DEMOGRAPHIA

6th Annual Demographia International Housing Affordability Survey: 2010

Ratings for Metropolitan Markets

Australia • Canada • Republic of Ireland
New Zealand • United Kingdom • United States

(Data for 3rd Quarter 2009)

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Performance Urban Planning

6th Annual Demographia International Housing Affordability Survey

INTRODUCTION
By Dr. Tony Recsei

During the eighteenth century, especially after the industrial revolution, rural dwellers desperate to make a living streamed into the cities, converting many areas into overcrowded slums. However, as the new economic order began to generate wealth, standards of living improved, allowing an increase in personal living space. This progressed and evolved into the "garden city" concept of towns sufficiently spacious to be free of slums and enjoying the benefits of opportunity, amusement and high wages while being coupled with many of the advantages of country living.


Dr. Tony Recsei

An increasing population ultimately creates challenges, challenges that can be met in a variety of ways , especially through environmental, technological and economic advances. In Australia and elsewhere however, the remedy is increasingly seen as planning doctrines based on higher population densities. This reaction threatens the hard-earned advance in living standards that has been achieved over the centuries.

The Dream of Home Ownership: A country such as Australia is blessed with a sunny climate and enough space to enable people to enjoy a relaxed free lifestyle. The "dream" (called by various names, such as the "Great Australian Dream" or the "American Dream") has traditionally been to own a single family home. Home ownership has been a source of boundless opportunity. In addition to providing the preferred environment for people trying to carve out a decent life for themselves and bring up a young family, it has been the instrument by which even those of modest means have been able to become property owners. They thus acquire a valuable asset that can be used as collateral for business ventures and entrepreneurial activity.

In the future, for most, this will remain but a dream. Although only about a third of one percent of the land surface of the continent-sized country is urbanised, Australian urban areas, especially Sydney, have emerged as perhaps the most aggressive examples of high-density policies in the world. This is being effected by a two-fold strategy, called "urban consolidation" (or "smart growth").

The first part of this high-density strategy is to artificially strangle the land supply. Words from the Australian national anthem...

For those who've come across the seas
We've boundless plains to share

...now have a hollow ring. Residential land release in Sydney has been reduced from an historic average of 10,000 lots per year to less than 2,000 (in 2007). In the face of the scarcity resulting from such a miserly allotment it is unsurprising that the land component of the price of a dwelling has increased from 30% to 70%. The result has been a cost increase of some three times what it was a mere ten years ago.

The second part of the high-density strategy requires each municipality to submit a plan that increases population density to government satisfaction; otherwise that municipality's planning powers are undemocratically taken away. This forces high-density onto communities originally designed for low densities.

The consequence of the two-part strategy is that vast numbers of young people and the underprivileged will never be able to raise a family within the security of their own home. Instead they are forced to endure tenuous rental tenancies in high-rise apartments, adding more congestion, pollution and overloaded infrastructure to cities. Welfare agencies now report that of a population of 22 million there are over 100,000 Australians homeless on any given night.

The *6th Annual Demographia International Housing Affordability Survey* reveals how unaffordable houses have become. The traditional way of life is thus being slowly crushed under the bureaucratic iron heel of high-density. Single-residential communities are becoming a threatened species. Previously attractive suburbs with their flowers and foliage are being overcome by the relentless stomp of grey concrete and asphalt. Bewildered long-time residents find themselves isolated amongst the drab shadows of upward rising, smothering unit blocks.

The Need for Rational Policies: These policies result in changes that fly in the face of fairly deeply rooted wishes and desires of much of the population. They invite community opposition and have resulted in vigorous protests including marches on Parliament House in Sydney by thousands of protesters.

With the imposition of such policies onto individual communities one would imagine that it would be essential for government to indisputably demonstrate that this is for the overall greater public good. A plethora of claims about the advantages of higher densities have been made but the authorities are unable to provide evidence for any of them. In fact the available evidence shows that high-density makes things worse, not better in at least five ways.

First, Greenhouse Gases: The claim by high-density advocates that seems to trump all others is the environmental one. This says planning policies must compel higher density in order to save energy and cut down on greenhouse gas emissions.

However studies using a diversity of methods demonstrate the converse. One such study depicted on the Australian Conservation Foundation's *Consumption Atlas* accumulates per capita emissions based on household consumption of all products and services. This calculation shows that greenhouse gas emissions of those living in high-density areas are greater than for those living in low-density areas. The result is not surprising when one looks at the average household emission profile in various categories. Food and goods purchased account for most of the emissions and this is more for wealthier inner-city dwellers. Surprisingly, transport emissions amount to very little (only10%), household electricity and

heating fuel being about twice as much as this and the amortised emissions from the construction of the dwelling are more.

A second study uses overall surveys of only individual building and transport energy use. This finds that per person, apartment living uses more overall energy. A third study reveals that operational energy use per person (electricity and heating fuel) is nearly twice as much in Sydney apartments as in single-family dwellings. Consideration of elevators, clothes dryers, air-conditioners and common lighted areas such as parking garages and foyers make these findings readily explicable. What is more, the per resident energy required to construct high-rise is much more than the energy needed to build single-residential dwellings.

Second, Transport: There is not nearly enough difference in the greenhouse gas emissions of public versus private transport to counter the increased emissions of high-density dwelling. Greenhouse gas emissions per passenger kilometer on the Sydney rail network is 105 grams. The figure for the average automobile is 155 grams and much less for modern fuel-efficient vehicles that emit a mere 70 grams. Also, high-density hardly reduces per person travel intensity at all. Research shows that people squeezed into newly converted dense areas did not use public transport to any greater extent and there was little or no change in their percentage of car use.

Throughout the world, traffic congestion increases when high-density policies are imposed. Any slight increase in the proportion of people using public transport is overwhelmed by the traffic from the greater number of people squeezed into that area. People still require their automobiles for visiting relatives and friends or facilities not easily reached by public transport and for transporting items that are impractical or illegal aboard public transport such as weekend recreation equipment and the family pet.

Third, Health: The increased congestion caused by high-density policies has adverse health consequences. Vehicle exhausts contain dangerous micro-particles which increase in inefficient stop-start traffic. There is also more traffic per area and less volume available for dispersion. The World Health Organization calculates that 3 million people die from these particles every year.

High-density is also bad for mental health. A study of over 4 million Swedes has shown that the rates for psychosis were 70% greater for the denser areas. There was also a 16% greater risk of developing depression. In Australia, the Australian Unity Well-being Index reports that the happiest electorates have a lower population density.

Research shows that bringing up young children in apartments has adverse consequences. Keeping children quiet emphasizes activities that are sedentary. There is a lack of safe active play space outside the home - parks and other public open space offer poor security. Crawling and walking is stymied due to space problems. Children often become overweight and enter school with poorly developed social and motor skills.

Fourth, Infrastructure: Adding more people to existing infrastructure results in overload. The standard of roads, rail service, water supply and electricity visibly deteriorate from the imposition of high-density policies. High-density retrofit is hugely more expensive than laying out new infrastructure on greenfield sites. Infrastructure costs quoted by the authorities almost always omit the cost of restoring the standard of infrastructure back to the level of service people enjoyed before high-density was imposed.

Fifth: The Cost of Housing: High-density planning increases the cost of housing, discussed in this, the *6th Annual Demographia International Housing Affordability Survey*.

Blast to the past: It is apparent that available data clearly shows that high-density makes things worse for us, not better.

However the overwhelming evidence that high-density is less sustainable than low-density does not prevent high-density proponents from unashamedly making misleading claims. A frequently portrayed example, alleged as proof that "urban dwellers have 1/3 the carbon footprint of suburban dwellers" depicts annual automobile miles travelled per *dwelling* (instead of what should be per *dweller*) in United States city areas of differing densities. This is wrong because:

- the comparison conveniently ignores all our other greenhouse gas emissions – per person household and amortised construction emissions overall amount to *much more than transport emissions* as mentioned above

- also as mentioned, *each person in high-density accounts for more* of these household and amortised construction emissions than those in low density

- there are fewer people per dwelling in high-density areas

- the comparison ignores energy used in public transport of which there is a greater proportion in higher-density areas.

There is no doubt that action needs to be taken to reduce profligate waste of energy. This objective is not helped by such deceptive misinformation.

It is apparent that high-density is not the way to resolve the challenges posed by an increasing population. The enforced bland uniformity of high density living means more greenhouse gases, high traffic densities, worse health outcomes, a creaking and overloaded infrastructure, poor social outcomes and a whole generation locked out of owning their own home.

It is particularly concerning that the unwise policies that afflict Sydney have spread to so many urban areas throughout the six nations covered by this *Survey*.

Unless we are vigilant, high-density zealots will do their best to reverse centuries of gains and drive us back towards a Dickensian gloom. Revealing information sources such as the *Survey* are an invaluable resource to counter attempts to herd us backwards into an archaic past.

Dr. Tony Recsei
President, Save Our Suburbs
Sydney, New South Wales, Australia
E-mail: trecsei at bigpond.net.au
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6th Annual Demographia International Housing Affordability Survey

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

EXECUTIVE SUMMARY

The *6th Annual Demographia International Housing Affordability Survey* expands coverage to 272 markets in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States. The *Demographia International Housing Affordability Survey* employs the "Median Multiple" (median house price divided by gross annual median household income) to rate housing affordability (Table ES-1).

Table ES-1
Demographia Housing Affordability Rating Categories

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

Historically, the Median Multiple has been remarkably similar among the nations surveyed, with median house prices being generally 3.0 or less times median household incomes. This affordability relationship continues in many housing markets of the United States and Canada. However, the Median Multiple has escalated sharply in Australia, Ireland, New Zealand and the United Kingdom and in some markets of Canada and the United States in recent years.

