	U.S.	San Francisco-Oakland, CA	7.2
36	U.S.	Salt Lake City, UT	3.8	78	U.K.	Plymouth & Devon	7.5
36	U.S.	Washington, DC-VA-MD-WV	3.8	79	Australia	Melbourne, VIC	9.0
40	U.S.	Charlotte, NC-SC	3.9	80	Canada	Vancouver, BC	9.5
40	U.S.	Denver, CO	3.9	81	Australia	Sydney, NSW	9.6
40	U.S.	Virginia Beach-Norfolk, VA-NC	3.9	82	China	Hong Kong	11.4



Table 5
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 1.

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.

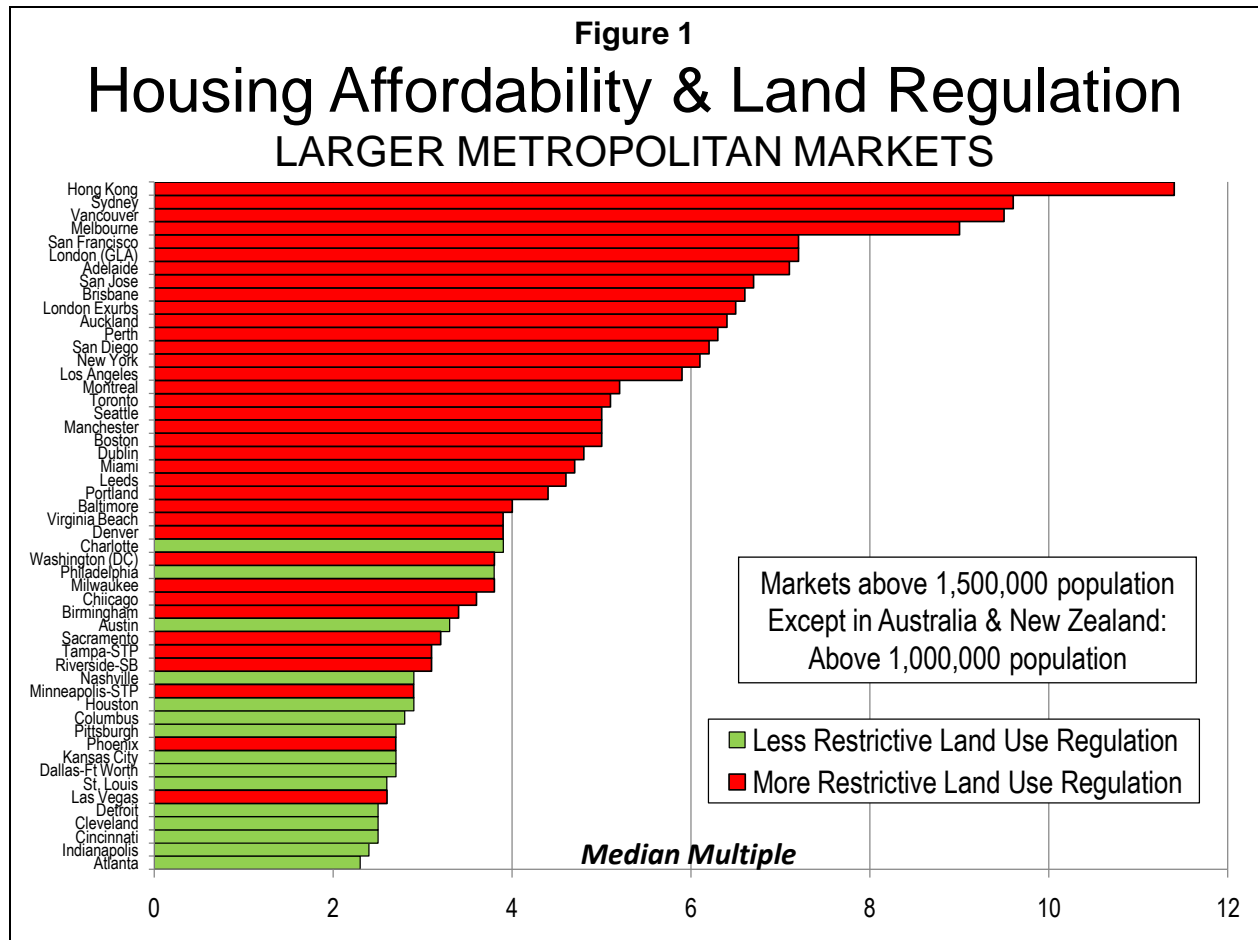
Table 6
Housing Affordability Ratings by Nation: All Markets

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	5	27	32	6.1
Canada	9	17	3	6	35	3.4
China (Hong Kong)	0	0	0	1	1	11.4
Ireland	0	3	2	0	5	4.0
New Zealand	0	0	4	4	8	5.3
United Kingdom	0	0	12	21	33	5.2
United States	106	74	16	15	211	3.0
TOTAL	115	94	42	74	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 (Table 7). Canada placed three metropolitan areas in among the most affordable 34, including Windsor (ON), Fredericton (NB) and Thunder Bay (ON)

The least affordable markets outside the major markets were Bournemouth & Dorset (UK) with a Median Multiple of 9.3, Coff's Harbour (NSW, Australia) at 9.1, Honolulu at 8.5, the Sunshine Coast (QLD, Australia) at 8.4, Warwickshire (UK) at 8.1, the Gold Coast (QLD-NSW, Australia) at 7.7 and Swenson & Wiltshire (UK) at 7.5 (Table 8).





Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	U.S.	Saginaw, MI	1.6	57	U.S.	Binghamton, NY	2.6
2	U.S.	Flint, MI	1.7	57	U.S.	Buffalo, NY	2.6
2	U.S.	Youngstown, OH-PA	1.7	57	U.S.	Fayetteville, NC	2.6
4	U.S.	Lansing, MI	1.8	57	U.S.	Harrisburg, PA	2.6
5	U.S.	Evansville, IN	1.9	57	U.S.	Kalamazoo, MI	2.6
6	U.S.	Canton, OH	2.0	57	U.S.	Lafayette, LA	2.6
6	U.S.	Grand Rapids, MI	2.0	57	U.S.	Las Vegas, NV	2.6
6	U.S.	South Bend, IN	2.0	57	U.S.	Ocala, FL	2.6
6	U.S.	Toledo, OH	2.0	57	U.S.	Omaha, NE-IA	2.6
10	Canada	Windsor, ON	2.1	57	U.S.	Saint Louis, MO-IL	2.6
10	U.S.	Cape Coral-Fort Myers, FL	2.1	57	U.S.	Waco, TX	2.6
10	U.S.	Fort Smith, AR-OK	2.1	70	U.S.	Cedar Rapids, IA	2.7
13	U.S.	Akron, OH	2.2	70	U.S.	Dallas-Fort Worth, TX	2.7
13	U.S.	Appleton, WI	2.2	70	U.S.	Greeley, CO	2.7
13	U.S.	Fayetteville, AR-MO	2.2	70	U.S.	Green Bay, WI	2.7
13	U.S.	Ft. Wayne, IN	2.2	70	U.S.	Hickory, NC	2.7
13	U.S.	Huntsville, AL	2.2	70	U.S.	Kansas City, MO-KS	2.7



Table 7
Affordable Housing Markets

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
13	U.S.	Lakeland, FL	2.2	70	U.S.	Killeen, TX	2.7
13	U.S.	Laredo, TX	2.2	70	U.S.	Phoenix, AZ	2.7
13	U.S.	Ogden, UT	2.2	70	U.S.	Pittsburgh, PA	2.7
13	U.S.	Springfield, IL	2.2	70	U.S.	Sioux Falls, SD	2.7
22	Canada	Fredericton, NB	2.3	80	Canada	Saint John, NB	2.8
22	Canada	Thunder Bay, ON	2.3	80	U.S.	Amarillo, TX	2.8
22	U.S.	Atlanta, GA	2.3	80	U.S.	Ann Arbor, MI	2.8
22	U.S.	Clarksville, TN	2.3	80	U.S.	Columbus, OH	2.8
22	U.S.	Davenport, IA-IL	2.3	80	U.S.	Des Moines, IA	2.8
22	U.S.	Duluth, MN	2.3	80	U.S.	Las Cruces, NM	2.8
22	U.S.	Elkhart, IN	2.3	80	U.S.	Lincoln, NE	2.8
22	U.S.	Houma, LA	2.3	80	U.S.	Modesto, CA	2.8
22	U.S.	Huntington, WV-KY-OH	2.3	80	U.S.	Scranton-Wilkes Bare, PA	2.8
22	U.S.	Macon, GA	2.3	80	U.S.	Springfield, MO	2.8
22	U.S.	Provo, UT	2.3	80	U.S.	Tulsa, OK	2.8
22	U.S.	Topeka, KS	2.3	80	U.S.	Tyler, TX	2.8
22	U.S.	Utica, NY	2.3	92	U.S.	Houston, TX	2.9
35	Canada	Moncton, NB	2.4	92	U.S.	Jacksonville, FL	2.9
35	Canada	Yellowknife, NWT	2.4	92	U.S.	Kingsport, TN-VA	2.9
35	U.S.	Anchorage, AK	2.4	92	U.S.	Lancaster, PA	2.9
35	U.S.	Columbus, GA-AL	2.4	92	U.S.	Little Rock, AR	2.9
35	U.S.	Erie, PA	2.4	92	U.S.	Longview, TX	2.9
35	U.S.	Indianapolis, IN	2.4	92	U.S.	Louisville, KY-IN	2.9
35	U.S.	Palm Bay-Melbourne, FL	2.4	92	U.S.	Lynchburg, VA	2.9
35	U.S.	Port St. Lucie, FL	2.4	92	U.S.	Memphis, TN-MS-AR	2.9
35	U.S.	Rochester, NY	2.4	92	U.S.	Minneapolis-St. Paul, MN-WI	2.9
35	U.S.	Rockford, IL	2.4	92	U.S.	Nashville, TN	2.9
45	U.S.	Augusta, GA	2.5	92	U.S.	Reading, PA	2.9
45	U.S.	Cincinnati, OH-KY-IN	2.5	92	U.S.	Roanoke, VA	2.9
45	U.S.	Cleveland, OH	2.5	92	U.S.	Savannah, GA	2.9
45	U.S.	Dayton, OH	2.5	106	Canada	Saguenay, QC	3.0
45	U.S.	Detroit, MI	2.5	106	Canada	Trois-Rivieres, QC	3.0
45	U.S.	Holland, MI	2.5	106	U.S.	Beaumont, TX	3.0
45	U.S.	Peoria, IL	2.5	106	U.S.	Chattanooga, TN-GA	3.0
45	U.S.	Racine, WI	2.5	106	U.S.	Columbia, SC	3.0
45	U.S.	Syracuse, NY	2.5	106	U.S.	Deltona-Daytona Beach, FL	3.0
45	U.S.	Wichita, KS	2.5	106	U.S.	Merced, CA	3.0
45	U.S.	Winston-Salem, NC	2.5	106	U.S.	Montgomery, AL	3.0
45	U.S.	York, PA	2.5	106	U.S.	Poughkeepsie, NY	3.0
57	Canada	Charlottetown, PEI	2.6	106	U.S.	Tuscaloosa, AL	3.0
57	U.S.	Bakersfield, CA	2.6				

Summary by Nation

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

Australia: Housing remains the most unaffordable in Australia, except for the single market in China (Hong Kong) included in this *Survey*. Australia is characterized by more restrictive land use policies. The [Organization for Economic Co-operation and Development has recommended](#) that Australia "ease" its housing supply constraints, which have driven up housing prices (see Section 3).



Australia's major markets have a severely unaffordable Median Multiple of 7.1, nearly 2.4 times the 3.0 affordability standard. Each of the major markets, with the exception of Sydney had housing affordability within the 3.0 norm during the 1980s (Figure 2). Australia's Median Multiple for all markets was also the highest outside China, at a severely unaffordable 6.1.