The Year in Review

Over the past year, housing affordability has improved in some markets, remained constant in others and declined in still others. In the United States and the United Kingdom, the "bubble" markets that had "burst" generally reached a trough and began rising again. In the "boom" markets that did not experience a bubble, house prices generally declined in response to the intense economic disruption that occurred after the Lehman Brother's collapse, which signaled the "mortgage meltdown" and the "Great Recession," the steepest economic decline since the Great Depression.

An Increase in Affordable Markets: Of the 272 markets surveyed, there were 103 affordable markets, 98 in the United States and 5 in Canada. This is an improvement from 87 in 2008. As before, the affordable markets include the three highest demand markets with more than 5,000,000 population in the high-income world, Atlanta, Dallas-Fort Worth and Houston. Overall, 19 major markets (more than 1,000,000 residents) in the United States were also affordable (Table ES-2). As

in the past, all of these markets were characterized by "more responsive" land use regulation, as opposed to "more prescriptive" land use regulation (see Table 2 in Section 1).

Severely Unaffordable Markets: There were 62 severely unaffordable markets this year, down from 64 in 2008. The least affordable markets were concentrated in Australia (22) the United Kingdom (19) and the United States (11). Nine of the 11 US severely unaffordable markets were in California. There were 5 severely unaffordable markets in New Zealand and 5 in Canada (Table ES-3). However, many of these severely unaffordable markets have experienced steep price declines in the last year. Among the major markets, Vancouver is the least affordable, with a Median Multiple of 9.3, followed by Sydney (9.1), Melbourne (8.0), Adelaide (7.4), London (7.1), New York (7.0) and San Francisco (7.0). As in the past, all of these markets were characterized by more prescriptive land use regulation (such as "compact city," "urban consolidation," "growth management" or "smart growth" policies), which materially increase the price of land, which makes housing unaffordable.

The national distribution of housing affordability is indicated in Table ES-4.

Infrastructure and Housing Affordability

One of the principal justifications for adoption of more prescriptive land use regulation has been the belief that the resulting higher population densities would reduce future infrastructure costs. However, higher densities require more intense infrastructure and the necessary upgrades are expensive. In fact, the higher housing costs typical of more prescriptively regulated markets far exceed any conceivable increase in infrastructure costs from allowing demand-driven housing expansion.

Comparing Sydney, Melbourne, Dallas-Fort Worth and Atlanta

The devastating impact of more prescriptive land use regulation (urban consolidation or compact development) policies on housing affordability can be shown by comparing severely unaffordable Sydney and Melbourne in Australia to affordable Dallas-Fort Worth and Atlanta in the United States. Moreover, Dallas-Fort Worth and Atlanta have cost-effectively provided new infrastructure to serve not only their additional millions of residents, but also their expanding geographical areas, something urban planning orthodoxy in Australia contends is impossible.

The loss of housing affordability in Sydney and Melbourne can be traced to their more prescriptive land use regulation, which has virtually eliminated affordable land for building. Today, the median income household would be required to pay more than 50 percent of its income to service a new mortgage on the median priced house in Sydney or Melbourne. In Dallas-Fort Worth or Atlanta, the household would pay under 20 percent (Table ES-5)

The severe unaffordability of Sydney and Melbourne is, in fact, a problem of national proportions. In all of Australia's major markets, a median income household with a new loan on a median priced house would have housing expenses that are higher than the national standard for "mortgage stress." Further, the nearly one-third of households that rent experience higher housing costs, because the price of land is driven higher by more prescriptive land use regulation.

Table ES-2
Affordable Housing Markets

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	United States	Detroit, MI	1.6	43	United States	Winston-Salem, NC	2.5
1	United States	South Bend, IN	1.6	54	United States	Beaumont, TX	2.6
3	United States	Fort Wayne, IN	1.7	54	United States	Columbus, OH	2.6
3	United States	Lansing, MI	1.7	54	United States	Green Bay, WI	2.6
3	United States	Youngstown, OH	1.7	54	United States	Kansas City, MO-KS	2.6
6	United States	Flint, MI	1.8	54	United States	Killeen, TX	2.6
7	United States	Cape Coral, FL	1.9	54	United States	Lafayette, LA	2.6
7	United States	Columbus, GA-AL	1.9	54	United States	Lakeland, FL	2.6
7	United States	Grand Rapids, MI	1.9	54	United States	Phoenix, AZ	2.6
10	United States	Canton,OH	2.0	54	United States	Pittsburgh, PA	2.6
10	United States	Erie, PA	2.0	54	United States	Provo-Orem, UT	2.6
10	United States	Evansville, IN-KY	2.0	54	United States	St. Louis, MO-IL	2.6
10	United States	Fort Smith, AR-OK	2.0	54	United States	Syracuse, NY	2.6
10	United States	Kingsport, TN-VA	2.0	66	United States	Ann Arbor, MI	2.7
10	United States	Rockford, IL	2.0	66	United States	Chattanooga, TN-GA	2.7
10	United States	Toledo, OH	2.0	66	United States	Dallas-Fort Worth, TX	2.7
17	United States	Akron, OH	2.1	66	United States	Daytona Beach, FL	2.7
17	United States	Atlanta, GA	2.1	66	United States	Des Moines, IA	2.7
17	United States	Davenport, IA-IL	2.1	66	United States	Jacksonville, FL	2.7
20	Canada	Thunder Bay	2.2	66	United States	Lincoln, NE	2.7
20	Canada	Windsor	2.2	66	United States	Modesto, CA	2.7
20	United States	Clarksville, TN-KY	2.2	66	United States	Montgomery, AL	2.7
20	United States	Indianapolis, IN	2.2	66	United States	Ocala, FL	2.7
20	United States	Peoria, IL	2.2	66	United States	York, PA	2.7
25	United States	Dayton, OH	2.3	77	Canada	Saguenay	2.8
25	United States	Fayetteville, NC	2.3	77	Canada	Saint John, NB	2.8
25	United States	Huntsville, AL	2.3	77	United States	Charleston, WV	2.8
25	United States	Ogden, UT	2.3	77	United States	Louisville, KY-IN	2.8
25	United States	Rochester, NY	2.3	77	United States	Memphis, TN-AR-MS	2.8
25	United States	Utica-Rome, NY	2.3	77	United States	Minneapolis-St. Paul, MN-WI	2.8
31	United States	Augusta, GA	2.4	77	United States	Scranton-Wilkes Barre, PA	2.8
31	United States	Cedar Rapids, IA	2.4	77	United States	Tulsa OK	2.8
31	United States	Cincinnati, OH-KY-IN	2.4	85	United States	Bakersfield, CA	2.9
31	United States	Cleveland, OH	2.4	85	United States	Houston, TX	2.9
31	United States	Duluth, MN-WI	2.4	85	United States	Lancaster, PA	2.9
31	United States	Holland, MI	2.4	85	United States	Lexington, KY	2.9
31	United States	Huntington, WV-KY-OH	2.4	85	United States	Little Rock, AR	2.9
31	United States	Kalamazoo, MI	2.4	85	United States	Reading, PA	2.9
31	United States	Las Vegas, NV	2.4	85	United States	Savannah, GA	2.9
31	United States	Melbourne, FL	2.4	85	United States	Stockton, CA	2.9
31	United States	Port St. Lucie, FL	2.4	85	United States	Vallejo-Fairfield, CA	2.9
31	United States	Wichita, KS	2.4	85	United States	Visalia-Porterville, CA	2.9
43	Canada	Moncton	2.5	95	United States	Boise, ID	3.0
43	United States	Anchorage, AK	2.5	95	United States	Columbia, SC	3.0
43	United States	Buffalo, NY	2.5	95	United States	Corpus Christi, TX	3.0
43	United States	Fayetteville, AR-MO	2.5	95	United States	Greensboro, NC	3.0
43	United States	Harrisburg, PA	2.5	95	United States	Oklahoma City, OK	3.0
43	United States	Hickory, NC	2.5	95	United States	Poughkeepsie, NY	3.0
43	United States	Lubbock, TX	2.5	95	United States	Riverside-San Bernardino, CA	3.0
43	United States	Omaha, NE-IA	2.5	95	United States	Roanoke, VA	3.0
43	United States	Spartanburg, SC	2.5	95	United States	Tampa-St. Petersburg, FL	3.0
43	United States	Springfield, MO	2.5				

Table ES-3
Severely Unaffordable Housing Markets
Ranked by Severity of Housing Unaffordability

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	Canada	Vancouver	9.3	31	New Zealand	Christchurch	6.1
2	Australia	Sydney	9.1	31	United Kingdom	Bristol-Bath	6.1
3	Australia	Sunshine Coast	9.0	31	United Kingdom	Telford	6.1
4	Australia	Gold Coast	8.6	31	United Kingdom	Warwickshire	6.1
5	United States	Honolulu, HI	8.2	36	Australia	Geelong	6.0
6	United Kingdom	Bournemouth	8.1	36	United States	San Diego, CA	6.0
7	Australia	Melbourne	8.0	38	Australia	Cairns	5.9
8	Canada	Victoria	7.9	38	Canada	Kelowna	5.9
9	Australia	Wollongong	7.5	38	Australia	Mackay	5.9
10	Australia	Adelaide	7.4	38	United Kingdom	Aberdeen	5.9
11	Australia	Newcastle	7.2	41	Australia	Canberra	5.8
11	United States	Santa Cruz	7.2	41	Australia	Townsville	5.8
13	Australia	Darwin	7.1	41	New Zealand	Wellington	5.8
14	Australia	Mandurah	7.1	41	United States	Oxnard-Ventura, CA	5.8
14	United Kingdom	London (GLA)	7.1	45	United States	Los Angeles	5.7
16	Australia	Bundaberg	7.0	45	United States	Santa Rosa, CA	5.7
16	United States	New York	7.0	47	New Zealand	Dunedin	5.6
16	United States	San Francisco, CA	7.0	47	United Kingdom	Warrington	5.6
19	Australia	Perth	6.9	49	Australia	Bunbury	5.5
20	Australia	Hobart	6.8	49	United Kingdom	Belfast	5.5
20	New Zealand	Tauranga	6.8	49	United Kingdom	Northamptonshire	5.5
22	Australia	Brisbane	6.7	52	Australia	Rockingham	5.4
22	New Zealand	Auckland	6.7	52	Australia	Toowoomba	5.4
22	United Kingdom	London Exurbs	6.7	54	United Kingdom	Edinburgh	5.3
25	Canada	Abbotsford	6.6	54	United Kingdom	Leicester	5.3
26	United States	San Luis Obispo, CA	6.5	54	United Kingdom	Stoke on Trent	5.3
27	United Kingdom	Plymouth & Devon	6.4	57	Canada	Toronto	5.2
27	United States	San Jose, CA	6.4	58	United Kingdom	Derby & Derbyshire	5.1
27	United States	Santa Barbara, CA	6.4	58	United Kingdom	Newcastle	5.1
30	United Kingdom	Swindon	6.3	58	United Kingdom	Newport	5.1
31	Australia	Launceston	6.1	58	United Kingdom	Perth (Scotland)	5.1