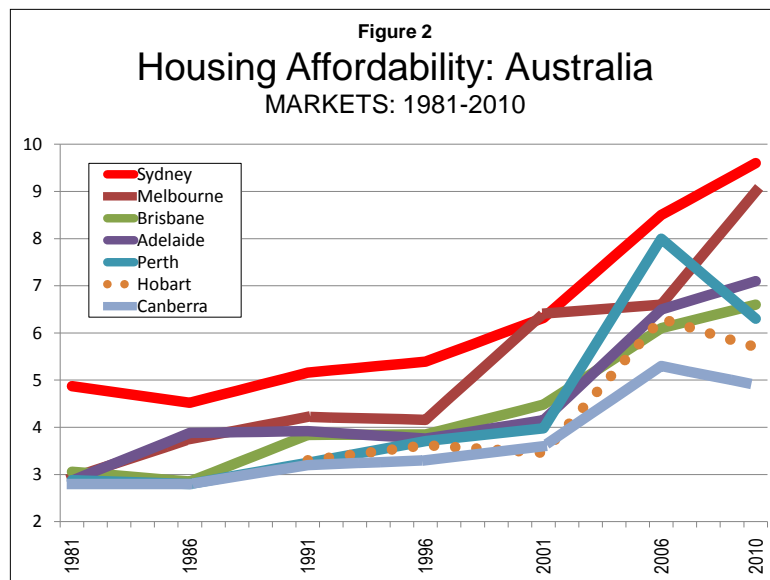
Table 8
Severely Unaffordable Housing Markets
Ranked by Severity of Housing Unaffordability

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	China	Hong Kong	11.4	39	U.S.	New York, NY-NJ-PA	6.1
2	Australia	Sydney, NSW	9.6	40	N.Z.	Christchurch	6.0
3	Canada	Vancouver, BC	9.5	41	Australia	Bendigo, VIC	5.9
4	U.K.	Bournemouth & Dorset	9.3	41	Canada	Kelowna, BC	5.9
5	Australia	Coffs Harbour, NSW	9.1	41	U.K.	Newport	5.9
6	Australia	Melbourne, VIC	9.0	41	U.S.	Los Angeles, CA	5.9
7	U.S.	Honolulu, HI	8.5	41	U.S.	Oxnard-Ventura, CA	5.9
8	Australia	Sunshine Coast, QLD	8.4	46	Australia	Wagga Wagga, NSW	5.8
9	U.K.	Warwickshire	8.1	47	Australia	Cairns, QLD	5.7
10	U.K.	London (Greater London Authority)	7.9	47	Australia	Tamworth, NSW	5.7
10	U.K.	Plymouth & Devon	7.9	47	U.K.	Newcastle & Tyneside	5.7
12	Australia	Gold Coast, QLD-NSW	7.7	50	Australia	Canberra, ACT	5.6
13	U.K.	Swindon & Wiltshire	7.5	50	Australia	Mackay, QLD	5.6
14	Australia	Geelong, VIC	7.4	50	U.S.	Boulder, CO	5.6
15	Australia	Wollongong, NSW	7.2	50	U.S.	Santa Rosa, CA	5.6
15	U.S.	San Francisco-Oakland, CA	7.2	54	N.Z.	Wellington	5.5
15	U.S.	Santa Cruz, CA	7.2	54	U.K.	Cardiff	5.5
18	Australia	Adelaide, SA	7.1	54	U.K.	Edinburgh	5.5
18	Canada	Victoria, BC	7.1	54	U.S.	Barnstable Town, MA	5.5
18	U.K.	London Exurbs (E & SE England)	7.1	58	Australia	Rockhampton, QLD	5.4
21	Australia	Newcastle-Maitland, NSW	7.0	58	Australia	Townsville, QLD	5.4
22	U.K.	Warrington & Cheshire	6.8	58	U.K.	Birmingham & West Midlands	5.4
23	U.S.	San Jose, CA	6.7	58	U.K.	Glasgow	5.4
24	Australia	Brisbane, QLD	6.6	58	U.K.	Leicester & Leicestershire	5.4
24	Australia	Bundaberg, QLD	6.6	58	U.K.	Liverpool & Merseyside	5.4
24	Australia	Mandurah, WA	6.6	58	U.K.	Northampton & Northamptonshire	5.4
24	U.K.	Telford & Shropshire	6.6	58	U.K.	Swansea	5.4
28	Canada	Abbotsford, BC	6.5	58	U.S.	Wilmington, NC	5.4
28	N.Z.	Tauranga-Western Bay of Plenty	6.5	67	Australia	Ballarat, VIC	5.3
28	U.S.	San Luis Obispo, CA	6.5	67	Australia	Hobart, TAS	5.3
28	U.S.	Santa Barbara, CA	6.5	69	Australia	Toowoomba, QLD	5.2
32	Australia	Darwin, NT	6.4	69	Canada	Montreal, QC	5.2
32	N.Z.	Auckland	6.4	69	U.K.	Aberdeen	5.2
32	U.K.	Bristol-Bath	6.4	69	U.K.	Blackpool & Lancashire	5.2
35	Australia	Alice Springs, NT	6.3	69	U.K.	Stoke on Trent & Staffordshire	5.2
35	Australia	Devonport-Burnie, TAS	6.3	69	U.S.	Eugene, OR	5.2
35	Australia	Perth, WA	6.3	75	Canada	Toronto, ON	5.1
38	U.S.	San Diego, CA	6.2	75	U.K.	Hull & Humber	5.1

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 9.6. Prices rose strongly in Melbourne, which had a Median Multiple of 9.0. Adelaide had a Median Multiple of 7.1, despite being the lowest demand major market in the nation. Brisbane (6.6) and Perth (6.3) were less unaffordable, but were still well above the threshold of severe unaffordability.



The least unaffordable markets outside the major markets were Mildura, (VIC) at 4.2, Launceston (TAS) at 4.5, Bunbury (WA) at 4.5, Albury-Wondonga (NSW-VIC) at 4.5 and Shepparton (VIC) at 4.9, all of which were rated seriously unaffordable.



Outside of the major metropolitan markets, Coff's Harbour (NSW) was the least affordable, with a Median Multiple of 9.1, the Sunshine Coast (QLD) had an 8.4 Median Multiple, while the Gold Coast (QLD-NSW) had a 7.7 Median Multiple.

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](#).

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.

Edmonton emerged as the least unaffordable major market, with a Median Multiple of 3.5, while Ottawa-Gatineau had a Median Multiple of 3.6. Both of these markets were rated moderately unaffordable.

Canada's most affordable markets were Windsor (ON) at 2.1, Thunder Bay (ON) at 2.3, Fredericton (NB) at 2.3, Moncton (NB) at 2.4 and Yellowknife (NWT) at 2.4. Charlottetown (PEI) at 2.6, Saint John (NB) at 2.8, Sagunay (QC) at 3.0 and Trois-Rivieres (QC) at 3.0 was also affordable.

Vancouver, which like Sydney has largely prohibited housing development on the urban fringe for decades, remained the least affordable market in Canada, at 9.5. However, Vancouver relinquished its "most unaffordable" status in the *Demographia International Housing Affordability Survey* to Hong Kong and Sydney this year. Montreal (5.2) became severely unaffordable, joining Toronto (5.1), which became seriously unaffordable last year. Smaller British Columbia markets Victoria (7.1), Abbotsford (6.5) and Kelowna (5.9) were also severely unaffordable.

China: The one market covered in China, Hong Kong, had the most unaffordable housing in the *Survey*, with a Median Multiple of 11.4. Only Los Angeles has equaled or exceeded this Median



Multiple in the seven years of the *Demographia International Housing Affordability Survey* (11.5 in 2007 and 11.4 in 2006).⁷

Ireland: Housing in Ireland was moderately unaffordable with a Median Multiple of 4.0. Housing was generally affordable in Ireland [as late as the middle 1990s](#).

Dublin was the least affordable market with a Median Multiple of 4.8 and along with Cork (4.1) was seriously unaffordable. Three of Ireland's five markets were moderately unaffordable, Waterford (3.2), Galway (3.6) and Limerick (4.0). Ireland had no severely unaffordable markets and had no affordable markets.

New Zealand: Housing in New Zealand was severely unaffordable, with a Median Multiple of 5.3, 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, the only major market, had a Median Multiple of 6.4 and with Christchurch (6.0) and Wellington (5.5) was severely unaffordable. Tauranga-Western Bay of Plenty was again the least affordable market, with a Median Multiple of 6.5. Thus, 4 of the 8 New Zealand markets were severely unaffordable. For the first time, four New Zealand markets achieved a seriously unaffordable rating, Palmerston North (4.1), Napier-Hastings (4.7), Hamilton (5.0) and Dunedin (5.0). New Zealand had no affordable markets and no moderately unaffordable markets.

United Kingdom: Housing in the United Kingdom remains severely unaffordable, which is consistent with its long history of more restrictive national land use policies.⁸ The [Organization for Economic Co-operation and Development has recommended](#) that the United Kingdom reassess its land use policies to free the supply constraints that have driven up housing prices (see Section 3)

The United Kingdom has a Median Multiple of 5.2, well above the historic maximum norm of 3.0.

Housing [had been affordable in the late 1990s](#), with a Median Multiple of under 3.0. The major metropolitan markets were rated a severely unaffordable, with a Median Multiple of 5.1. Nine of the 16 United Kingdom major markets were severely unaffordable, while 7 were seriously unaffordable. Among all 33 markets, 21 were severely unaffordable, while the other 12 markets were seriously unaffordable. The United Kingdom had no affordable markets and no moderately unaffordable markets.

Among the major markets, Plymouth & Devon was the most unaffordable, with a Median Multiple of 7.5. London (the Greater London Authority) was second most unaffordable, with a Median

⁷ There have been reports of high house price to income ratios in mainland China housing markets. However, there is no routine reporting system of median house prices or median household incomes, nor have such reports generally specified their geographic or market components within metropolitan areas. As a result, there is no data that can be used to develop consistent Median Multiples in China outside Hong Kong.

⁸ 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.



Multiple of 7.2, while the London Exurbs (East & Southeast England) was third most unaffordable, with a Median Multiple of 6.5. Six other major metropolitan markets were severely unaffordable, including Bristol-Bath (5.9), Newcastle & Tyneside (5.5), Liverpool & Merseyside (5.5), Birmingham & West Midlands (5.2), Stoke on Trent & Staffordshire (5.1) and Blackpool & Lancashire (5.1).

The least unaffordable major metropolitan markets in the United Kingdom were Leeds & West Yorkshire (4.6), Derby & Derbyshire (4.8), Nottingham and Nottinghamshire (4.8), Sheffield and South Yorkshire (4.8) Hull & Humber (4.9), Glasgow (5.0) and Manchester & Greater Manchester (5.0). Among the other markets, Falkirk (Scotland) was the most affordable, at 4.2, followed by Dundee (Scotland) at 4.3 Perth, (Scotland) at 4.6 and Belfast, at 4.6.

United States: Housing in the United States was rated as affordable, with the Median Multiple of 3.0. The United States had 106 affordable markets, 74 moderately unaffordable markets, 16 seriously unaffordable markets and 15 severely unaffordable markets.

Among the 52 major markets, the Median Multiple was a moderately unaffordable 3.3. There were 20 affordable major markets, 22 moderately unaffordable, 5 seriously unaffordable and 5 severely unaffordable major markets.

The most unaffordable major metropolitan market in the United States was San Francisco (7.2), followed by San Jose (6.7), San Diego (6.2), New York (6.1) and Los Angeles (5.9). Among all markets, Honolulu was the least affordable market, with a Median Multiple of 8.5, while Santa Cruz (CA) had a Median Multiple of 7.2. All of these markets were severely unaffordable.

Atlanta was the most affordable major market both in the United States and internationally.

The most affordable major market was Atlanta, with a Median Multiple of 2.3. Other affordable major markets were Indianapolis (2.4), Rochester (2.4), Cincinnati (2.5), Cleveland (2.5), Detroit (2.5), Buffalo (2.6), Las Vegas (2.6), Saint Louis (2.6), Dallas-Fort Worth (2.7), Kansas City (2.7), Phoenix (2.7), Pittsburgh (2.7), Columbus (2.8), Houston (2.9), Jacksonville (2.9), Louisville (2.9), Memphis (2.9), Minneapolis-St. Paul (2.9) and Nashville (2.9).

Among smaller markets, the most affordable were concentrated in the industrial heartland, where there have been significant employment losses during the period surrounding the Great Recession. A number of these markets had Median Multiples under 2.0, including Saginaw (MI), Flint (MI), Youngstown (OH-PA), Lansing (MI) and Evanston (IN).

At the same time, some of the most affordable markets exhibit especially strong economies, such as Fayetteville, AR-MO (Median Multiple of 2.2), which is the headquarters of the world's largest retailer, Wal-Mart and one of the highest demand metropolitan areas in the United States (as measured by domestic migration). Huntsville, AL and Ogden, UT are additional examples of especially affordable markets (Median Multiples of 2.2) that have much stronger than average economies and have strong inward domestic migration.



3. THE IMPORTANCE OF HOUSING AFFORDABILITY

Earlier *Demographia International Housing Affordability Surveys* have outlined the international economic research associating higher housing costs with more restrictive land use regulations. Because housing represents the largest share of household budgets, housing affordability is a major contributor to both the cost of living and the standard of living. As late as the 1980s and 1990s housing affordability in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States was characterized by Median Multiples of 3.0 or below.

The Inevitable House Price Increases: Since that time, more restrictive land use regimes have been put in place in many metropolitan areas and housing affordability has been severely weakened. Moreover, these more restrictive land use regulations are associated with [more price volatility](#) and, according to the Federal Reserve Bank of Dallas, [greater speculation](#).

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 earnings.

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 earnings. To allow this to occur, new starter housing of an acceptable quality to the purchasers, with associated commercial and industrial development, must be allowed to be provided on the urban fringes at 2.5 times the gross annual median household income of that urban market (refer Demographia Survey Schedules for guidance).

The critically important Development Ratios⁹ 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."

In large part, restoring housing affordability requires relearning history.

Soon after World War II, entrepreneur, [William \(Bill\) Levitt](#), ushered in the modern production residential construction industry. Levitt developed the systems to allow new “Cape Cod” housing to be provided at \$8,000 to single earner families on \$3,800 a year – 2.1 times gross annual household earnings. Levitt proved that it was possible to provide affordable housing to a market dominated by young single income households.

The fringe is the only supply or inflation vent of an urban market.

⁹ The development ratio is the cost of the finished land (underlying infrastructure complete) divided by the house construction cost plus the finished land. This issue is extensively discussed with respect to the United States market in the [Demographia Residential Land & Regulation Cost Index](#).



The New Zealand Planning Institute [stated](#) after the release of the 2007 3rd *Annual Demographia International Housing Affordability Survey*:

The New Zealand Planning Institute strongly supports Demographia's call for planners, local councils and developers to collaborate more proactively and effectively in the provision of an adequate supply of affordable new residential housing.....adding.....Importantly this and other such partnerships around New Zealand will help ensure that affordable housing takes its rightful place at the heart of community planning decision making alongside other key elements such as environmental sustainability.

Where the "supply vent" of the urban fringe is prevented from operating, serious price distortions can be expected to occur, leading to the destruction of housing affordability. This has generally been the experience of more restrictively regulated markets, especially where there are "urban containment" policies, such as urban growth boundaries, which severely limit or prohibit development beyond existing urbanization (on or beyond the urban fringe).

For example:

- The New Zealand government's [2025 Task Force](#) found that land just inside Auckland's urban growth boundary (where development is permitted) is "about 10 times" the price of otherwise identical land immediately outside (where development is not permitted).
- The value of buildable land inside Portland's (OR) west-side urban growth boundary [averages more than 10 times that of land immediately outside](#) (literally across the street).

These immediately adjoining prices (referred to as "urban echo values") are substantially higher than true rural values

The *Barker Report of Land Use Planning*, commissioned by the Blair Labour government, found that residential land with planning permission was 400 times the value of agricultural land that lacks planning permission in the London Exurbs (Southeast England, outside London).¹⁰

The value of buildable land inside the Portland's ... urban growth boundary averages more than 10 times that of land immediately outside (literally across the

Pervasive House Price Increases: This house price escalation has occurred generally independent from varying demand levels. For example, the Median Multiple has more than doubled in Adelaide, the slowest growing major market in Australia. Liverpool and Glasgow, which have been among the slowest growing metropolitan areas of the United Kingdom, exhibit median multiples that have escalated at least two thirds.

Severely unaffordable housing is even evident in the smallest markets with more restrictive land use regulation. This is illustrated by Wallan, Victoria an urban area of 5,000 people approximately 20 kilometers (12 miles) beyond Melbourne's urban fringe. Wallan is surrounded by land that could be

¹⁰ Kate Barker, *Barker Review of Land Use Planning: Interim Report-Analysis*, Her Majesty's Stationery Office (London: 2006), http://www.hm-treasury.gov.uk/media/4EB/AF/barker_finalreport051206.pdf.



developed, and which if the market of willing buyers and sellers were allowed to operate, could provide housing that is affordable.

In a recent article, Leith van Onselen noted in [The Unconventional Economist](#) that a new residential lot would cost \$155,000 in Wallan, Victoria (Australia). This is approximately [5 times the cost of a lot for a new house](#) *inside* (not 20 kilometers beyond) the urban fringe of Atlanta, Dallas-Fort Worth, Indianapolis or a number of other urban areas in the United States with less restrictive land use regulation. As a result its high land costs that result from more restrictive land use regulation, the median multiple in Wallan is approximately 5.8, nearly double the affordable norm of 3.0.

Virtually all of the higher house prices in unaffordable markets is the rising price of land, rather than in the construction of the housing itself. These higher land prices *include* the cost increasing influence of land supply restrictions (such as urban growth boundaries), excessive infrastructure fees and other overly strict land use regulations. For example:

- In the United States, the difference in house construction costs between metropolitan areas pales by comparison to land and regulatory costs. For example, house construction costs in more restrictively regulated San Diego were 12 percent higher in 2007 than in less restrictively regulated Indianapolis and 15 percent higher than in less restrictively regulated Dallas-Fort Worth. Yet, the median house price in San Diego was 300 percent higher than in Indianapolis and 250 percent higher than in Dallas-Fort Worth.
- According to [Housing Industry Association of Australia data](#), 95 percent of the increase in standardized house and land prices combined between 1993 and 2006 was attributable to land costs, and only 5 percent in house construction cost.

... in Australia ... house prices have hyper-inflated as more restrictive land use regulation has virtually outlawed building on urban fringes.

Retarding the Standard of Living: The escalation of house prices has been financially damaging to households. Virtually all of the major markets in Australia, the United Kingdom and New Zealand and some in the United States and Canada, now have seriously unaffordable or severely unaffordable housing. In many of these markets, house prices have doubled or tripled relative to incomes.

The extent of the additional household costs, from excessively high house prices and excessive mortgage overloads (at current interest rates) is illustrated by the following:¹¹

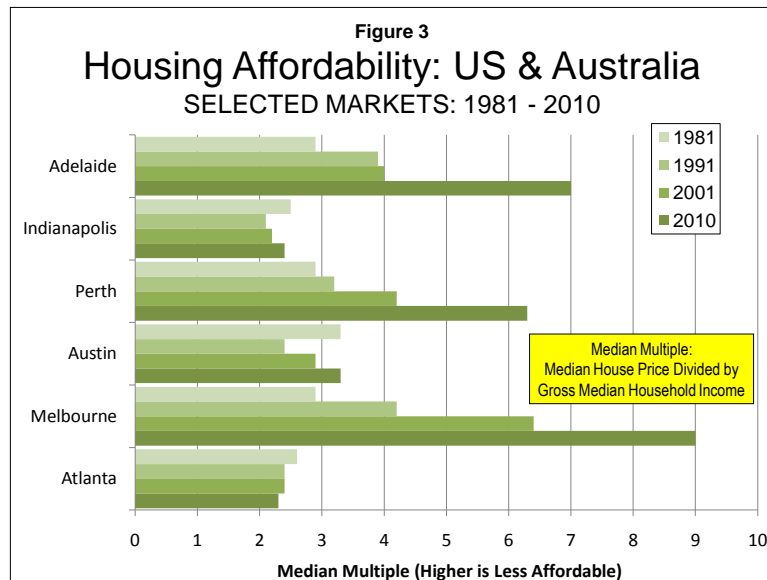
- In Sydney and Melbourne, the median priced house, including additional mortgage interest costs, now costs a household at least \$750,000 more than the historic housing affordability norm. In Adelaide, the additional household would be \$500,000.

¹¹ At prevailing mortgage interest rates. 25 year amortization assumed, except in the United States, where a 30 year amortization is assumed.



- A Vancouver household purchasing the median priced house could pay at least an additional \$750,000 in mortgage payments. The additional cost would be more than \$250,000 for a Toronto household and \$200,000 for a Montreal household.
- An Auckland household could expect to pay an additional \$450,000.
- At current prices, a San Diego household would pay an additional \$400,000, while a Seattle household would pay at least \$250,000 more.
- In London, the higher housing cost would add £300,000 to the household budget, while in less affluent Liverpool the additional cost would be £100,000.

The widening affordability gap between more restrictively regulated markets and less restrictively regulated markets is illustrated by comparable¹² cases in the United States and Australia (Figure 3).



Generally, the three US markets (Atlanta, Austin and Indianapolis) have experienced price stability, with their less restrictive land use regulation (even during the US housing bubble). On the other hand, in Australia (and elsewhere in severely unaffordable markets) house prices have hyper-inflated, as more restrictive land use regulation has virtually outlawed new housing on urban fringes.

The housing and mortgage stress that is experienced in the severely unaffordable markets could worsen materially, if today's mortgage

interest rates should return to the higher averages of the past 30 years or even to the peak rates, which were double or triple current rates.¹³ The economic consequences could be especially severe in severely unaffordable markets where variable rate mortgages are the norm (as opposed to the longer term fixed rate mortgages typical in the United States).

Australia's burgeoning house prices have forced many households into both housing and mortgage stress. Last year's [Demographia International Housing Affordability Survey](#) showed that the median income household would spend between 57 percent of its pre-tax gross income for a mortgage on the

¹² Generally, population growth rates have been higher in the US markets, a factor that might theoretically be expected to result in *greater* cost increases. Atlanta, which has been the high-income world's fastest growing metropolitan area of more than 3 million in recent decades, has grown faster than Melbourne. Austin has grown faster than Perth and Indianapolis has grown faster than Adelaide. A detailed comparison of Austin and Perth is in the [3rd Annual Demographia International Housing Affordability Survey](#), pages 25-27.

¹³ Over the past 30 years, mortgage interest rates have averaged 8.6 percent in the United States and 10.0 percent in Australia. Rates peaked at over 18 percent in the United States and 17 percent in Australia (data from the US Federal Reserve Board and the Reserve Bank of Australia). It is difficult, if not impossible to reliably forecast long term interest rates in the best of times, much less during a period of some economic instability.



median priced house in severely unaffordable Sydney and 50 percent in Melbourne. By comparison, in Dallas-Fort Worth, the median income household would have spent 14 percent of its income for the mortgage a median priced house and 17 percent in Atlanta. Dallas-Fort Worth and Atlanta have grown to be larger than Sydney and Melbourne and have larger underlying demand, as indicated by substantial net domestic in-migration.

This is money that households do not have for purchasing other goods and services, the result of which can be to diminish job creation and growth in commercial sectors, such as retailing. Just as surely as supply restraints by petroleum exporters raises prices, land supply restraints lead to higher prices for housing. Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States all have plentiful supplies of land relative to demand, which makes retarding the standard of living, by artificially raising house prices, both unnecessary and undesirable.

Metropolitan Area Competitiveness: The cost of unaffordable housing can impact metropolitan area competitiveness. Higher housing costs relative to incomes are strongly associated with a metropolitan area's attraction or loss of residents to other areas (domestic migration).¹⁴

Demographia International Housing Affordability Survey co-author Wendell Cox has noted that domestic migration between 2000 and 2008 favored major US metropolitan areas that are more affordable and, coincidentally, [those with less restrictive land use regulation](#).¹⁵

Harvard economist Edward Glaeser noted the importance of housing affordability, in writing on the early 2010 United States Census results (in *The New York Times*):¹⁶

A rich body of research shows that regulation, which is intense in the Northeast and California but lax in the Sun Belt, explains why housing is supplied so readily down South. The future shape of America is being driven not by quality of life or economic success but by the obscure rules regulating local land use.

The relationship between unaffordable housing (a lower cost of living) and domestic migration is further illustrated by an analysis of housing costs, using the Median Multiple, for more than 500 United States metropolitan areas.¹⁷

- Metropolitan areas with Median Multiples under 3.5 in 2007 added 1.8 million domestic migrants while those with median multiples of 3.5 or above lost 1.3 million domestic migrants between 2000 and 2009.¹⁸

¹⁴ Domestic migration is measured by the US Bureau of the Census when a resident moves from one county to another.

¹⁵ *Demographia 2000-2008 Metropolitan Area Population and Migration*, May 2009. <http://demographia.com/db-met2008.pdf>.

¹⁶ Edward L. Glaeser, "Behind the Population Shift," *The New York Times*, December 28, 2010 (<http://economix.blogs.nytimes.com/2010/12/28/behind-the-population-shift/>).

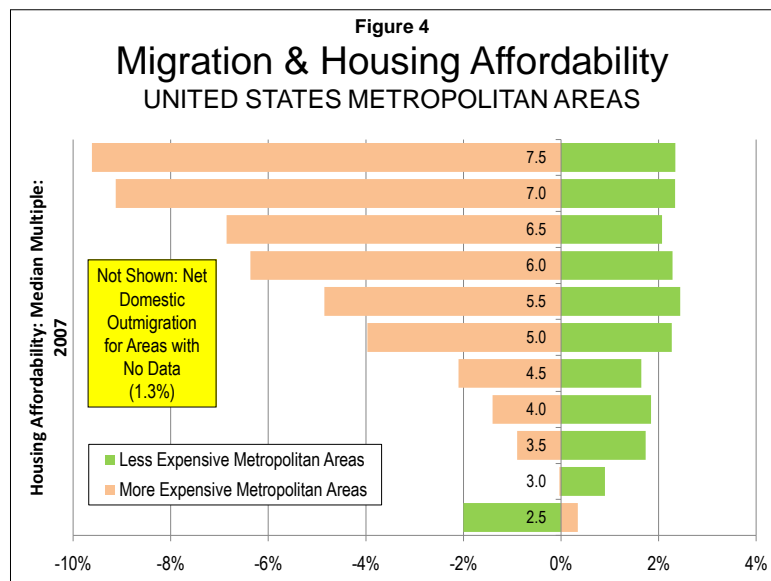
¹⁷ The term "metropolitan" is used to include "core based statistical areas," which include metropolitan areas and "micropolitan" areas. Micropolitan areas have less than 50,000 population. Analysis based upon data in the United States Census Bureau American Community Survey. This data uses house values rather than sales transaction costs, which are not available from the American Community Survey.