Table ES-4
Housing Affordability Ratings by Nation

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	1	22	23	6.8
Canada	5	13	5	5	28	3.7
Ireland	0	3	2	0	5	3.7
New Zealand	0	0	3	5	8	5.7
United Kingdom	0	0	14	19	33	5.1
United States	98	58	8	11	175	2.9
TOTAL	103	74	33	62	272	

Table ES-5 Share of Income for Mortgage: Sydney, Melbourne, Dallas-Fort Worth, Atlanta *(Share of Median Household Income To Pay Mortgage on Median Priced House)*	
Metropolitan Area	% of Gross Annual Income
AUSTRALIA	
Sydney	57.4%
Melbourne	50.4%
UNITED STATES	
Dallas-Fort Worth	13.4%
Atlanta	16.8%
New mortgage in September 2009	

Recent Developments

The *Demographia International Housing Affordability Surveys*, with their focus on the relationship between household incomes and house prices, have been instrumental in stimulating public discussion of housing affordability, especially in Australia and New Zealand.

Australia: In Australia, there is consensus in both government and the private sector that there is a severe housing crisis, with rampant unaffordability and a housing shortage. Analysis of the 2007 federal election results have indicated that housing affordability concerns drove large numbers of voters to support the opposition (and successful) ticket, rather than the incumbent government.

The one significant policy development in the nation is the program to expand new development land on the fringe of Melbourne.

Yet, across Australia, conditions appear to be worsening. "Plan-driven" land use regulation (more prescriptive regulation) is at the heart of the problem. It takes from 6.25 to 14.5 years to convert urban fringe land into new houses, which compares to less than 1.5 years before urban consolidation, and which remains the case in the "demand-driven" (more responsive) markets in the United States. The extensive plan-driven process tells land sellers and buyers precisely where land for development can be bought or sold, and as a consequence increases prices.

New Zealand: In 1991, New Zealand attempted to liberalize housing development, however, the opposite occurred, as regulation was *tightened* under the Resource Management Act. It is likely that New Zealand would have avoided the housing bubble if the new regulatory structure had been administered as intended.

Since 1991, housing affordability has declined substantially in New Zealand. Recently, the government's "2025 Taskforce" identified planning constraints on land as the "biggest obstacle" to providing housing that is affordable.

This problem has attracted the attention of the new government that was elected in 2008. Minister of Housing Phil Heatley responded to last year's *5th Annual Demographia International Housing Affordability Survey* by expressing the government's concern about housing affordability and promising initiatives to start the process to making more affordable land available.

Elsewhere: Housing affordability has received considerable attention in the United Kingdom; however no material corrective measures have been implemented. There has been less attention in the United States, Canada and Ireland. Again, solutions have not been implemented, even in bubble markets that experienced the largest price declines.

Restoring Housing Affordability

Prescriptive land use regulation policies (principally compact development and urban consolidation) have virtually destroyed housing affordability in many markets. Structural issues should receive urgent attention to restore housing affordability in more prescriptively regulated markets and to ensure its continuation in more responsive markets. The focus should be on (1) establishing sound and simple performance measures (2) appropriately financing infrastructure and (3) allowing sufficient inexpensive urban fringe on which to construct housing that is affordable. Authorities should closely monitor the Median Multiple and institute effective supplemental indicators.

In effect, the state governments of Australia, the national government of the United Kingdom the local authorities of New Zealand and some governments elsewhere *have established unaffordable housing as an objective of public policy*, however unwittingly.

Further, plan-driven land regulation could lead to yet another destructive housing bubble. The world is only beginning to recover from the devastating financial and social impacts of the Great Recession. This was generated by the burst of the housing bubble in some US markets and the intensity of mortgage losses in the more prescriptively regulated markets. The restoration of near historic housing affordability in some markets provides an opportunity to repeal more prescriptive land regulation policies, which would not only minimize the potential for future busts, but would also ensure housing affordability for future generations.

6th Annual Demographia International Housing Affordability Survey

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

1. INTRODUCTION: HOUSING AFFORDABILITY RATINGS

This is the 6th Annual *Demographia International Housing Affordability Survey*. The *Survey* covers urban housing markets in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States. This edition is expanded from 265 to 272 metropolitan markets.

The *Demographia International Housing Affordability Survey* is unique in providing standardized comparisons of housing affordability between international housing markets. The *6th Annual Demographia International Housing Affordability Survey* includes estimates from the September quarter (third quarter) of 2009.

Most examinations of housing affordability focus on national data, which can mask significant differences between markets. In contrast, the *Demographia International Housing Affordability Survey* assesses the international housing affordability at the metropolitan market level. This approach not only compares housing affordability within nations, but also permits comparisons between international markets. One of the results of this approach is a greater recognition that unaffordability is neither pervasive nor universal (as might be concluded by national averages), and that affordability has been maintained in some of the world's fastest growing markets.

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 where demand and

The *Demographia International Housing Affordability Survey* uses the "Median Multiple" (median house price divided by gross annual median household income)[1] to assess housing affordability. The Median Multiple is widely used for evaluating urban markets, for example being recommended by the World Bank[2] and the United Nations.[3] More elaborate indicators, which often include mortgage interest rates and other factors, mask the structural elements of house pricing and are often not well understood outside the financial sector (though are important to industry analysts). The Median Multiple is an easily understood indicator of the structural health of residential markets and facilitates meaningful housing affordability comparisons. Further to this, the Median Multiple provides a solid foundation for consideration of structural policy options.

[1] Also called the price to income ratio.
[2] *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.
[3] *Indicators of Sustainable Development: House Price to Income Ratio*: http://esl.jrc.it/envind/un_meths/UN_ME050.htm.

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 where demand and supply are balanced.[4]

Anthony Richards of the Reserve Bank of Australia has shown that the price to income ratio was at or below 3.0 in[5] Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States (the nations included in the *Demographia International Housing Affordability* Survey) until the late 1980s or late 1990s, depending on the nation.[6] 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 recently noted in a submittal by Arthur C. Grimes, of Motu Economics and Policy Research and Chair of the Board of the Reserve Bank of New Zealand.[7]

Co-author Hugh Pavletich provides the following definition of housing affordability, which is used by the *Demographia International Housing Affordability Survey*:

> *For metropolitan areas to rate as 'affordable' and ensure that housing bubbles are not triggered, housing prices should not exceed three times gross annual household income. 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 household income of that urban market. The fringe is the only supply or inflation vent of an urban market.*

However, the Median Multiple has escalated sharply in Australia, Ireland, New Zealand[8] and the United Kingdom and in some markets of Canada and the United States in recent years.

Housing Affordability Ratings: The *6th Annual Demographia International Housing Affordability Survey* uses existing house sales data to rate housing affordability in the 272 markets. Housing affordability ratings are assigned based upon the Median Multiple (Table 1). If the subject of the *Survey* were valuation, rather than housing affordability, the same Median Multiple categories could be used to evaluate markets as appropriately valued, moderately overvalued, seriously overvalued and severely overvalued.

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

[4] http://www.jchs.harvard.edu/publications/markets/son2007/metro_affordability_index_2007.xls
[5] This year's *Survey* incorporates internet hyper linking. In printed versions, this feature produces underlined phrases. This underlining does not indicate emphasis.
[6] 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).
[7] http://www.2025taskforce.govt.nz/pdfs/tfpr-grimes-ahsi-5oct09.pdf.
[8] 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)

Table 1 Demographia Housing Affordability Rating Categories	
Rating	Median Multiple
Severely Unaffordable	5.1 & Over
Seriously Unaffordable	4.1 to 5.0
Moderately Unaffordable	3.1 to 4.0
Affordable	3.0 or Less

2. THE YEAR IN REVIEW

Over the past year, housing affordability has improved in some markets, remained constant in others and declined in still others. In the United States and the United Kingdom, the "bubble" markets that had "burst" generally reached a trough and began rising again. In the "boom" markets that did not experience a bubble, house prices generally declined in response to the intense economic disruption that occurred after the Lehman Brother's collapse, which signaled the "mortgage meltdown" and the "Great Recession," which was the steepest economic decline since the Great Depression.

The steep house price adjustments did not occur in Australia, New Zealand or Canada. It seems likely that the price declines were averted because these nations were more cautious in their mortgage loan policies, and, as a result, were characterized by more credit-worthy mortgage loan portfolios.[9] This is despite the fact that virtually all markets in Australia and New Zealand and some markets in Canada experienced house price increases of bubble proportions.