¹⁸ Approximately 500,000 people migrated from other areas to the metropolitan areas.



- Metropolitan areas with median multiples under 7.5 in 2007 gained 4.7 million domestic migrants while those with median multiples of 7.5 or above lost 4.2 million domestic migrants between 2000 and 2009. This represented a gain relative to 2000 population of 2.3% in the Metropolitan areas with a median multiple below 7.5 and a loss of 9.6% in the Metropolitan areas with a median multiple at or above 7.5 (Figure 4).

Of course the migration of households between metropolitan areas is the result of a number of factors. But the unprecedented housing affordability differences that have developed in US metropolitan areas are strongly associated with domestic migration trends. All things being equal, households will be drawn to less costly metropolitan areas and away from more costly metropolitan areas, as they seek to enhance their overall standard of living.



OECD Call to "Ease Supply Restraints!" A recent review of international housing markets by the [Organization for Economic Co-operation and Development \(OECD\)](#) noted that: *Poorly managed housing markets played a key role in triggering the recent global financial crisis and may be slowing the recovery.*¹⁹

OECD expressed concern about planning regulations that drive up prices lead to greater price volatility, [recommending that nations:](#)

Increase responsiveness of new housing supply to market demand. Countries should reassess licensing procedures that limit new housing starts and reconsider land-use regulations that unduly prevent development. More responsive supply can limit price volatility, excessive price increases and encourage labour mobility.

Among the nations covered by the *Demographia International Housing Affordability Survey*, the OECD singled out Australia and the United Kingdom, noting concerns that their land use regulations have driven up house prices, by limiting new supplies of housing in response to higher demand.²⁰

Australia [should ease supply constraints](#) by streamlining planning and zoning regulations.

The UK [could address supply responsiveness](#) by reassessing land-use policies ...

¹⁹ The connection between the housing bubble and the Great Financial Crisis [has been noted before](#).

²⁰ A similar recommendation was made with respect to France.



As this *Demographia International Housing Affordability Survey* indicates, the majority of metropolitan markets in Australia and the United Kingdom are severely unaffordable, while the others are seriously unaffordable.



SCHEDULE 1
Housing Affordability Rankings: International Rankings
 Using Median Multiple (Median House Price/Median Household Income)
 2010 – 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	1.6	\$61,400	\$39,500
2		2	U.S.	Flint, MI	1.7	\$70,700	\$41,700
2		2	U.S.	Youngstown, OH-PA	1.7	\$70,700	\$41,200
4		4	U.S.	Lansing, MI	1.8	\$86,600	\$48,000
5		5	U.S.	Evansville, IN	1.9	\$88,800	\$46,800
6		6	U.S.	Canton, OH	2.0	\$89,300	\$44,300
6		6	U.S.	Grand Rapids, MI	2.0	\$97,100	\$47,500
6		6	U.S.	South Bend, IN	2.0	\$88,500	\$43,900
6		6	U.S.	Toledo, OH	2.0	\$88,300	\$43,600
10		1	Canada	Windsor, ON	2.1	\$145,000	\$68,900
10		10	U.S.	Cape Coral-Fort Myers, FL	2.1	\$98,000	\$45,700
10		10	U.S.	Fort Smith, AR-OK	2.1	\$75,900	\$36,800
13		12	U.S.	Akron, OH	2.2	\$107,200	\$47,800
13		12	U.S.	Appleton, WI	2.2	\$123,500	\$56,000
13		12	U.S.	Fayetteville, AR-MO	2.2	\$100,100	\$44,500
13		12	U.S.	Ft. Wayne, IN	2.2	\$102,500	\$47,400
13		12	U.S.	Huntsville, AL	2.2	\$123,100	\$54,900
13		12	U.S.	Lakeland, FL	2.2	\$94,300	\$42,200
13		12	U.S.	Laredo, TX	2.2	\$84,700	\$38,500
13		12	U.S.	Ogden, UT	2.2	\$130,800	\$60,600
13		12	U.S.	Springfield, IL	2.2	\$114,400	\$53,000
22		2	Canada	Fredericton, NB	2.3	\$140,000	\$59,600
22		2	Canada	Thunder Bay, ON	2.3	\$141,000	\$62,100
22	1	21	U.S.	Atlanta, GA	2.3	\$129,400	\$55,800
22		21	U.S.	Clarksville, TN	2.3	\$97,900	\$42,000
22		21	U.S.	Davenport, IA-IL	2.3	\$115,600	\$50,800
22		21	U.S.	Duluth, MN	2.3	\$105,100	\$44,900
22		21	U.S.	Elkhart, IN	2.3	\$101,100	\$43,100
22		21	U.S.	Houma, LA	2.3	\$110,200	\$48,100
22		21	U.S.	Huntington, WV-KY-OH	2.3	\$85,200	\$36,300
22		21	U.S.	Macon, GA	2.3	\$90,300	\$39,700
22		21	U.S.	Provo, UT	2.3	\$135,600	\$57,900
22		21	U.S.	Topeka, KS	2.3	\$111,100	\$48,500
22		21	U.S.	Utica, NY	2.3	\$105,900	\$45,600
35		4	Canada	Moncton, NB	2.4	\$135,000	\$56,900
35		4	Canada	Yellowknife, NWT	2.4	\$293,000	\$121,100
35		32	U.S.	Anchorage, AK	2.4	\$178,300	\$73,200
35		32	U.S.	Columbus, GA-AL	2.4	\$98,900	\$40,600
35		32	U.S.	Erie, PA	2.4	\$102,800	\$43,200
35	2	32	U.S.	Indianapolis, IN	2.4	\$120,200	\$50,700
35		32	U.S.	Palm Bay-Melbourne, FL	2.4	\$109,500	\$45,700
35		32	U.S.	Port St. Lucie, FL	2.4	\$110,000	\$46,500
35	2	32	U.S.	Rochester, NY	2.4	\$121,500	\$50,700
35		32	U.S.	Rockford, IL	2.4	\$108,700	\$46,000
45		40	U.S.	Augusta, GA	2.5	\$106,500	\$42,400
45	4	40	U.S.	Cincinnati, OH-KY-IN	2.5	\$131,700	\$52,200



SCHEDULE 1
Housing Affordability Rankings: International Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
45	4	40	U.S.	Cleveland, OH	2.5	\$115,800	\$45,700
45		40	U.S.	Dayton, OH	2.5	\$111,600	\$45,500
45	4	40	U.S.	Detroit, MI	2.5	\$122,300	\$48,900
45		40	U.S.	Holland, MI	2.5	\$126,600	\$51,400
45		40	U.S.	Peoria, IL	2.5	\$125,200	\$50,200
45		40	U.S.	Racine, WI	2.5	\$131,900	\$52,100
45		40	U.S.	Syracuse, NY	2.5	\$125,200	\$50,000
45		40	U.S.	Wichita, KS	2.5	\$120,400	\$48,500
45		40	U.S.	Winston-Salem, NC	2.5	\$117,100	\$46,000
45		40	U.S.	York, PA	2.5	\$145,400	\$57,400
57		6	Canada	Charlottetown, PEI	2.6	\$153,000	\$59,900
57		52	U.S.	Bakersfield, CA	2.6	\$125,000	\$47,700
57		52	U.S.	Binghamton, NY	2.6	\$114,200	\$44,600
57	7	52	U.S.	Buffalo, NY	2.6	\$119,700	\$46,100
57		52	U.S.	Fayetteville, NC	2.6	\$105,300	\$40,800
57		52	U.S.	Harrisburg, PA	2.6	\$140,400	\$53,400
57		52	U.S.	Kalamazoo, MI	2.6	\$107,000	\$41,400
57		52	U.S.	Lafayette, LA	2.6	\$123,400	\$47,700
57	7	52	U.S.	Las Vegas, NV	2.6	\$138,500	\$53,900
57		52	U.S.	Ocala, FL	2.6	\$102,700	\$39,300
57		52	U.S.	Omaha, NE-IA	2.6	\$137,600	\$52,600
57	7	52	U.S.	Saint Louis, MO-IL	2.6	\$136,400	\$52,000
57		52	U.S.	Waco, TX	2.6	\$100,000	\$39,100
70		64	U.S.	Cedar Rapids, IA	2.7	\$145,700	\$53,700
70	10	64	U.S.	Dallas-Fort Worth, TX	2.7	\$150,500	\$54,900
70		64	U.S.	Greeley, CO	2.7	\$149,900	\$55,100
70		64	U.S.	Green Bay, WI	2.7	\$135,300	\$50,600
70		64	U.S.	Hickory, NC	2.7	\$102,200	\$37,600
70	10	64	U.S.	Kansas City, MO-KS	2.7	\$146,200	\$54,900
70		64	U.S.	Killeen, TX	2.7	\$121,000	\$45,200
70	10	64	U.S.	Phoenix, AZ	2.7	\$142,700	\$53,100
70	10	64	U.S.	Pittsburgh, PA	2.7	\$124,600	\$46,700
70		64	U.S.	Sioux Falls, SD	2.7	\$137,200	\$50,800
80		7	Canada	Saint John, NB	2.8	\$153,000	\$55,400
80		74	U.S.	Amarillo, TX	2.8	\$122,500	\$43,700
80		74	U.S.	Ann Arbor, MI	2.8	\$154,800	\$55,000
80	14	74	U.S.	Columbus, OH	2.8	\$142,600	\$51,100
80		74	U.S.	Des Moines, IA	2.8	\$156,600	\$56,900
80		74	U.S.	Las Cruces, NM	2.8	\$100,000	\$36,000
80		74	U.S.	Lincoln, NE	2.8	\$133,600	\$48,200
80		74	U.S.	Modesto, CA	2.8	\$135,000	\$49,000
80		74	U.S.	Scranton-Wilkes Barre, PA	2.8	\$116,600	\$42,100
80		74	U.S.	Springfield, MO	2.8	\$113,800	\$40,000
80		74	U.S.	Tulsa, OK	2.8	\$132,100	\$46,700
80		74	U.S.	Tyler, TX	2.8	\$132,900	\$46,800
92	15	85	U.S.	Houston, TX	2.9	\$160,600	\$54,500
92	15	85	U.S.	Jacksonville, FL	2.9	\$145,700	\$50,300
92		85	U.S.	Kingsport, TN-VA	2.9	\$106,700	\$36,500



SCHEDULE 1
Housing Affordability Rankings: International Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
92		85	U.S.	Lancaster, PA	2.9	\$162,000	\$56,000
92		85	U.S.	Little Rock, AR	2.9	\$132,500	\$46,300
92		85	U.S.	Longview, TX	2.9	\$128,600	\$43,900
92	15	85	U.S.	Louisville, KY-IN	2.9	\$135,600	\$47,100
92		85	U.S.	Lynchburg, VA	2.9	\$130,100	\$45,100
92	15	85	U.S.	Memphis, TN-MS-AR	2.9	\$129,300	\$43,900
92	15	85	U.S.	Minneapolis-St. Paul, MN-WI	2.9	\$184,800	\$63,500
92	15	85	U.S.	Nashville, TN	2.9	\$150,000	\$51,400
92		85	U.S.	Reading, PA	2.9	\$156,400	\$53,800
92		85	U.S.	Roanoke, VA	2.9	\$133,500	\$46,600
92		85	U.S.	Savannah, GA	2.9	\$133,400	\$45,300
106		8	Canada	Saguenay, QC	3.0	\$149,000	\$50,400
106		8	Canada	Trois-Rivieres, QC	3.0	\$132,000	\$44,100
106		99	U.S.	Beaumont, TX	3.0	\$133,600	\$44,100
106		99	U.S.	Chattanooga, TN-GA	3.0	\$124,100	\$41,000
106		99	U.S.	Columbia, SC	3.0	\$144,000	\$47,900
106		99	U.S.	Deltona-Daytona Beach, FL	3.0	\$126,700	\$41,700
106		99	U.S.	Merced, CA	3.0	\$120,000	\$39,800
106		99	U.S.	Montgomery, AL	3.0	\$134,200	\$44,600
106		99	U.S.	Poughkeepsie, NY	3.0	\$210,200	\$69,600
106		99	U.S.	Tuscaloosa, AL	3.0	\$120,300	\$40,300
116		10	Canada	Brantford, ON	3.1	\$204,000	\$65,500
116		10	Canada	London, ON	3.1	\$198,000	\$64,700
116		10	Canada	Regina, SK	3.1	\$213,000	\$69,500
116		10	Canada	Sudbury, ON	3.1	\$199,000	\$63,700
116		107	U.S.	Charleston, WV	3.1	\$132,000	\$42,400
116		107	U.S.	Fargo, ND-MN	3.1	\$142,100	\$45,800
116		107	U.S.	Hagerstown, MD-WV	3.1	\$151,900	\$49,000
116		107	U.S.	Knoxville, TN	3.1	\$142,000	\$45,500
116		107	U.S.	Lexington, KY	3.1	\$145,000	\$47,000
116		107	U.S.	Medford, OR	3.1	\$144,000	\$46,300
116		107	U.S.	Prescott, AZ	3.1	\$125,300	\$40,700
116	21	107	U.S.	Riverside-San Bernardino, CA	3.1	\$168,100	\$54,200
116		107	U.S.	Stockton, CA	3.1	\$164,500	\$53,100
116	21	107	U.S.	Tampa-St.Petersburg, FL	3.1	\$137,400	\$44,400
116		107	U.S.	Vallejo, CA	3.1	\$205,000	\$66,200
131		14	Canada	St. Catherines-Niagara, ON	3.2	\$195,000	\$61,400
131		14	Canada	Winnipeg, MB	3.2	\$197,000	\$61,000
131		1	Ireland	Waterford	3.2	€ 132,000	€ 41,000
131		118	U.S.	Boise City ID	3.2	\$154,700	\$48,600
131		118	U.S.	Corpus Christi, TX	3.2	\$137,800	\$42,600
131		118	U.S.	Florence, SC	3.2	\$121,300	\$38,500
131		118	U.S.	Greensboro, NC	3.2	\$131,700	\$41,500
131		118	U.S.	Gulfport, MS	3.2	\$138,000	\$43,300
131		118	U.S.	Jackson, MS	3.2	\$141,200	\$44,400
131		118	U.S.	Kennewick, WA	3.2	\$172,200	\$54,400
131		118	U.S.	Lubbock, TX	3.2	\$126,200	\$39,400
131		118	U.S.	Mobile, AL	3.2	\$128,300	\$40,300



SCHEDULE 1
Housing Affordability Rankings: International Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
131	23	118	U.S.	Oklahoma City, OK	3.2	\$144,100	\$45,400
131	23	118	U.S.	Sacramento, CA	3.2	\$186,600	\$57,700
131	23	118	U.S.	San Antonio, TX	3.2	\$152,800	\$48,300
131		118	U.S.	Spartanburg, SC	3.2	\$127,200	\$40,000
147		16	Canada	Halifax, NS	3.3	\$213,000	\$64,200
147		16	Canada	Kitchener, ON	3.3	\$246,000	\$74,000
147	26	131	U.S.	Austin, TX	3.3	\$189,100	\$56,600
147		131	U.S.	Champaign, IL	3.3	\$140,600	\$42,100
147		131	U.S.	Fresno, CA	3.3	\$151,500	\$46,000
147		131	U.S.	Greenville, SC	3.3	\$145,900	\$43,600
147		131	U.S.	McAllen, TX	3.3	\$102,300	\$30,700
147	26	131	U.S.	Orlando, FL	3.3	\$157,900	\$47,300
147		131	U.S.	Pensacola, FL	3.3	\$151,700	\$45,800
147	26	131	U.S.	Richmond, VA	3.3	\$186,500	\$56,000
147		131	U.S.	Visalia, CA	3.3	\$135,000	\$40,300
158		18	Canada	Barrie, ON	3.4	\$260,000	\$76,400
158		18	Canada	Guelph, ON	3.4	\$259,000	\$76,400
158		18	Canada	St. John's, NL	3.4	\$226,000	\$65,600
158		140	U.S.	Albany, NY	3.4	\$195,400	\$58,100
158	29	140	U.S.	Birmingham, AL	3.4	\$153,300	\$45,200
158		140	U.S.	Myrtle Beach, SC	3.4	\$143,000	\$41,600
158		140	U.S.	Norwich, CT	3.4	\$217,100	\$64,600
165	30	21	Canada	Edmonton, AB	3.5	\$288,000	\$81,700
165		144	U.S.	Baton Rouge, LA	3.5	\$166,900	\$48,100
165		144	U.S.	Colorado Springs, CO	3.5	\$195,100	\$55,500
165	30	144	U.S.	New Orleans, LA	3.5	\$164,300	\$46,500
165	30	144	U.S.	Raleigh, NC	3.5	\$207,900	\$59,700
165		144	U.S.	Worcester, MA	3.5	\$224,100	\$63,800
171	33	22	Canada	Ottawa-Gatineau, ON-QC	3.6	\$273,000	\$75,800
171		2	Ireland	Galway	3.6	€ 153,000	€ 42,000
171	33	149	U.S.	Chicago, IL	3.6	\$210,100	\$59,100
171		149	U.S.	El Paso, TX	3.6	\$132,800	\$36,400
171	33	149	U.S.	Hartford, CT	3.6	\$237,500	\$66,100
171		149	U.S.	Manchester, NH	3.6	\$237,600	\$65,200
171		149	U.S.	Naples, FL	3.6	\$189,900	\$53,300
171		149	U.S.	Reno-Sparks, NV	3.6	\$192,200	\$53,100
171		149	U.S.	Tallahassee, FL	3.6	\$145,900	\$40,200
180		23	Canada	Peterborough, ON	3.7	\$226,000	\$60,900
180		156	U.S.	Brownsville, TX	3.7	\$113,800	\$31,100
180		156	U.S.	Durham, NC	3.7	\$184,300	\$50,200
180		156	U.S.	Portland, ME	3.7	\$202,800	\$54,200
180		156	U.S.	Shreveport, LA	3.7	\$152,300	\$41,200
185		160	U.S.	Madison, WI	3.8	\$217,900	\$57,100
185	36	160	U.S.	Milwaukee, WI	3.8	\$199,500	\$52,400
185	36	160	U.S.	Philadelphia, PA-NJ-DE-MD	3.8	\$227,500	\$60,500
185	36	160	U.S.	Salt Lake City, UT	3.8	\$218,900	\$57,500
185	36	160	U.S.	Washington, DC-VA-MD-WV	3.8	\$324,700	\$85,700
185		160	U.S.	Yakima, WA	3.8	\$158,400	\$41,500



SCHEDULE 1
Housing Affordability Rankings: International Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 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		24	Canada	Sherbrooke, QC	3.9	\$177,000	\$45,900
191		166	U.S.	Albuquerque, NM	3.9	\$183,500	\$47,100
191		166	U.S.	Asheville, NC	3.9	\$160,700	\$41,300
191	40	166	U.S.	Charlotte, NC-SC	3.9	\$199,600	\$51,600
191	40	166	U.S.	Denver, CO	3.9	\$229,100	\$59,400
191		166	U.S.	Olympia, WA	3.9	\$231,000	\$58,900
191		166	U.S.	Spokane, WA	3.9	\$177,600	\$45,000
191		166	U.S.	Springfield, MA	3.9	\$195,400	\$49,500
191	40	166	U.S.	Virginia Beach-Norfolk, VA-NC	3.9	\$215,000	\$55,600
200	43	25	Canada	Calgary, AB	4.0	\$355,000	\$88,800
200		25	Canada	Hamilton, ON	4.0	\$280,000	\$70,100
200		3	Ireland	Limerick	4.0	€ 166,000	€ 41,000
200		174	U.S.	Allentown, PA-NJ	4.0	\$230,500	\$57,200
200	43	174	U.S.	Baltimore, MD	4.0	\$261,100	\$65,800
200		174	U.S.	Charleston, SC	4.0	\$195,100	\$48,600
200		174	U.S.	New Haven, CT	4.0	\$241,300	\$61,000
200		174	U.S.	Salem, OR	4.0	\$180,400	\$45,200
200		174	U.S.	Trenton, NJ	4.0	\$291,200	\$72,100
200	43	174	U.S.	Tucson, AZ	4.0	\$174,000	\$43,400
210		27	Canada	Quebec, QC	4.1	\$219,000	\$53,900
210		4	Ireland	Cork	4.1	€ 174,000	€ 42,000
210		1	N.Z.	Palmerston North-Manawatu	4.1	\$231,300	\$57,100
210		181	U.S.	Bremerton, WA	4.1	\$251,500	\$61,300
210		181	U.S.	Burlington, VT	4.1	\$240,000	\$58,600
210		181	U.S.	Chico, CA	4.1	\$172,500	\$42,100
210		181	U.S.	Salinas, CA	4.1	\$240,000	\$58,800
210		181	U.S.	Sarasota-Bradenton, FL	4.1	\$185,200	\$45,700
218		1	Australia	Mildura, VIC	4.2	\$188,300	\$45,000
218		1	U.K.	Falkirk	4.2	£105,000	£25,300
218		186	U.S.	Atlantic City, NJ	4.2	\$223,000	\$53,200
218		186	U.S.	Bellingham, WA	4.2	\$195,600	\$46,800
218		186	U.S.	Fort Collins, CO	4.2	\$234,500	\$56,000
218	46	186	U.S.	Providence, RI-MA	4.2	\$229,700	\$54,600
224		28	Canada	Saskatoon, SK	4.3	\$277,000	\$63,900
224		2	U.K.	Dundee	4.3	£116,100	£27,100
224		190	U.S.	College Station, TX	4.3	\$149,300	\$34,400
227	47	191	U.S.	Portland, OR-WA	4.4	\$244,500	\$55,900
228		2	Australia	Albury-Wodonga, NSW-VIC	4.5	\$247,400	\$54,500
228		2	Australia	Bunbury, WA	4.5	\$340,000	\$75,400
228		2	Australia	Launceston, TAS	4.5	\$275,800	\$61,600
228		192	U.S.	Gainesville, FL	4.5	\$171,800	\$37,900
232		3	U.K.	Belfast	4.6	£119,800	£25,900
232	48	3	U.K.	Leeds & West Yorkshire	4.6	£129,000	£27,800
232		3	U.K.	Perth	4.6	£135,000	£29,200
235		2	N.Z.	Napier-Hastings	4.7	\$267,500	\$57,500
235	49	193	U.S.	Miami-West Palm Beach, FL	4.7	\$217,000	\$46,200
237	50	5	Ireland	Dublin	4.8	€ 228,000	€ 48,000
237	50	6	U.K.	Derby & Derbyshire	4.8	£135,700	£28,100



SCHEDULE 1
Housing Affordability Rankings: International Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
237		6	U.K.	Middlesborough & Durham	4.8	£114,800	£23,700
237	50	6	U.K.	Nottingham & Nottinghamshire	4.8	£128,000	£26,500
237	50	6	U.K.	Sheffield & South Yorkshire	4.8	£120,000	£25,200
242		5	Australia	Shepparton, VIC	4.9	\$250,900	\$50,800
242		29	Canada	Kingston, ON	4.9	\$312,000	\$64,300
242	54	10	U.K.	Hull & Humber	4.9	£131,900	£27,000
245		3	N.Z.	Dunedin	5.0	\$248,700	\$49,900
245		3	N.Z.	Hamilton-Waikato	5.0	\$308,800	\$61,900
245	55	11	U.K.	Glasgow	5.0	£122,600	£24,300
245	55	11	U.K.	Manchester & Greater Manchester	5.0	£127,000	£25,600
245	55	194	U.S.	Boston, MA-NH	5.0	\$348,000	\$69,800
245		194	U.S.	Bridgeport, CT	5.0	\$398,200	\$79,600
245	55	194	U.S.	Seattle, WA	5.0	\$321,500	\$64,400
252	59	30	Canada	Toronto, ON	5.1	\$379,000	\$74,800
252	59	13	U.K.	Blackpool & Lancashire	5.1	£128,300	£25,100
252		13	U.K.	Leicester & Leicestershire	5.1	£149,100	£29,000
252	59	13	U.K.	Stoke on Trent & Staffordshire	5.1	£136,200	£26,600
252		13	U.K.	Swansea	5.1	£120,700	£23,900
257		6	Australia	Toowoomba, QLD	5.2	\$289,000	\$55,500
257	62	31	Canada	Montreal, QC	5.2	\$269,000	\$52,100
257	62	17	U.K.	Birmingham & West Midlands	5.2	£133,500	£25,500
257		17	U.K.	Cardiff	5.2	£133,200	£25,800
257		17	U.K.	Northampton & Northamptonshire	5.2	£152,500	£29,600
257		197	U.S.	Eugene, OR	5.2	\$206,600	\$40,100
263		7	Australia	Ballarat, VIC	5.3	\$259,500	\$48,600
263		7	Australia	Hobart, TAS	5.3	\$315,000	\$59,600
265		9	Australia	Rockhampton, QLD	5.4	\$315,000	\$58,500
265		9	Australia	Townsville, QLD	5.4	\$365,000	\$67,000
265		199	U.S.	Wilmington, NC	5.4	\$240,000	\$44,300
268		5	N.Z.	Wellington	5.5	\$393,700	\$71,900
268		20	U.K.	Aberdeen	5.5	£168,600	£30,700
268	64	20	U.K.	Liverpool & Merseyside	5.5	£127,000	£22,900
268	64	20	U.K.	Newcastle & Tyneside	5.5	£130,000	£23,600
268		20	U.K.	Newport	5.5	£147,000	£26,600
268		20	U.K.	Warwickshire	5.5	£183,000	£33,200
268		200	U.S.	Barnstable Town, MA	5.5	\$319,700	\$58,300
275		11	Australia	Canberra, ACT	5.6	\$558,100	\$100,400
275		11	Australia	Mackay, QLD	5.6	\$392,500	\$69,700
275		25	U.K.	Edinburgh	5.6	£153,600	£27,200
275		202	U.S.	Boulder, CO	5.6	\$358,300	\$63,800
275		202	U.S.	Santa Rosa, CA	5.6	\$352,500	\$62,800
280		13	Australia	Cairns, QLD	5.7	\$364,000	\$64,000
280		13	Australia	Tamworth, NSW	5.7	\$262,700	\$46,400
282		15	Australia	Wagga Wagga, NSW	5.8	\$310,100	\$53,800
283		16	Australia	Bendigo, VIC	5.9	\$285,000	\$48,100
283		32	Canada	Kelowna, BC	5.9	\$338,000	\$57,500
283	66	26	U.K.	Bristol-Bath	5.9	£196,500	£33,500
283	66	204	U.S.	Los Angeles, CA	5.9	\$345,600	\$58,900