The greatest house price declines occurred in the markets of the United Kingdom, Ireland and in approximately one-half of the major United States markets. In each of these cases, house prices had inflated to unprecedented heights, which also occurred in the markets of Australia and New Zealand and in some markets of Canada.[10]

In the United States and the United Kingdom, the house price bubble was fueled by a relaxation of loan policies, which compromised the integrity of mortgage portfolios and increased the demand for home ownership.

This demand impacted markets very differently, depending upon their land use regulation classification. Generally, land prices in the US "non-bubble" markets (such as fast growing Atlanta, Dallas-Fort Worth, Houston and others) remained low and, as a result, there was little or no upward movement of house prices relative to incomes. Most of these markets rely on "more responsive" land use regulation (Table 2). The higher demand that resulted from the "easier money" produced a boom in these markets, but not a bubble.

[9] In its last edition before the bursting of the housing bubble, Canada was ranked with the most sound banks in the world, Australia ranked 4, New Zealand 8, Ireland 9, the United States 40 and the United Kingdom 44. Both the United States and the United Kingdom ranked behind such countries as Panama and Senegal. *The Global Competitiveness Report: 2008-2009.* http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/PastReports/index.htm.

[10] Especially Vancouver.

In the US bubble markets the price of land rose substantially. In virtually every case, the bubble markets employ "more prescriptive" land use regulation (includes "compact development", "urban consolidation", "growth management" and "smart growth") which drive up land (and house prices) through intrusive land regulation and lengthy administrative processes. The rising house prices in the bubble markets attracted speculators (sometimes called "flippers"), who sought the short term and extraordinary profits that were possible in the irrationally inflating markets. As a result, these markets had both a boom (higher demand) and a bubble (prices driven well beyond historic norms). There is an extensive economic literature on the association between more prescriptive land use regulation and higher house prices.

Table 2
LAND USE REGULATION MARKET CLASSIFICATIONS

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

More Prescriptive Land Use Regulation Markets are those that rely principally on more intrusive land use regulation, including markets where residential development (new construction) is strongly controlled or driven by comprehensive plans at the micro-scale level[11] or with extensive limits on development imposed at various levels of government. More prescriptive land use regulation includes systems relying on "compact development", "urban consolidation", "growth management", "smart growth" and "large lot or rural zoning". Generally, more prescriptive land use regulation is "plan-driven," as planners and governments determine where new housing is allowed to be built. The classification of major markets is indicated in "Methods and Sources," note on Figure 1.

More Responsive Land Use Regulation Markets are all others. In these markets, residential development is allowed to occur based upon consumer preferences, subject to reasonable environmental regulation. Generally, more responsive land use regulation is "demand-driven" More responsive regulation can also be called *traditional* or *liberal* regulation.

The most severe house price declines occurred in the "ground zero" bubble markets of California, Florida, Phoenix and Las Vegas, where land prices had been driven up substantially.[12] Virtually all of these markets experienced house price declines of 50 percent or more from the peak of the housing bubble. Mortgage losses in these markets and some other restrictively regulated US markets were so intense that they precipitated a virtual "meltdown" of the US mortgage finance industry. The US mortgage industry meltdown, in turn, precipitated the international financial crisis (the Great Recession), the steepest economic decline since the Great Depression.

There were 103 affordable markets, 74 moderately unaffordable markets, 34 seriously unaffordable markets and 62 severely unaffordable markets (Table 3). The affordability ratings for all markets were shown, by affordability rating category, in Schedule 1.

Major markets are illustrated in Figure 1[13] by land use regulation classification. As in the past, all of the severely unaffordable and seriously unaffordable major markets had more prescriptive land use

[11] Microscale refers to a situation in which there is a presumption that development is not permitted except in relatively small specific areas (lots or blocks) that can be developed as designated by government.
[12] In Las Vegas and Phoenix, much of the urban fringe land was owned by governments, and in their interest to maximize land sales, auctions released insufficient amounts of land to keep prices affordable. The huge land price increases added to the pricing increasing impact of the growth management regulatory regimes that already existed in Las Vegas and Phoenix. See: http://demographia.com/db-phxland.pdf and http://demographia.com/db-lvland.pdf.
[13] Notes on figures are in "Methods and Sources."

regulation. Moreover, as in the past, most of the affordable markets had more responsive land use regulation.

However, for the first time, some more prescriptive markets achieved Median Multiples of 3.0 or less and thus became affordable (such as Las Vegas, Phoenix, Minneapolis-St. Paul,[14] Riverside-San Bernardino and Tampa-St. Petersburg). These price drops illustrate the volatility of more prescriptively regulated markets, which has been documented by Edward Glaeser of Harvard University and Joseph Gyourko of the University of Pennsylvania.[15] The recent price adjustments should be seen as an opportunity for policymakers to ensure affordable land supply for the future, so that destructive bubbles are not reignited when demand increases.

Table 3
Distribution of Markets by Housing Affordability Rating Category

Rating	Median Multiple	Number of Markets
Affordable	3.0 or Less	103
Moderately Unaffordable	3.1 to 4.0	74
Seriously Unaffordable	4.1 to 5.0	34
Severely Unaffordable	5.1 & Over	61
TOTAL		272

Caution is urged in comparing the data between annual reports. Changes in data sources, base year income information, housing data sources and geographical definitions make precise year to year comparisons less reliable. Comparisons should be generally limited to the housing affordability rating categories.[16]

Affordable Markets: All of the 103 affordable markets (having a Median Multiple of 3.0 or below) were in Canada and the United States (Table 4). There were 98 affordable markets in the United States and 5 affordable markets in Canada.[17]

All of the 103 affordable markets were in Canada and the United States

The most affordable major market (population over 1,000,000) is Detroit, which along with South Bend has a Median Multiple of 1.6. Fort Wayne, Lansing and Youngstown each had a Median Multiple of 1.7. These Median Multiples are the lowest ever recorded in the *Survey*. Each of these five most affordable markets were in the "Rust Belt," which has been hit particularly hard by unemployment, especially in the automobile manufacturing sector.

On the other hand, other affordable markets are characterized by vibrant economies, such as Atlanta, Dallas-Fort Worth and Houston, with the highest underlying demand of any markets over 5,000,000 population in the surveyed nations.[18] Other major affordable markets were Buffalo,

[14] In Minneapolis-St. Paul, the more prescriptive planning policies were superseded by more flexible policies in 2004. Housing affordability, which had been deteriorating up to that time has been improving since before the house price declines experienced in the Great Recession.
[15] http://www.aei.org/docLib/20081205_RethinkingFedHousingPol.pdf , p.78.
[16] 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 updates of existing sources and adoption of new sources.
[17] http://www.demographia.com/db-usahs2008y.pdf

Cincinnati, Cleveland, Columbus (Ohio), Indianapolis, Kansas City, Las Vegas, Louisville, Memphis, Minneapolis-St. Paul, Oklahoma City, Phoenix, Riverside-San Bernardino, Rochester, St. Louis and Tampa-St. Petersburg. The most affordable markets in Canada were Thunder Bay and Windsor (2.2).

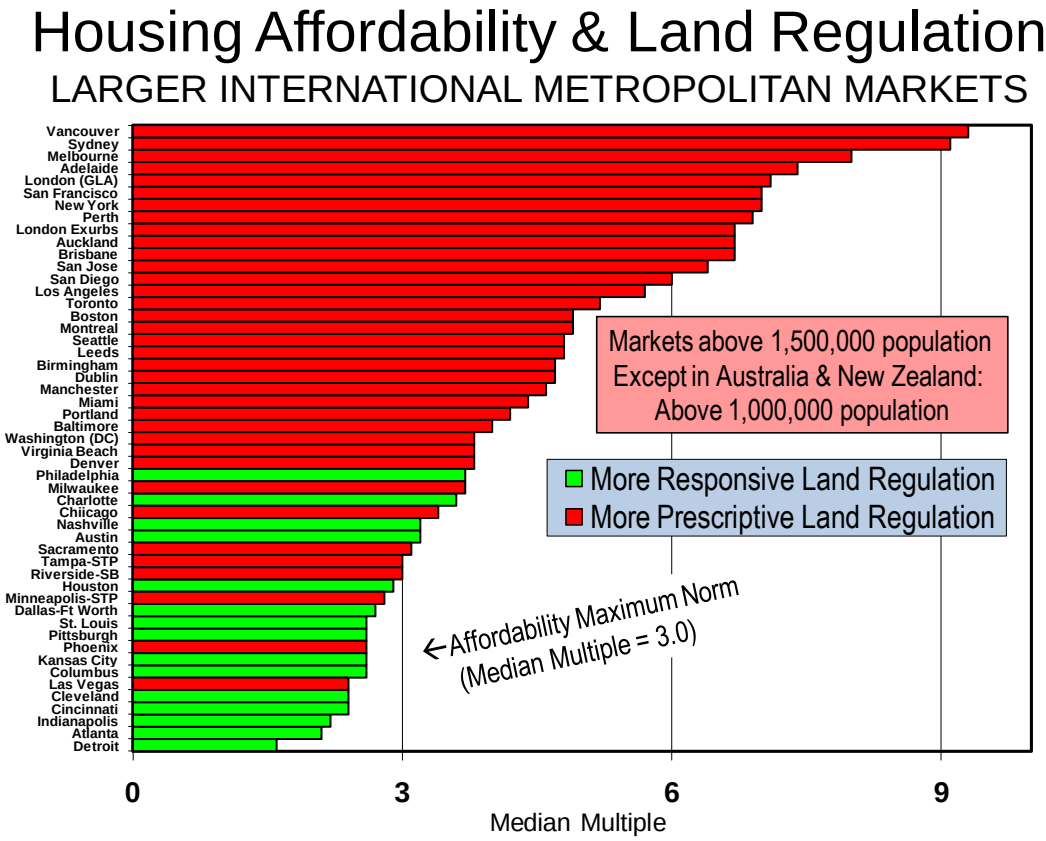

Figure 1

Least Affordable Markets: For the first time, none of the five least affordable markets were in the United States. The least affordable market was Vancouver (9.3). Six of the 10 least affordable markets were in Australia, including three of the four least affordable markets: Sydney (9.1), Sunshine Coast (9.0) and Gold Coast (8.6).