SCHEDULE 1
Housing Affordability Rankings: International Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
283		204	U.S.	Oxnard-Ventura, CA	5.9	\$425,000	\$72,200
288		6	N.Z.	Christchurch	6.0	\$333,800	\$55,600
289	68	206	U.S.	New York, NY-NJ-PA	6.1	\$389,100	\$63,300
290	69	207	U.S.	San Diego, CA	6.2	\$378,100	\$60,600
291		17	Australia	Alice Springs, NT	6.3	\$450,000	\$70,900
291		17	Australia	Devonport-Burnie, TAS	6.3	\$273,900	\$43,300
291	70	17	Australia	Perth, WA	6.3	\$480,000	\$75,700
294		20	Australia	Darwin, NT	6.4	\$552,500	\$86,000
294	71	7	N.Z.	Auckland	6.4	\$448,300	\$69,600
294		27	U.K.	Warrington & Cheshire	6.4	£171,500	£26,800
297		33	Canada	Abbotsford, BC	6.5	\$402,000	\$62,300
297		8	N.Z.	Taraunga-Western Bay of Plenty	6.5	\$352,900	\$54,600
297	72	28	U.K.	London Exurbs (E & SE England)	6.5	£220,900	£34,200
297		28	U.K.	Telford & Shropshire	6.5	£164,600	£25,300
297		208	U.S.	San Luis Obispo, CA	6.5	\$370,000	\$57,000
297		208	U.S.	Santa Barbara, CA	6.5	\$385,000	\$59,400
303	73	21	Australia	Brisbane, QLD	6.6	\$447,500	\$67,900
303		21	Australia	Bundaberg, QLD	6.6	\$272,000	\$41,500
303		21	Australia	Mandurah, WA	6.6	\$397,000	\$60,200
306	74	210	U.S.	San Jose, CA	6.7	\$566,000	\$85,000
307		30	U.K.	Swindon & Wiltshire	6.9	£192,500	£27,700
308		24	Australia	Newcastle-Maitland, NSW	7.0	\$361,100	\$51,800
309	75	25	Australia	Adelaide, SA	7.1	\$400,000	\$56,400
309		34	Canada	Victoria, BC	7.1	\$430,000	\$60,900
311		26	Australia	Wollongong, NSW	7.2	\$402,500	\$55,600
311	76	31	U.K.	London (Greater London Authority)	7.2	£300,000	£41,600
311	76	211	U.S.	San Francisco-Oakland, CA	7.2	\$538,100	\$74,300
311		211	U.S.	Santa Cruz, CA	7.2	\$448,700	\$61,900
315		27	Australia	Geelong, VIC	7.4	\$382,000	\$51,500
316	78	32	U.K.	Plymouth & Devon	7.5	£188,700	£25,300
317		28	Australia	Gold Coast, QLD-NSW	7.7	\$454,800	\$58,900
318		29	Australia	Sunshine Coast, QLD	8.4	\$455,000	\$54,200
319		213	U.S.	Honolulu, HI	8.5	\$576,600	\$68,200
320		33	U.K.	Bournemouth & Dorset	8.8	£225,600	£25,600
321	79	30	Australia	Melbourne, VIC	9.0	\$565,000	\$63,100
322		31	Australia	Coff's Harbour, NSW	9.1	\$369,900	\$40,500
323	80	35	Canada	Vancouver, BC	9.5	\$602,000	\$63,100
324	81	32	Australia	Sydney, NSW	9.6	\$634,300	\$66,200
325	82	1	China	Hong Kong	11.4	\$2,580,000	\$225,400

Financial data in local currency.



SCHEDULE 2
Housing Affordability Rankings: National Rankings
 Using Median Multiple (Median House Price/Median Household Income)
 2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
309	75	25	Australia	Adelaide, SA	7.1	\$400,000	\$56,400
228		2	Australia	Albury-Wodonga, NSW-VIC	4.5	\$247,400	\$54,500
291		17	Australia	Alice Springs, NT	6.3	\$450,000	\$70,900
263		7	Australia	Ballarat, VIC	5.3	\$259,500	\$48,600
283		16	Australia	Bendigo, VIC	5.9	\$285,000	\$48,100
303	73	21	Australia	Brisbane, QLD	6.6	\$447,500	\$67,900
228		2	Australia	Bunbury, WA	4.5	\$340,000	\$75,400
303		21	Australia	Bundaberg, QLD	6.6	\$272,000	\$41,500
280		13	Australia	Cairns, QLD	5.7	\$364,000	\$64,000
275		11	Australia	Canberra, ACT	5.6	\$558,100	\$100,400
322		31	Australia	Coff's Harbour, NSW	9.1	\$369,900	\$40,500
294		20	Australia	Darwin, NT	6.4	\$552,500	\$86,000
291		17	Australia	Devonport-Burnie, TAS	6.3	\$273,900	\$43,300
315		27	Australia	Geelong, VIC	7.4	\$382,000	\$51,500
317		28	Australia	Gold Coast, QLD-NSW	7.7	\$454,800	\$58,900
263		7	Australia	Hobart, TAS	5.3	\$315,000	\$59,600
228		2	Australia	Launceston, TAS	4.5	\$275,800	\$61,600
275		11	Australia	Mackay, QLD	5.6	\$392,500	\$69,700
303		21	Australia	Mandurah, WA	6.6	\$397,000	\$60,200
321	79	30	Australia	Melbourne, VIC	9.0	\$565,000	\$63,100
218		1	Australia	Mildura, VIC	4.2	\$188,300	\$45,000
308		24	Australia	Newcastle-Maitland, NSW	7.0	\$361,100	\$51,800
291	70	17	Australia	Perth, WA	6.3	\$480,000	\$75,700
265		9	Australia	Rockhampton, QLD	5.4	\$315,000	\$58,500
242		5	Australia	Shepparton, VIC	4.9	\$250,900	\$50,800
318		29	Australia	Sunshine Coast, QLD	8.4	\$455,000	\$54,200
324	81	32	Australia	Sydney, NSW	9.6	\$634,300	\$66,200
280		13	Australia	Tamworth, NSW	5.7	\$262,700	\$46,400
257		6	Australia	Toowoomba, QLD	5.2	\$289,000	\$55,500
265		9	Australia	Townsville, QLD	5.4	\$365,000	\$67,000
282		15	Australia	Wagga Wagga, NSW	5.8	\$310,100	\$53,800
311		26	Australia	Wollongong, NSW	7.2	\$402,500	\$55,600
				Median	6.1		
297		33	Canada	Abbotsford, BC	6.5	\$402,000	\$62,300
158		18	Canada	Barrie, ON	3.4	\$260,000	\$76,400
116		10	Canada	Brantford, ON	3.1	\$204,000	\$65,500
200	43	25	Canada	Calgary, AB	4.0	\$355,000	\$88,800
57		6	Canada	Charlottetown, PEI	2.6	\$153,000	\$59,900
165	30	21	Canada	Edmonton, AB	3.5	\$288,000	\$81,700
22		2	Canada	Fredericton, NB	2.3	\$140,000	\$59,600
158		18	Canada	Guelph, ON	3.4	\$259,000	\$76,400
147		16	Canada	Halifax, NS	3.3	\$213,000	\$64,200
200		25	Canada	Hamilton, ON	4.0	\$280,000	\$70,100
283		32	Canada	Kelowna, BC	5.9	\$338,000	\$57,500
242		29	Canada	Kingston, ON	4.9	\$312,000	\$64,300
147		16	Canada	Kitchener, ON	3.3	\$246,000	\$74,000



SCHEDULE 2
Housing Affordability Rankings: National Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
116		10	Canada	London, ON	3.1	\$198,000	\$64,700
35		4	Canada	Moncton, NB	2.4	\$135,000	\$56,900
257	62	31	Canada	Montreal, QC	5.2	\$269,000	\$52,100
171	33	22	Canada	Ottawa-Gatineau, ON-QC	3.6	\$273,000	\$75,800
180		23	Canada	Peterborough, ON	3.7	\$226,000	\$60,900
210		27	Canada	Quebec, QC	4.1	\$219,000	\$53,900
116		10	Canada	Regina, SK	3.1	\$213,000	\$69,500
106		8	Canada	Saguenay, QC	3.0	\$149,000	\$50,400
80		7	Canada	Saint John, NB	2.8	\$153,000	\$55,400
158		18	Canada	St. John's, NL	3.4	\$226,000	\$65,600
224		28	Canada	Saskatoon, SK	4.3	\$277,000	\$63,900
131		14	Canada	St. Catherines-Niagara, ON	3.2	\$195,000	\$61,400
191		24	Canada	Sherbrooke, QC	3.9	\$177,000	\$45,900
116		10	Canada	Sudbury, ON	3.1	\$199,000	\$63,700
22		2	Canada	Thunder Bay, ON	2.3	\$141,000	\$62,100
252	59	30	Canada	Toronto, ON	5.1	\$379,000	\$74,800
106		8	Canada	Trois-Rivieres, QC	3.0	\$132,000	\$44,100
323	80	35	Canada	Vancouver, BC	9.5	\$602,000	\$63,100
309		34	Canada	Victoria, BC	7.1	\$430,000	\$60,900
10		1	Canada	Windsor, ON	2.1	\$145,000	\$68,900
131		14	Canada	Winnipeg, MB	3.2	\$197,000	\$61,000
35		4	Canada	Yellowknife, NWT	2.4	\$293,000	\$121,100
				Median	3.4		
325	82	1	China	Hong Kong	11.4	\$2,580,000	\$225,400
210		4	Ireland	Cork	4.1	€ 174,000	€ 42,000
237	50	5	Ireland	Dublin	4.8	€ 228,000	€ 48,000
171		2	Ireland	Galway	3.6	€ 153,000	€ 42,000
200		3	Ireland	Limerick	4.0	€ 166,000	€ 41,000
131		1	Ireland	Waterford	3.2	€ 132,000	€ 41,000
				Median	4.0		
294	71	7	N.Z.	Auckland	6.4	\$448,300	\$69,600
288		6	N.Z.	Christchurch	6.0	\$333,800	\$55,600
245		3	N.Z.	Dunedin	5.0	\$248,700	\$49,900
245		3	N.Z.	Hamilton-Waikato	5.0	\$308,800	\$61,900
235		2	N.Z.	Napier-Hastings	4.7	\$267,500	\$57,500
210		1	N.Z.	Palmerston North-Manawatu	4.1	\$231,300	\$57,100
297		8	N.Z.	Tauranga-Western Bay of Plenty	6.5	\$352,900	\$54,600
268		5	N.Z.	Wellington	5.5	\$393,700	\$71,900
				Median	5.3		
268		20	U.K.	Aberdeen	5.5	£168,600	£30,700
232		3	U.K.	Belfast	4.6	£119,800	£25,900
257	62	17	U.K.	Birmingham & West Midlands	5.2	£133,500	£25,500
252	59	13	U.K.	Blackpool & Lancashire	5.1	£128,300	£25,100
320		33	U.K.	Bournemouth & Dorset	8.8	£225,600	£25,600



SCHEDULE 2
Housing Affordability Rankings: National Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
283	66	26	U.K.	Bristol-Bath	5.9	£196,500	£33,500
257		17	U.K.	Cardiff	5.2	£133,200	£25,800
237	50	6	U.K.	Derby & Derbyshire	4.8	£135,700	£28,100
224		2	U.K.	Dundee	4.3	£116,100	£27,100
275		25	U.K.	Edinburgh	5.6	£153,600	£27,200
218		1	U.K.	Falkirk	4.2	£105,000	£25,300
245	55	11	U.K.	Glasgow	5.0	£122,600	£24,300
242	54	10	U.K.	Hull & Humber	4.9	£131,900	£27,000
232	48	3	U.K.	Leeds & West Yorkshire	4.6	£129,000	£27,800
252		13	U.K.	Leicester & Leicestershire	5.1	£149,100	£29,000
268	64	20	U.K.	Liverpool & Merseyside	5.5	£127,000	£22,900
311	76	31	U.K.	London (Greater London Authority)	7.2	£300,000	£41,600
297	72	28	U.K.	London Exurbs (E & SE England)	6.5	£220,900	£34,200
245	55	11	U.K.	Manchester & Greater Manchester	5.0	£127,000	£25,600
237		6	U.K.	Middlesborough & Durham	4.8	£114,800	£23,700
268	64	20	U.K.	Newcastle & Tyneside	5.5	£130,000	£23,600
268		20	U.K.	Newport	5.5	£147,000	£26,600
257		17	U.K.	Northampton & Northamptonshire	5.2	£152,500	£29,600
237	50	6	U.K.	Nottingham & Nottinghamshire	4.8	£128,000	£26,500
232		3	U.K.	Perth	4.6	£135,000	£29,200
316	78	32	U.K.	Plymouth & Devon	7.5	£188,700	£25,300
237	50	6	U.K.	Sheffield & South Yorkshire	4.8	£120,000	£25,200
252	59	13	U.K.	Stoke on Trent & Staffordshire	5.1	£136,200	£26,600
252		13	U.K.	Swansea	5.1	£120,700	£23,900
307		30	U.K.	Swindon & Wiltshire	6.9	£192,500	£27,700
297		28	U.K.	Telford & Shropshire	6.5	£164,600	£25,300
294		27	U.K.	Warrington & Cheshire	6.4	£171,500	£26,800
268		20	U.K.	Warwickshire	5.5	£183,000	£33,200
				Median	5.2		
13		12	U.S.	Akron, OH	2.2	\$107,200	\$47,800
158		140	U.S.	Albany, NY	3.4	\$195,400	\$58,100
191		166	U.S.	Albuquerque, NM	3.9	\$183,500	\$47,100
200		174	U.S.	Allentown, PA-NJ	4.0	\$230,500	\$57,200
80		74	U.S.	Amarillo, TX	2.8	\$122,500	\$43,700
35		32	U.S.	Anchorage, AK	2.4	\$178,300	\$73,200
80		74	U.S.	Ann Arbor, MI	2.8	\$154,800	\$55,000
13		12	U.S.	Appleton, WI	2.2	\$123,500	\$56,000
191		166	U.S.	Asheville, NC	3.9	\$160,700	\$41,300
22	1	21	U.S.	Atlanta, GA	2.3	\$129,400	\$55,800
218		186	U.S.	Atlantic City, NJ	4.2	\$223,000	\$53,200
45		40	U.S.	Augusta, GA	2.5	\$106,500	\$42,400
147	26	131	U.S.	Austin, TX	3.3	\$189,100	\$56,600
57		52	U.S.	Bakersfield, CA	2.6	\$125,000	\$47,700
200	43	174	U.S.	Baltimore, MD	4.0	\$261,100	\$65,800
268		200	U.S.	Barnstable Town, MA	5.5	\$319,700	\$58,300
165		144	U.S.	Baton Rouge, LA	3.5	\$166,900	\$48,100
106		99	U.S.	Beaumont, TX	3.0	\$133,600	\$44,100



SCHEDULE 2
Housing Affordability Rankings: National Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
218		186	U.S.	Bellingham, WA	4.2	\$195,600	\$46,800
57		52	U.S.	Binghamton, NY	2.6	\$114,200	\$44,600
158	29	140	U.S.	Birmingham, AL	3.4	\$153,300	\$45,200
131		118	U.S.	Boise City ID	3.2	\$154,700	\$48,600
245	55	194	U.S.	Boston, MA-NH	5.0	\$348,000	\$69,800
275		202	U.S.	Boulder, CO	5.6	\$358,300	\$63,800
210		181	U.S.	Bremerton, WA	4.1	\$251,500	\$61,300
245		194	U.S.	Bridgeport, CT	5.0	\$398,200	\$79,600
180		156	U.S.	Brownsville, TX	3.7	\$113,800	\$31,100
57	7	52	U.S.	Buffalo, NY	2.6	\$119,700	\$46,100
210		181	U.S.	Burlington, VT	4.1	\$240,000	\$58,600
6		6	U.S.	Canton, OH	2.0	\$89,300	\$44,300
10		10	U.S.	Cape Coral-Fort Myers, FL	2.1	\$98,000	\$45,700
70		64	U.S.	Cedar Rapids, IA	2.7	\$145,700	\$53,700
147		131	U.S.	Champaign, IL	3.3	\$140,600	\$42,100
116		107	U.S.	Charleston, WV	3.1	\$132,000	\$42,400
200		174	U.S.	Charleston, SC	4.0	\$195,100	\$48,600
191	40	166	U.S.	Charlotte, NC-SC	3.9	\$199,600	\$51,600
106		99	U.S.	Chattanooga, TN-GA	3.0	\$124,100	\$41,000
171	33	149	U.S.	Chicago, IL	3.6	\$210,100	\$59,100
210		181	U.S.	Chico, CA	4.1	\$172,500	\$42,100
45	4	40	U.S.	Cincinnati, OH-KY-IN	2.5	\$131,700	\$52,200
22		21	U.S.	Clarksville, TN	2.3	\$97,900	\$42,000
45	4	40	U.S.	Cleveland, OH	2.5	\$115,800	\$45,700
224		190	U.S.	College Station, TX	4.3	\$149,300	\$34,400
165		144	U.S.	Colorado Springs, CO	3.5	\$195,100	\$55,500
106		99	U.S.	Columbia, SC	3.0	\$144,000	\$47,900
35		32	U.S.	Columbus, GA-AL	2.4	\$98,900	\$40,600
80	14	74	U.S.	Columbus, OH	2.8	\$142,600	\$51,100
131		118	U.S.	Corpus Christi, TX	3.2	\$137,800	\$42,600
70	10	64	U.S.	Dallas-Fort Worth, TX	2.7	\$150,500	\$54,900
22		21	U.S.	Davenport, IA-IL	2.3	\$115,600	\$50,800
45		40	U.S.	Dayton, OH	2.5	\$111,600	\$45,500
106		99	U.S.	Deltona-Daytona Beach, FL	3.0	\$126,700	\$41,700
191	40	166	U.S.	Denver, CO	3.9	\$229,100	\$59,400
80		74	U.S.	Des Moines, IA	2.8	\$156,600	\$56,900
45	4	40	U.S.	Detroit, MI	2.5	\$122,300	\$48,900
22		21	U.S.	Duluth, MN	2.3	\$105,100	\$44,900
180		156	U.S.	Durham, NC	3.7	\$184,300	\$50,200
171		149	U.S.	El Paso, TX	3.6	\$132,800	\$36,400
22		21	U.S.	Elkhart, IN	2.3	\$101,100	\$43,100
35		32	U.S.	Erie, PA	2.4	\$102,800	\$43,200
257		197	U.S.	Eugene, OR	5.2	\$206,600	\$40,100
5		5	U.S.	Evansville, IN	1.9	\$88,800	\$46,800
116		107	U.S.	Fargo, ND-MN	3.1	\$142,100	\$45,800
13		12	U.S.	Fayetteville, AR-MO	2.2	\$100,100	\$44,500
57		52	U.S.	Fayetteville, NC	2.6	\$105,300	\$40,800
2		2	U.S.	Flint, MI	1.7	\$70,700	\$41,700



SCHEDULE 2
Housing Affordability Rankings: National Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
131		118	U.S.	Florence, SC	3.2	\$121,300	\$38,500
218		186	U.S.	Fort Collins, CO	4.2	\$234,500	\$56,000
10		10	U.S.	Fort Smith, AR-OK	2.1	\$75,900	\$36,800
147		131	U.S.	Fresno, CA	3.3	\$151,500	\$46,000
13		12	U.S.	Ft. Wayne, IN	2.2	\$102,500	\$47,400
228		192	U.S.	Gainesville, FL	4.5	\$171,800	\$37,900
6		6	U.S.	Grand Rapids, MI	2.0	\$97,100	\$47,500
70		64	U.S.	Greeley, CO	2.7	\$149,900	\$55,100
70		64	U.S.	Green Bay, WI	2.7	\$135,300	\$50,600
131		118	U.S.	Greensboro, NC	3.2	\$131,700	\$41,500
147		131	U.S.	Greenville, SC	3.3	\$145,900	\$43,600
131		118	U.S.	Gulfport, MS	3.2	\$138,000	\$43,300
116		107	U.S.	Hagerstown, MD-WV	3.1	\$151,900	\$49,000
57		52	U.S.	Harrisburg, PA	2.6	\$140,400	\$53,400
171	33	149	U.S.	Hartford, CT	3.6	\$237,500	\$66,100
70		64	U.S.	Hickory, NC	2.7	\$102,200	\$37,600
45		40	U.S.	Holland, MI	2.5	\$126,600	\$51,400
319		213	U.S.	Honolulu, HI	8.5	\$576,600	\$68,200
22		21	U.S.	Houma, LA	2.3	\$110,200	\$48,100
92	15	85	U.S.	Houston, TX	2.9	\$160,600	\$54,500
22		21	U.S.	Huntington, WV-KY-OH	2.3	\$85,200	\$36,300
13		12	U.S.	Huntsville, AL	2.2	\$123,100	\$54,900
35	2	32	U.S.	Indianapolis, IN	2.4	\$120,200	\$50,700
131		118	U.S.	Jackson, MS	3.2	\$141,200	\$44,400
92	15	85	U.S.	Jacksonville, FL	2.9	\$145,700	\$50,300
57		52	U.S.	Kalamazoo, MI	2.6	\$107,000	\$41,400
70	10	64	U.S.	Kansas City, MO-KS	2.7	\$146,200	\$54,900
131		118	U.S.	Kennewick, WA	3.2	\$172,200	\$54,400
70		64	U.S.	Killeen, TX	2.7	\$121,000	\$45,200
92		85	U.S.	Kingsport, TN-VA	2.9	\$106,700	\$36,500
116		107	U.S.	Knoxville, TN	3.1	\$142,000	\$45,500
57		52	U.S.	Lafayette, LA	2.6	\$123,400	\$47,700
13		12	U.S.	Lakeland, FL	2.2	\$94,300	\$42,200
92		85	U.S.	Lancaster, PA	2.9	\$162,000	\$56,000
4		4	U.S.	Lansing, MI	1.8	\$86,600	\$48,000
13		12	U.S.	Laredo, TX	2.2	\$84,700	\$38,500
80		74	U.S.	Las Cruces, NM	2.8	\$100,000	\$36,000
57	7	52	U.S.	Las Vegas, NV	2.6	\$138,500	\$53,900
116		107	U.S.	Lexington, KY	3.1	\$145,000	\$47,000
80		74	U.S.	Lincoln, NE	2.8	\$133,600	\$48,200
92		85	U.S.	Little Rock, AR	2.9	\$132,500	\$46,300
92		85	U.S.	Longview, TX	2.9	\$128,600	\$43,900
283	66	204	U.S.	Los Angeles, CA	5.9	\$345,600	\$58,900
92	15	85	U.S.	Louisville, KY-IN	2.9	\$135,600	\$47,100
131		118	U.S.	Lubbock, TX	3.2	\$126,200	\$39,400
92		85	U.S.	Lynchburg, VA	2.9	\$130,100	\$45,100
22		21	U.S.	Macon, GA	2.3	\$90,300	\$39,700
185		160	U.S.	Madison, WI	3.8	\$217,900	\$57,100



SCHEDULE 2
Housing Affordability Rankings: National Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 3rd Quarter (September Quarter)