The 61 severely unaffordable markets (Median Multiple over 5.0) include 22 in Australia, 19 in the United Kingdom, 11 in the United States, 5 in New Zealand and 4 in Canada. For the first time, this year's *Survey* finds a nation, Ireland, with no severely unaffordable markets (Table 5).

For the first time, this year's Survey finds a nation, Ireland, with no severely unaffordable markets

[18] As measured by domestic migration.

Table 4
Affordable Housing Markets

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	United States	Detroit, MI	1.6	43	United States	Winston-Salem, NC	2.5
1	United States	South Bend, IN	1.6	54	United States	Beaumont, TX	2.6
3	United States	Fort Wayne, IN	1.7	54	United States	Columbus, OH	2.6
3	United States	Lansing, MI	1.7	54	United States	Green Bay, WI	2.6
3	United States	Youngstown, OH	1.7	54	United States	Kansas City, MO-KS	2.6
6	United States	Flint, MI	1.8	54	United States	Killeen, TX	2.6
7	United States	Cape Coral, FL	1.9	54	United States	Lafayette, LA	2.6
7	United States	Columbus, GA-AL	1.9	54	United States	Lakeland, FL	2.6
7	United States	Grand Rapids, MI	1.9	54	United States	Phoenix, AZ	2.6
10	United States	Canton,OH	2.0	54	United States	Pittsburgh, PA	2.6
10	United States	Erie, PA	2.0	54	United States	Provo-Orem, UT	2.6
10	United States	Evansville, IN-KY	2.0	54	United States	St. Louis, MO-IL	2.6
10	United States	Fort Smith, AR-OK	2.0	54	United States	Syracuse, NY	2.6
10	United States	Kingsport, TN-VA	2.0	66	United States	Ann Arbor, MI	2.7
10	United States	Rockford, IL	2.0	66	United States	Chattanooga, TN-GA	2.7
10	United States	Toledo, OH	2.0	66	United States	Dallas-Fort Worth, TX	2.7
17	United States	Akron, OH	2.1	66	United States	Daytona Beach, FL	2.7
17	United States	Atlanta, GA	2.1	66	United States	Des Moines, IA	2.7
17	United States	Davenport, IA-IL	2.1	66	United States	Jacksonville, FL	2.7
20	Canada	Thunder Bay	2.2	66	United States	Lincoln, NE	2.7
20	Canada	Windsor	2.2	66	United States	Modesto, CA	2.7
20	United States	Clarksville, TN-KY	2.2	66	United States	Montgomery, AL	2.7
20	United States	Indianapolis, IN	2.2	66	United States	Ocala, FL	2.7
20	United States	Peoria, IL	2.2	66	United States	York, PA	2.7
25	United States	Dayton, OH	2.3	77	Canada	Saguenay	2.8
25	United States	Fayetteville, NC	2.3	77	Canada	Saint John, NB	2.8
25	United States	Huntsville, AL	2.3	77	United States	Charleston, WV	2.8
25	United States	Ogden, UT	2.3	77	United States	Louisville, KY-IN	2.8
25	United States	Rochester, NY	2.3	77	United States	Memphis, TN-AR-MS	2.8
25	United States	Utica-Rome, NY	2.3	77	United States	Minneapolis-St. Paul, MN-WI	2.8
31	United States	Augusta, GA	2.4	77	United States	Scranton-Wilkes Barre, PA	2.8
31	United States	Cedar Rapids, IA	2.4	77	United States	Tulsa OK	2.8
31	United States	Cincinnati, OH-KY-IN	2.4	85	United States	Bakersfield, CA	2.9
31	United States	Cleveland, OH	2.4	85	United States	Houston, TX	2.9
31	United States	Duluth, MN-WI	2.4	85	United States	Lancaster, PA	2.9
31	United States	Holland, MI	2.4	85	United States	Lexington, KY	2.9
31	United States	Huntington, WV-KY-OH	2.4	85	United States	Little Rock, AR	2.9
31	United States	Kalamazoo, MI	2.4	85	United States	Reading, PA	2.9
31	United States	Las Vegas, NV	2.4	85	United States	Savannah, GA	2.9
31	United States	Melbourne, FL	2.4	85	United States	Stockton, CA	2.9
31	United States	Port St. Lucie, FL	2.4	85	United States	Vallejo-Fairfield, CA	2.9
31	United States	Wichita, KS	2.4	85	United States	Visalia-Porterville, CA	2.9
43	Canada	Moncton	2.5	95	United States	Boise, ID	3.0
43	United States	Anchorage, AK	2.5	95	United States	Columbia, SC	3.0
43	United States	Buffalo, NY	2.5	95	United States	Corpus Christi, TX	3.0
43	United States	Fayetteville, AR-MO	2.5	95	United States	Greensboro, NC	3.0
43	United States	Harrisburg, PA	2.5	95	United States	Oklahoma City, OK	3.0
43	United States	Hickory, NC	2.5	95	United States	Poughkeepsie, NY	3.0
43	United States	Lubbock, TX	2.5	95	United States	Riverside-San Bernardino, CA	3.0
43	United States	Omaha, NE-IA	2.5	95	United States	Roanoke, VA	3.0
43	United States	Spartanburg, SC	2.5	95	United States	Tampa-St. Petersburg, FL	3.0
43	United States	Springfield, MO	2.5				

Table 5
Severely Unaffordable Housing Markets
Ranked by Severity of Housing Unaffordability

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	Canada	Vancouver	9.3	31	New Zealand	Christchurch	6.1
2	Australia	Sydney	9.1	31	United Kingdom	Bristol-Bath	6.1
3	Australia	Sunshine Coast	9.0	31	United Kingdom	Telford	6.1
4	Australia	Gold Coast	8.6	31	United Kingdom	Warwickshire	6.1
5	United States	Honolulu, HI	8.2	36	Australia	Geelong	6.0
6	United Kingdom	Bournemouth	8.1	36	United States	San Diego, CA	6.0
7	Australia	Melbourne	8.0	38	Australia	Cairns	5.9
8	Canada	Victoria	7.9	38	Canada	Kelowna	5.9
9	Australia	Wollongong	7.5	38	Australia	Mackay	5.9
10	Australia	Adelaide	7.4	38	United Kingdom	Aberdeen	5.9
11	Australia	Newcastle	7.2	41	Australia	Canberra	5.8
11	United States	Santa Cruz	7.2	41	Australia	Townsville	5.8
13	Australia	Darwin	7.1	41	New Zealand	Wellington	5.8
14	Australia	Mandurah	7.1	41	United States	Oxnard-Ventura, CA	5.8
14	United Kingdom	London (GLA)	7.1	45	United States	Los Angeles	5.7
16	Australia	Bundaberg	7.0	45	United States	Santa Rosa, CA	5.7
16	United States	New York	7.0	47	New Zealand	Dunedin	5.6
16	United States	San Francisco, CA	7.0	47	United Kingdom	Warrington	5.6
19	Australia	Perth	6.9	49	Australia	Bunbury	5.5
20	Australia	Hobart	6.8	49	United Kingdom	Belfast	5.5
20	New Zealand	Tauranga	6.8	49	United Kingdom	Northamptonshire	5.5
22	Australia	Brisbane	6.7	52	Australia	Rockingham	5.4
22	New Zealand	Auckland	6.7	52	Australia	Toowoomba	5.4
22	United Kingdom	London Exurbs	6.7	54	United Kingdom	Edinburgh	5.3
25	Canada	Abbotsford	6.6	54	United Kingdom	Leicester	5.3
26	United States	San Luis Obispo, CA	6.5	54	United Kingdom	Stoke on Trent	5.3
27	United Kingdom	Plymouth & Devon	6.4	57	Canada	Toronto	5.2
27	United States	San Jose, CA	6.4	58	United Kingdom	Derby & Derbyshire	5.1
27	United States	Santa Barbara, CA	6.4	58	United Kingdom	Newcastle	5.1
30	United Kingdom	Swindon	6.3	58	United Kingdom	Newport	5.1
31	Australia	Launceston	6.1	58	United Kingdom	Perth (Scotland)	5.1

Summary by Nation

All of the affordable markets were located in Canada and the United States, while most markets in Australia, New Zealand and the United Kingdom were severely unaffordable (Table 6). A summary of results by nation follows (Schedule 2).

Australia: House prices have continued to rise in Australia (Figure 2), which registered the worst housing affordability (the highest Median Multiple) in the history of the *Survey*. Overall, housing in Australia is severely unaffordable, with a Median Multiple of 6.8, more than double the 3.0 historic maximum norm. Housing had been affordable in Australia in the late 1980s, with a Median Multiple of under 3.0. The Median Multiple remained at or under 3.5 until the late 1990s.

Australia … registered the worst housing affordability (the highest Median Multiple) in the history of the Survey

Table 6 Housing Affordability Ratings by Nation						
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	1	22	23	6.8
Canada	5	13	5	5	28	3.7
Ireland	0	3	2	0	5	3.7
New Zealand	0	0	3	5	8	5.7
United Kingdom	0	0	14	19	33	5.1
United States	98	58	8	11	175	2.9
TOTAL	103	74	33	62	272	

The inordinate rise in housing costs relative to incomes has been noted in research by Anthony Richards of the Reserve Bank of Australia. He estimated that since the late 1980s, when the Median Multiple in Australia was below 3.0 (as it had been for decades), the costs of construction had increased approximately 25 percent, average incomes had risen approximately 40 percent and the median house price had risen approximately 150 percent (all adjusted for inflation). Richards further notes that the huge housing cost run-up relative to construction costs and incomes was "likely to mostly reflect an increase in the price of land."[19] This is confirmed by Housing Industry of Australia data indicating that that nearly all of the inflation adjusted cost increase of housing has been in higher land costs (Section 4).

All of Australia's major markets were severely unaffordable (Median Multiple above 5.0). Moreover, all markets, including smaller markets were severely unaffordable except Ballarat (Victoria), which was seriously unaffordable (Median Multiple between 4.1 and 5.0).

Sydney was the most unaffordable metropolitan market of any size, at 9.1, which is up from 8.3 in 2008. Melbourne has now become the second most expensive major market with a Median Multiple of 8.0, rising from 7.1 in 2008. Housing affordability also deteriorated in other major metropolitan areas, including Adelaide, with a Median Multiple of 7.4, Perth, at 6.8 and Brisbane, at 6.7. Australia had no affordable markets and no moderately unaffordable markets.

Canada: Housing is moderately unaffordable, as in previous *Surveys*. Canada's Median Multiple is 3.7. Housing had been affordable in Canada in the late 1990s, with a Median Multiple of 3.0. Canada had 5 affordable markets, 13 moderately unaffordable markets, 5 seriously unaffordable markets and 5 severely unaffordable markets.

Housing affordability losses are being sustained in some markets. Vancouver remained the least affordable market of any size in the surveyed nations, at 9.3, worsening from 8.4 last year. Toronto joined Vancouver as severely unaffordable, with a Median Multiple of 5.2. However, Barrie, within the Toronto region was moderately unaffordable, at 3.4. Victoria, Abbotsford and Kelowna (all in British Columbia) were also severely unaffordable.

[19] Richards, op. cit.

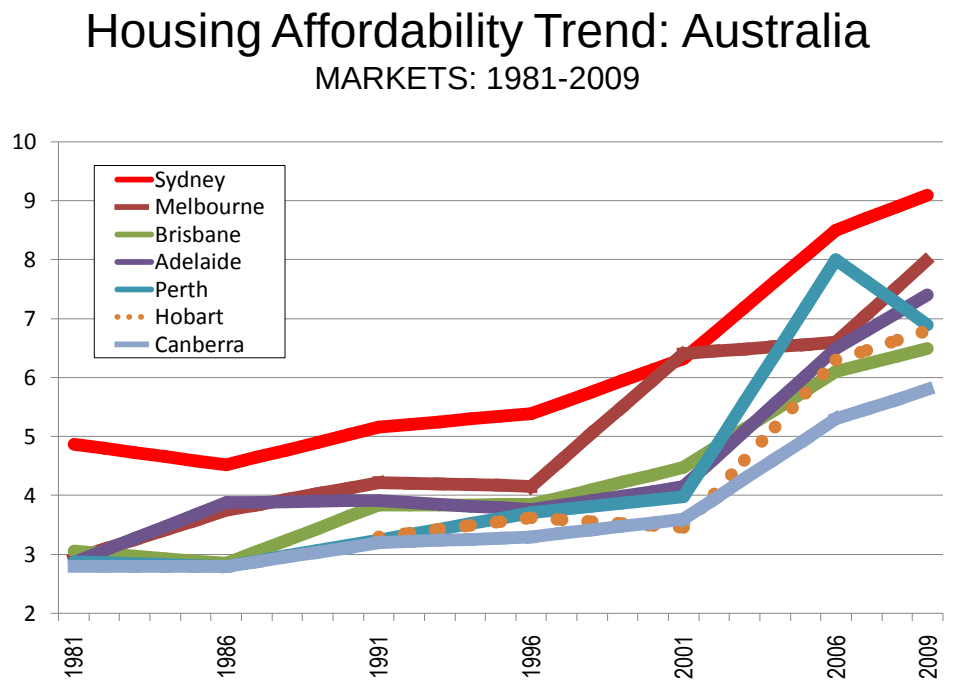

Figure 2

Housing affordability continues to deteriorate in Montreal (Median Multiple of 4.9), where an agricultural urban growth boundary has seriously constrained development on the urban fringe. The most affordable major market in Canada was Ottawa, with a Median Multiple of 3.8 (moderately unaffordable). However, housing affordability has deteriorated materially in Ottawa-Gatineau, which was affordable as late as 2007 (Median Multiple of 3.0).

The most affordable markets in Canada were Thunder Bay and Windsor (2.2), followed by Moncton (2.5), Saguenay and Saint John (NB) at 3.0.

Ireland: Housing in Ireland has become moderately unaffordable with a Median Multiple of 3.7, showing a trend toward historic norm of 3.0.[20] Housing had been affordable as late as the middle 1990s, with a Median Multiple below 3.0. The extent of Ireland's recent housing affordability improvement is illustrated by the EBS/DKB Affordability Index, which indicates that mortgage payments have been halved in Ireland since the peak of the bubble in relation to first home buyer incomes.[21]

[20] The *Survey* house price estimates for Ireland are based upon data from the Department of the Environment, Heritage and Local Government. The improvement in Ireland Median Multiples is principally due to house price reductions, though part of the change from last year is the result of using an improved and more representative factor for estimating median prices from average prices.

[21] See: http://www.dkm.ie/index.php?page=affordability_index. EBS/DKB Affordability Index uses a standardized two-couple household and is based upon average after-tax income.

Dublin was the least affordable market with a Median Multiple of 4.7 and with Limerick (4.2) was seriously unaffordable. Three of Ireland's five markets were moderately unaffordable, Galway (3.2), Cork (3.6) and Waterford (3.7). 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 5.7, nearly double the historic maximum norm of 3.0. Housing had been affordable in the early 1990s, with a Median Multiple of under 3.0. Auckland is the least affordable larger market, with a Median Multiple of 6.7, while Christchurch (6.1) and Wellington (5.7) were also severely unaffordable. Tauranga-Bay of Plenty was again the least affordable market, with a Median Multiple of 6.8. Five of the 8 New Zealand markets were severely unaffordable, while Palmerston North, Napier-Hastings and Hamilton were seriously unaffordable New Zealand had no affordable markets and no moderately unaffordable markets. [22]

United Kingdom: Housing in the United Kingdom remains severely unaffordable, with a Median Multiple of 5.1, 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. Less than one-half of the United Kingdom markets were severely unaffordable (14 of 33), while the other 19 markets were seriously unaffordable. The United Kingdom had no affordable markets and no moderately unaffordable markets.

Housing in the United Kingdom remains severely unaffordable…

Bournemouth & Dorset (Median Multiple of 8.0) was the least affordable market. London (Greater London Authority or inside the Green Belt) was the second least affordable, with a Median Multiple of 7.1, followed by the London Exurbs (outside the Green Belt) at 6.7. The least unaffordable markets were seriously unaffordable Middlesborough and Durham (4.4), along with Dundee (Scotland), Greater Manchester and Sheffield & South Yorkshire at 4.5.

United States: Housing in the United States is rated as affordable, with the Median Multiple of 2.9. The recent house price declines have restored U.S. housing affordability to the below 3.0 historic norm (last achieved in the early 2000s), as the price bubble burst in many plan-driven markets. The United States had 98 affordable markets, 58 moderately unaffordable markets, 8 seriously unaffordable markets and 11 severely unaffordable markets.

The most affordable major market (population over 1,000,000) was Detroit. Other affordable major markets were Atlanta, Buffalo, Cincinnati, Cleveland, Columbus (Ohio), Dallas-Fort Worth, Houston, Indianapolis, Kansas City, Las Vegas, Louisville, Memphis, Minneapolis-St. Paul, Oklahoma City, Phoenix, Riverside-San Bernardino, Rochester, Sacramento, St. Louis and Tampa-St. Petersburg.

Despite the trend toward historic housing affordability norms in the United States, a number of markets remain well above the historic Median Multiple norm of 3.0. San Francisco tied with New York as the least affordable major market, with a Median Multiple of 7.0, down from 10.8 two years

[22] This is principally due to house price reductions, though part of the change from last year is the result of using a newly identified and more representative factor for estimating median prices from average prices.

ago. Other severely unaffordable major markets included San Jose (6.4), San Diego (6.0) and Los Angeles (5.7) Los Angeles had been the least affordable market in the surveyed nations as late as 2007 (Median Multiple of 11.5). The least affordable market of any size was Honolulu, at 8.2.

California was "ground zero" for the bursting of the housing bubble that precipitated the most severe international financial downturn (the Great Recession) since the Great Depression. For the first time, some California markets have become affordable, including the major markets of Sacramento and Riverside-San Bernardino (in the Los Angeles region). Smaller Vallejo and Stockton, in the San Francisco region also became affordable.

The recent house price declines have restored U.S. housing affordability to the below 3.0 historic norm …

3. INFRASTRUCTURE AND HOUSING AFFORDABILITY

There was considerable urban growth between World War II and 1980 in the nations surveyed by the *Demographia International Housing Affordability Survey*. Nearly all of this growth was in the suburbs, where infrastructure was provided through borrowing, taxation and utility user fees. Yet, since 1980, even as population growth has slowed and incomes have risen, the it has been claimed that infrastructure costs are unaffordable. More prescriptive land use policies have provided inadequately researched justifications for starving land supply, in hopes of reducing infrastructure expenditures.

Proponents of more prescriptive regulation generally assume that infrastructure in developed areas has the capacity to handle significant densification. However, in the United States, overall infrastructure costs are no higher in areas of greater suburbanization than in areas of higher density. In fact, infill area ("brownfield") infrastructure such as water and sewer systems is usually older, may not conform to current environmental standards and was generally not designed to serve the higher densities. Construction of infrastructure upgrades in already developed areas will also tend to be more expensive than building new, state of the art facilities in greenfield areas. Indeed, it may make more sense to lighten the load on existing infrastructure as it ages, to extend its useful life.