International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
171		149	U.S.	Manchester, NH	3.6	\$237,600	\$65,200
147		131	U.S.	McAllen, TX	3.3	\$102,300	\$30,700
116		107	U.S.	Medford, OR	3.1	\$144,000	\$46,300
92	15	85	U.S.	Memphis, TN-MS-AR	2.9	\$129,300	\$43,900
106		99	U.S.	Merced, CA	3.0	\$120,000	\$39,800
235	49	193	U.S.	Miami-West Palm Beach, FL	4.7	\$217,000	\$46,200
185	36	160	U.S.	Milwaukee, WI	3.8	\$199,500	\$52,400
92	15	85	U.S.	Minneapolis-St. Paul, MN-WI	2.9	\$184,800	\$63,500
131		118	U.S.	Mobile, AL	3.2	\$128,300	\$40,300
80		74	U.S.	Modesto, CA	2.8	\$135,000	\$49,000
106		99	U.S.	Montgomery, AL	3.0	\$134,200	\$44,600
158		140	U.S.	Myrtle Beach, SC	3.4	\$143,000	\$41,600
171		149	U.S.	Naples, FL	3.6	\$189,900	\$53,300
92	15	85	U.S.	Nashville, TN	2.9	\$150,000	\$51,400
200		174	U.S.	New Haven, CT	4.0	\$241,300	\$61,000
165	30	144	U.S.	New Orleans, LA	3.5	\$164,300	\$46,500
289	68	206	U.S.	New York, NY-NJ-PA	6.1	\$389,100	\$63,300
158		140	U.S.	Norwich, CT	3.4	\$217,100	\$64,600
57		52	U.S.	Ocala, FL	2.6	\$102,700	\$39,300
13		12	U.S.	Ogden, UT	2.2	\$130,800	\$60,600
131	23	118	U.S.	Oklahoma City, OK	3.2	\$144,100	\$45,400
191		166	U.S.	Olympia, WA	3.9	\$231,000	\$58,900
57		52	U.S.	Omaha, NE-IA	2.6	\$137,600	\$52,600
147	26	131	U.S.	Orlando, FL	3.3	\$157,900	\$47,300
283		204	U.S.	Oxnard-Ventura, CA	5.9	\$425,000	\$72,200
35		32	U.S.	Palm Bay-Melbourne, FL	2.4	\$109,500	\$45,700
147		131	U.S.	Pensacola, FL	3.3	\$151,700	\$45,800
45		40	U.S.	Peoria, IL	2.5	\$125,200	\$50,200
185	36	160	U.S.	Philadelphia, PA-NJ-DE-MD	3.8	\$227,500	\$60,500
70	10	64	U.S.	Phoenix, AZ	2.7	\$142,700	\$53,100
70	10	64	U.S.	Pittsburgh, PA	2.7	\$124,600	\$46,700
35		32	U.S.	Port St. Lucie, FL	2.4	\$110,000	\$46,500
180		156	U.S.	Portland, ME	3.7	\$202,800	\$54,200
227	47	191	U.S.	Portland, OR-WA	4.4	\$244,500	\$55,900
106		99	U.S.	Poughkeepsie, NY	3.0	\$210,200	\$69,600
116		107	U.S.	Prescott, AZ	3.1	\$125,300	\$40,700
218	46	186	U.S.	Providence, RI-MA	4.2	\$229,700	\$54,600
22		21	U.S.	Provo, UT	2.3	\$135,600	\$57,900
45		40	U.S.	Racine, WI	2.5	\$131,900	\$52,100
165	30	144	U.S.	Raleigh, NC	3.5	\$207,900	\$59,700
92		85	U.S.	Reading, PA	2.9	\$156,400	\$53,800
171		149	U.S.	Reno-Sparks, NV	3.6	\$192,200	\$53,100
147	26	131	U.S.	Richmond, VA	3.3	\$186,500	\$56,000
116	21	107	U.S.	Riverside-San Bernardino, CA	3.1	\$168,100	\$54,200
92		85	U.S.	Roanoke, VA	2.9	\$133,500	\$46,600
35	2	32	U.S.	Rochester, NY	2.4	\$121,500	\$50,700
35		32	U.S.	Rockford, IL	2.4	\$108,700	\$46,000
131	23	118	U.S.	Sacramento, CA	3.2	\$186,600	\$57,700



SCHEDULE 2
Housing Affordability Rankings: National Rankings
Using Median Multiple (Median House Price/Median Household Income)
2010 – 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	1.6	\$61,400	\$39,500
57	7	52	U.S.	Saint Louis, MO-IL	2.6	\$136,400	\$52,000
200		174	U.S.	Salem, OR	4.0	\$180,400	\$45,200
210		181	U.S.	Salinas, CA	4.1	\$240,000	\$58,800
185	36	160	U.S.	Salt Lake City, UT	3.8	\$218,900	\$57,500
131	23	118	U.S.	San Antonio, TX	3.2	\$152,800	\$48,300
290	69	207	U.S.	San Diego, CA	6.2	\$378,100	\$60,600
311	76	211	U.S.	San Francisco-Oakland, CA	7.2	\$538,100	\$74,300
306	74	210	U.S.	San Jose, CA	6.7	\$566,000	\$85,000
297		208	U.S.	San Luis Obispo, CA	6.5	\$370,000	\$57,000
297		208	U.S.	Santa Barbara, CA	6.5	\$385,000	\$59,400
311		211	U.S.	Santa Cruz, CA	7.2	\$448,700	\$61,900
275		202	U.S.	Santa Rosa, CA	5.6	\$352,500	\$62,800
210		181	U.S.	Sarasota-Bradenton, FL	4.1	\$185,200	\$45,700
92		85	U.S.	Savannah, GA	2.9	\$133,400	\$45,300
80		74	U.S.	Scranton-Wilkes Barre, PA	2.8	\$116,600	\$42,100
245	55	194	U.S.	Seattle, WA	5.0	\$321,500	\$64,400
180		156	U.S.	Shreveport, LA	3.7	\$152,300	\$41,200
70		64	U.S.	Sioux Falls, SD	2.7	\$137,200	\$50,800
6		6	U.S.	South Bend, IN	2.0	\$88,500	\$43,900
131		118	U.S.	Spartanburg, SC	3.2	\$127,200	\$40,000
191		166	U.S.	Spokane, WA	3.9	\$177,600	\$45,000
13		12	U.S.	Springfield, IL	2.2	\$114,400	\$53,000
191		166	U.S.	Springfield, MA	3.9	\$195,400	\$49,500
80		74	U.S.	Springfield, MO	2.8	\$113,800	\$40,000
116		107	U.S.	Stockton, CA	3.1	\$164,500	\$53,100
45		40	U.S.	Syracuse, NY	2.5	\$125,200	\$50,000
171		149	U.S.	Tallahassee, FL	3.6	\$145,900	\$40,200
116	21	107	U.S.	Tampa-St.Petersburg, FL	3.1	\$137,400	\$44,400
6		6	U.S.	Toledo, OH	2.0	\$88,300	\$43,600
22		21	U.S.	Topeka, KS	2.3	\$111,100	\$48,500
200		174	U.S.	Trenton, NJ	4.0	\$291,200	\$72,100
200	43	174	U.S.	Tucson, AZ	4.0	\$174,000	\$43,400
80		74	U.S.	Tulsa, OK	2.8	\$132,100	\$46,700
106		99	U.S.	Tuscaloosa, AL	3.0	\$120,300	\$40,300
80		74	U.S.	Tyler, TX	2.8	\$132,900	\$46,800
22		21	U.S.	Utica, NY	2.3	\$105,900	\$45,600
116		107	U.S.	Vallejo, CA	3.1	\$205,000	\$66,200
191	40	166	U.S.	Virginia Beach-Norfolk, VA-NC	3.9	\$215,000	\$55,600
147		131	U.S.	Visalia, CA	3.3	\$135,000	\$40,300
57		52	U.S.	Waco, TX	2.6	\$100,000	\$39,100
185	36	160	U.S.	Washington, DC-VA-MD-WV	3.8	\$324,700	\$85,700
45		40	U.S.	Wichita, KS	2.5	\$120,400	\$48,500
265		199	U.S.	Wilmington, NC	5.4	\$240,000	\$44,300
45		40	U.S.	Winston-Salem, NC	2.5	\$117,100	\$46,000
165		144	U.S.	Worcester, MA	3.5	\$224,100	\$63,800
185		160	U.S.	Yakima, WA	3.8	\$158,400	\$41,500
45		40	U.S.	York, PA	2.5	\$145,400	\$57,400



SCHEDULE 2							
Housing Affordability Rankings: National Rankings							
Using Median Multiple (Median House Price/Median Household Income)							
2010 – 3 rd Quarter (September Quarter)							
International Affordability Rank	Major Market Affordability Rank	National Affordability Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
2		2	U.S.	Youngstown, OH-PA	1.7	\$70,700	\$41,200
					Median	3.0	
Financial data in local currency							

ANNEX: USES, METHODS AND SOURCES

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

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,²¹ 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 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. [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: This year, Demographia adds a single market in China, Hong Kong. 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.

²¹ As defined by the United States Bureau of Management and the Budget.



Demographia receives periodic requests to expand its coverage to other nations. The addition of continental European nations, China and India has been most frequently requested. *Demographia* would be pleased to add other nations and will do so when consistent data of sufficient quality has been identified.

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 in Ireland and the United Kingdom.²²

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.

Median household income data is generally estimated using the most recent national statistics bureau (census) base for each metropolitan market and adjusted to a current estimate by the best available indicator of median income growth.

In the United States, the United Kingdom, China, New Zealand and Ireland, 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.

To be conservative, *Demographia* continues to use the provincial and state interim indicators in Canada and Australia. However, if the 2010 median household income data were adjusted to reflect the 2001 to 2006 differences at the metropolitan area level, both Sydney and Vancouver would have higher Median Multiples (above 10.0).

Median house price estimates are provided for the 3rd quarter of 2010 (September quarter), or for the month of September where September quarter data is not available.

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

²² See [2nd Annual Demographia International Housing Affordability Survey](#), Pages 16-18.



reliable. Comparisons should be generally limited to the housing affordability rating categories of "affordable," moderately unaffordable," "seriously unaffordable" and "severely unaffordable."²³

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
 Calgary Real Estate Board
 California Association of Realtors
 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)
 DKM Economic Consultants (Ireland)
 EBS Building Society (Ireland)
 Greater Montreal Real Estate Board
 HBOS (Halifax)
 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)
 Office of Federal Housing Enterprise Oversight (USA)
 Property Council of Australia
 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

²³ 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.



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
 Toronto Real Estate Board
 United Kingdom Department of Communities and Local Government
 United States Department of Commerce: Bureau of Economic Analysis
 United States Department of Commerce: Bureau of the Census
 United States Department of Housing and Urban Development
 University of Ulster
 Urban Development Institute of Australia

Notes on Figures:

Figure 1: Housing Affordability & Land Regulation: All markets with a population of 1,500,000 or more are included, plus Auckland. In the United States, 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 2: Housing Affordability Trend: Australia: Derived from Australian Bureau of Statistics and national and state real estate transaction reporting sources data.

Figure 3: Housing Affordability Trend: US & Australia: Derived from Australian Bureau of Statistics, US Bureau of the Census, Harvard University Joint Center on Housing and national and state real estate transaction reporting sources data.



Figure 4: Housing Affordability & Migration: Derived from 2009 American Community Survey data and domestic migration estimates from the United States Bureau of the Census.

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



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 list of world urban areas](#) (agglomerations) over 500,000 population that includes urban land area and population density estimates. He is also a regular contributor to 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.

Joel Kotkin

Joel Kotkin is an internationally-recognized authority on global, economic, political and social trends, Joel Kotkin is the author of the book, *The Next Hundred Million: America in 2050*, published in 2010 by The Penguin Press. The book explores how the nation will evolve in the next four decades. It has received rave reviews from The New York Times, Wall Street Journal, the Globe and Mail, and National Public Radio. He is also executive editor of newgeography.com.

His previous, also critically acclaimed book, *The City: A Global History*, was published in 2006 by Random House/Modern Library, with editions published in China, Spain, UK and the British Commonwealth, Japan and Korea.

Mr. Kotkin is Distinguished Presidential Fellow in Urban Futures at Chapman University in Orange, California and an Adjunct Fellow with the Legatum Institute based in London, UK. A highly respected speaker and futurist, he consults for many leading economic development organizations, private companies, regions and cities. Joel is also a Senior Fellow with the Center for an Urban Future in New York City; and a Senior Consultant with the Praxis Strategy Group in Fargo, North Dakota.

Described by the New York Times as America's "uber-geographer," for over three decades Mr. Kotkin has been one of the nation's most prolific and widely-published journalists. He currently writes the weekly "New Geographer" column for Forbes.com.

Mr. Kotkin is also the author of *The New Geography: How the Digital Revolution is Reshaping the American Landscape* (Random House, 2000); and *Tribes: How Race, Religion and Identity Determine Success In the New Global Economy*, (Random House, 1993) which traces the connection between ethnicity and business success — how in-group loyalties are becoming the driving force in the new global economy.



Over the past decade, Mr. Kotkin has completed studies focusing on several major cities, such as New York; St. Louis; Phoenix; Laval (Quebec); Los Angeles and Houston. His latest report, an international study on the changing global map, is now being conducted for the Legatum Institute.

Mr. Kotkin lectures widely in the United States, UK, Asia, Australia and Europe and is sought after as a speaker by major business and financial organizations. In August, he will travel to Denver to accept the Gene Burd Award for best urban reporting.

Mr. Kotkin attended the University of California, Berkeley. A native New Yorker, he has lived in California since 1971. Mr. Kotkin lives in the Valley Village area of Los Angeles with his wife, Mandy Shamis, and two daughters.

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