The problem with street infrastructure is even more daunting. Higher densities routinely result in higher traffic volumes within the more dense area, even if higher public transport ridership results.[23] Greater traffic congestion and more intense air pollution could be avoided only by expanding road infrastructure, which can be a political impossibility in highly developed areas.

In fact, the higher housing costs typical of more prescriptively regulated markets far exceed any conceivable increase in infrastructure costs from allowing demand-driven housing expansion.

[23] This is confirmed by research by the University of South Florida, Center for Urban Transportation Research VMT forecasting model prepared for the National Surface Transportation Policy and Revenue Study Commission and analysis the Sierra Club "Density-VMT Calculator" yields a 61% increase in traffic volumes for each doubling of density (http://www.icleiusa.org/library/documents/8-Density-VMT%20Calculator%20(2).xls). Also see: http://www.publicpurpose.com/ut-traffic.pdf,

4. COMPARING SYDNEY, MELBOURNE, DALLAS-FORT WORTH & ATLANTA

The devastating impact of more prescriptive land use regulation (urban consolidation or compact development) policies on housing affordability can be shown by comparing four comparable metropolitan areas: severely unaffordable Sydney and Melbourne in Australia and affordable Dallas-Fort Worth and Atlanta in the United States.

In 1981, Sydney and Dallas-Fort Worth were approximately the same population. Dallas-Fort Worth has grown much faster and is now nearly 50 percent larger than Sydney. In 1981, Melbourne was larger than Atlanta. Atlanta has also grown faster and is approximately 50 percent larger than Melbourne and more than a quarter larger than Sydney (Figure 3).

Obviously, the demand for housing was greater in the much faster growing markets of Dallas-Fort Worth and Atlanta than in Sydney and Melbourne. Yet, unlike Sydney and Melbourne, house prices did not rise relative to incomes in Dallas-Fort Worth and Atlanta, because the planning systems permitted new housing to be built on cheap land on the urban fringe. In 1981, the Median Multiple in Dallas-Fort Worth was 3.5. By 2008, it had dropped to 2.7. Atlanta had a Median Multiple of 2.6 in 1981 and it remained 2.6 in 2008. These and other liberally regulated metropolitan areas experienced the housing boom, but not the housing bubble.[24]

… unlike Sydney and Melbourne, house prices did not rise relative to incomes in Dallas-Fort Worth and Atlanta, because the planning systems permitted new housing to be built on cheap land on the urban fringe.

By comparison, housing affordability deteriorated in Melbourne, from a Median Multiple of 2.9 in 1981to 8.0 in 2009. Sydney, with its earlier excessive regulation, had a Median Multiple of 4.9 in 1981, but worsened to 9.1 by 2009 (Figure 4).

Urban planning orthodoxy in Australia (very much influenced by thinking in the United Kingdom) contends that it is impossible to provide sufficient infrastructure for an expanding urban area (Section 3). Yet, this has been proven wrong by the two US examples (and many others). Dallas-Fort Worth and Atlanta have grown more than the five major urban areas of Australia[25] combined since 1981, both in urban footprint and in population (more than double the Australian rate). Sufficient new infrastructure was provided and taxes remained low by national standards in Dallas-Fort Worth and Atlanta. Moreover, the ability of fast-growing markets to provide transport infrastructure is illustrated by the fact that Dallas-Fort Worth and Atlanta have average work trip travel times less than Sydney, despite having larger populations and covering more land area than Sydney.[26]

The explosion in Sydney and Melbourne housing prices can be traced to land price increases. For housing to be affordable, the land on which it is built must be affordable. This means that the development ratio (the price of the land ready for house construction to the total house and land package) must be kept at less than 25 percent for new housing on the urban fringe. The balance is the cost of house construction. While the development ratio has been kept within this maximum in

[24] See: http://www.dallasfed.org/research/houston/2008/hb0801.pdf
[25] Sydney, Melbourne, Brisbane, Perth and Adelaide.
[26] Work trip travel time for Melbourne not available.

Dallas-Fort Worth and Atlanta, rapidly escalating land prices in Sydney and Melbourne have driven the development ratio as high as 70 percent.

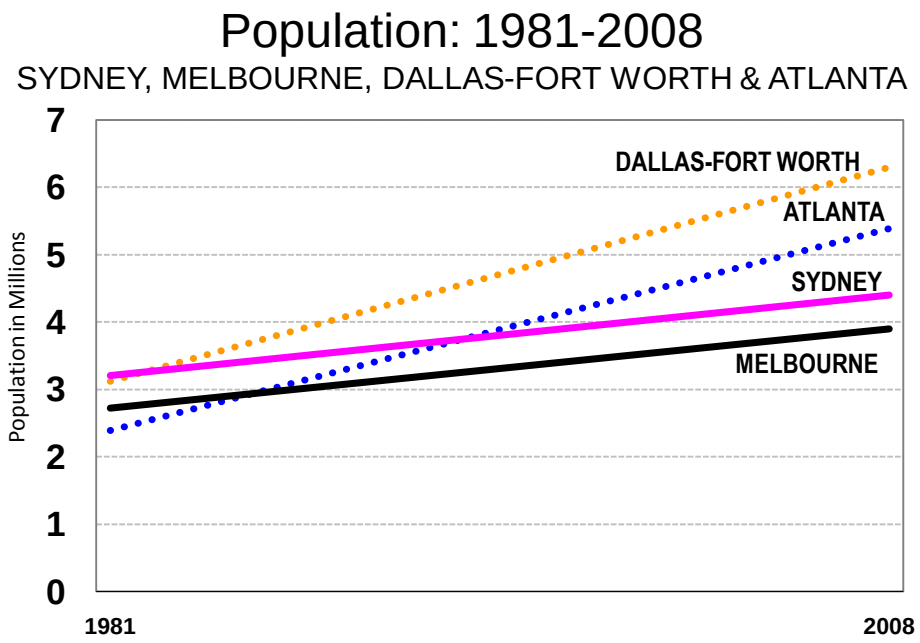

Figure 3

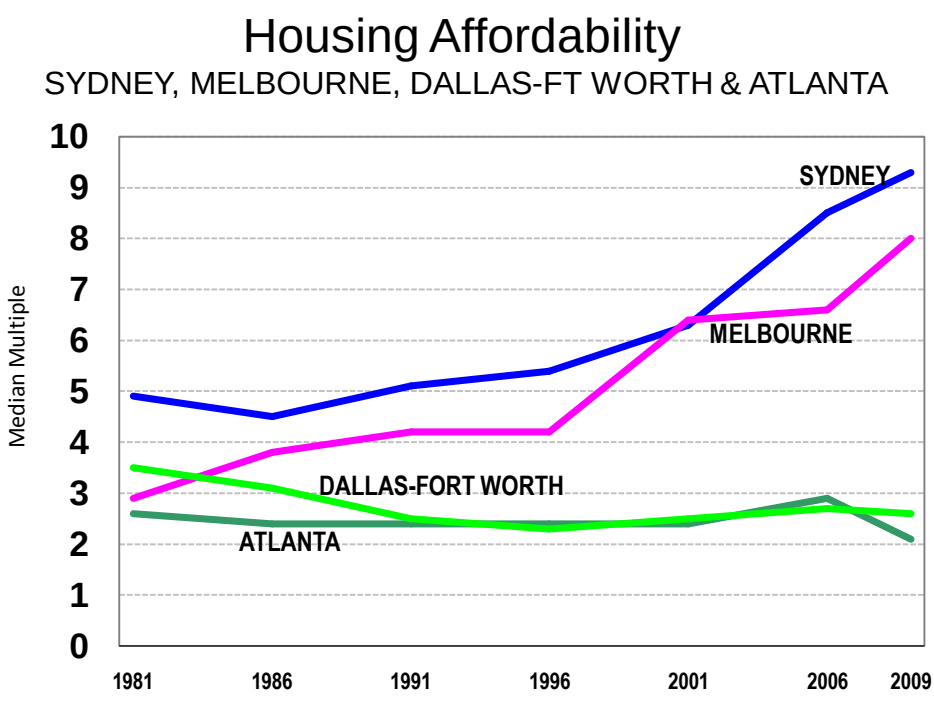

Figure 4

The extent of this increase is illustrated by Housing Industry of Australia data. Construction costs of a standardized house rose only 4 percent relative to inflation between 1973 and 2006 in the major capital cities.[27] The price of the land for building has risen nearly 400 percent over the same period, inflation adjusted. This indicates that 98 percent of the increased cost was in the land, not construction.

… in Sydney, 57 percent of gross annual income … would be required for mortgage repayments for the median priced house

Australia: A Nation in Mortgage Stress: Various measures indicate that any households spending 30 to 35 percent or more of their gross annual income on mortgage repayments are in "mortgage stress."[28] According to the latest data, the median income households in Sydney and Melbourne with a new mortgage on a median priced house would be in mortgage stress. The extent of mortgage stress has become an issue of significant political concern in Australia. According to the National Centre for Social and Economic Modeling at the University of Canberra estimated that more than one-quarter of households with mortgages or renting were in housing stress[29] in 2008.

Already, in Sydney, 57 percent of gross annual income of the median income household would be required for mortgage repayments for the median priced house. The figure would be 50 percent in Melbourne. By comparison, the median income household would have median house mortgage repayments equaling under 20 percent in Atlanta and Dallas-Fort Worth (Table 7).

The difference is substantial. In Sydney, the monthly mortgage payment on a new median priced house would be nearly $3,000 and more than $2,500 in Melbourne. By comparison, in Dallas-Fort Worth, the monthly mortgage payment on a new median priced house would be under $800 and in Atlanta under $700 (Figure 5).[30]

In Sydney, the monthly mortgage payment on a new median priced house would be nearly $3,000 and more than $2,500 in Melbourne. By comparison, in Dallas-Fort Worth, the monthly mortgage payment on a new median priced house would be under $800 and in Atlanta under $700

Australians pay far more for their housing than Americans, and, as a result, have less income remaining to spend on consumer goods and services for themselves and their children. It is likely that this has negative impacts on employment. Moreover, house prices relative to incomes (the Median Multiple) were generally lower in Australia than in the United States as little as two decades ago.

[27] http://economics.hia.com.au/media/land_house_price.pdf.
[28] For example, see: http://www.aph.gov.au/library/Pubs/RN/2003-04/04rn16.htm.
[29] https://guard.canberra.edu.au/natsem/index.php?mode=download&file_id=848. Housing stress at the 30% or more level (mortgage or rent payments).
[30] Assumes a 10% down payment, and an annual mortgage interest rate loan at 5.75%. The reality is that the difference between US and Australian mortgage payments would likely be even more than shown here. Interest rates are generally higher in Australia and 30-year fixed interest rate mortgages are far more prevalent in the United States than in Australia. This works to the advantage of US home owners, even in times of relatively high interest, because of opportunities for refinancing at lower interest rates. Payment estimates are in national currency.

Thus, Australia is poised for much more housing stress. Already, the payment on a new mortgage on a median priced house would place the median income household in mortgage stress. In the longer run, this means that more than one-half of households are likely to enter mortgage distress as the normal turnover of houses continues in the years to come. Further, as the price of land is driven higher by prescriptive land use regulation, the number of renting households in housing stress can be expected to increase as well.

Table 7
Share of Income for Mortgage:
Sydney, Melbourne, Dallas-Fort Worth, Atlanta
(Share of Median Household Income To Pay Mortgage on Median Priced House)

Metropolitan Area	% of Gross Annual Income
AUSTRALIA	
Sydney	57.4%
Melbourne	50.4%
UNITED STATES	
Dallas-Fort Worth	13.4%
Atlanta	16.8%

New mortgage in September 2009

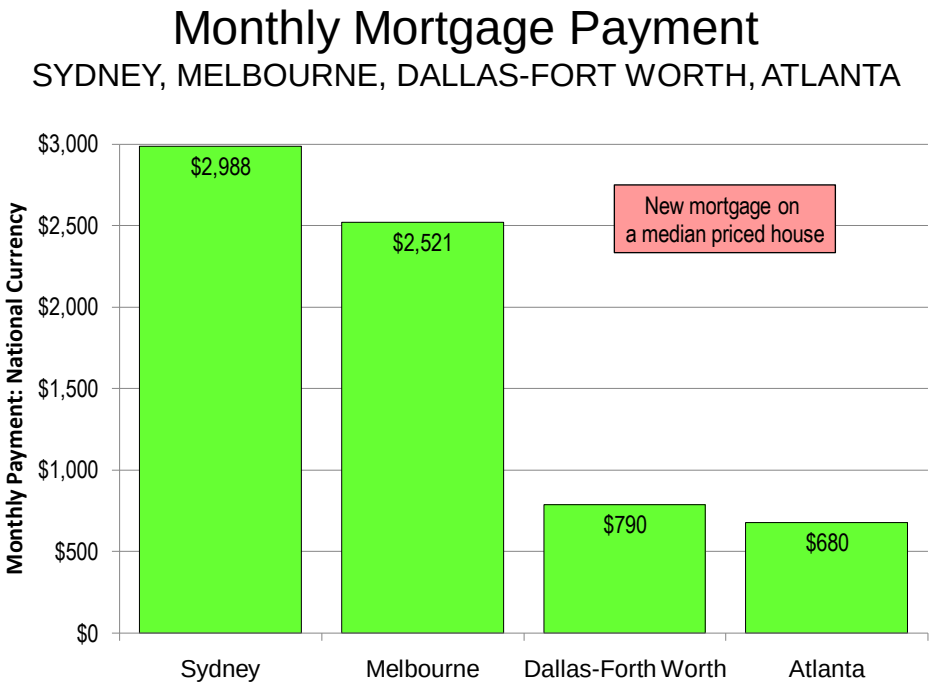

Figure 5

5. RECENT DEVELOPMENTS

The *Demographia International Housing Affordability Surveys* have been instrumental in stimulating public discussion of housing affordability, especially in Australia and New Zealand.

Australia: As data in this report indicates, Australia has the most unaffordable housing among the six surveyed nations. A recent release by the Australian Bureau of Statistics indicates that home ownership fell from 72 percent of households to 68 percent between 1994-5 and 2007-8.[31] Over the same period, the United States, with similar demographics and demographic trends, experienced an increase from 65 percent to 68 percent.[32]

There is a widely held view that the nation has a severe housing crisis, which includes a severe housing shortage.[33] Throughout Australia, house construction volumes have been declining, even while there is strong population growth (Figure 6).[34]

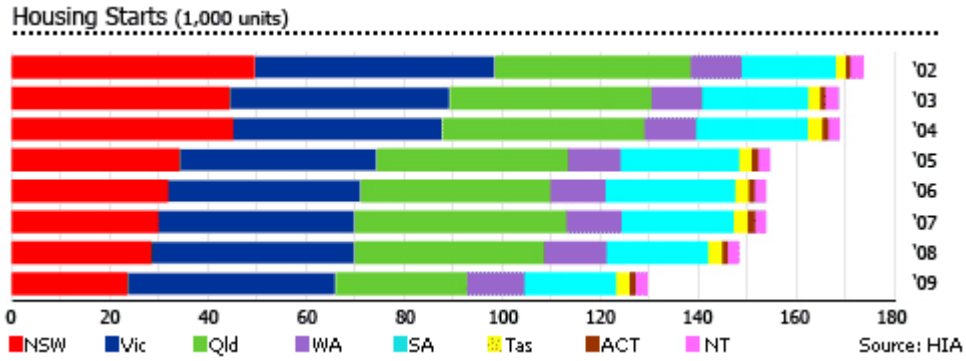

Figure 6: Housing Starts by State in Australia

The depth of the problem is indicated by the fact that a median income household would be in mortgage stress with a new mortgage on a median price house in each of Australia's major metropolitan areas (Figure 7). Further, the nearly one-third of households that rent experience higher housing costs, because the price of land is driven higher by more prescriptive land use regulation.

[31] http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/4130.0Media%20Release12007-08?opendocument&tabname=Summary&prodno=4130.0&issue=2007-08&num=&view=. Includes households owning their houses out rightly and households with mortgages.
[32] Calculated from US Bureau of the Census data (http://www.census.gov/hhes/www/housing/hvs/historic/index.html). In the latest quarter (September quarter 2009), home ownership had fallen 0.4% from the 2008 figure.
[33] See, for example: http://www.independentweekly.com.au/news/local/news/general/australias-housing-shortage/789058.aspx.
[34] http://www.globalpropertyguide.com/Pacific/Australia/Price-History. Figure used by permission of globalpropertyguide.com.

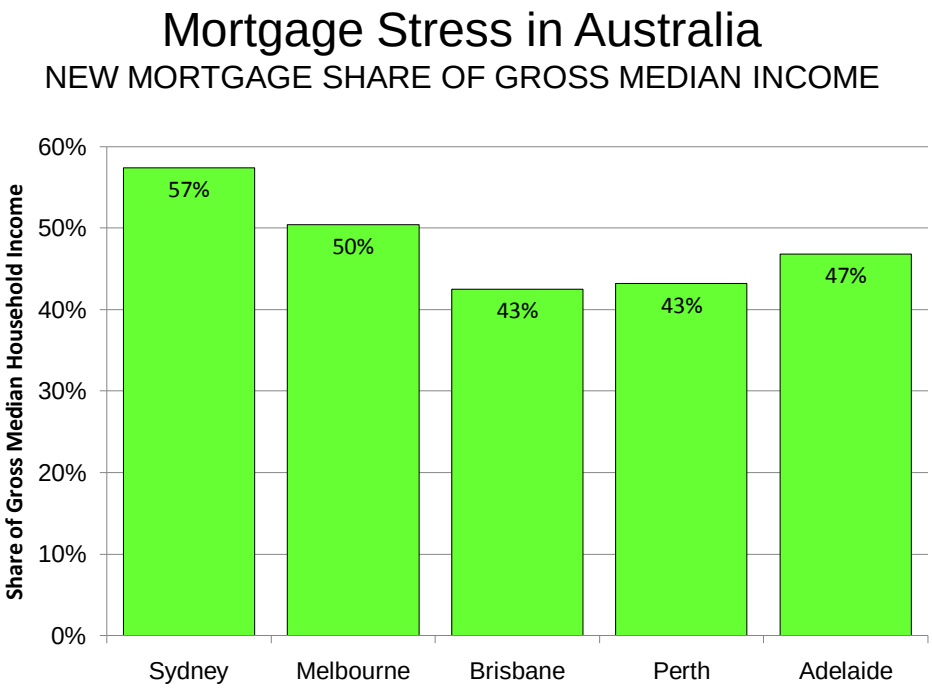

Figure 7

The political importance of housing affordability in the 2007 federal election was indicated in a Fitch Ratings analysis commissioned by *The Sydney Morning Herald*.[35] Constituencies with greater mortgage stress voted particularly strongly for the winning Labor Party. Moreover, the rate of home repossessions was determined to be a better predictor of electoral margins than either high unemployment rates or lower average incomes.

Then Labor Party national secretary Tim Gartrell noted a solid movement toward his party of voters with "just above" the average mortgage repayment of $1,400 to $1,600 per month.[36] A new mortgage on a median priced house is now well above this level, suggesting that the issue of housing affordability could emerge as an even more crucial political issue in the years to come (Figure 9).

The new government has indicated concern about the issue. Federal Housing Minister Tanya Plibersek has noted that "we are not building enough homes" and particularly noted the problem of land supply, saying "We still have problems in Australia with housing supply. There is no question of that", adding: "We need to make sure that we have got enough affordable land to build on, both in green fields and in fill sites…"[37]

Additional attention is indicated by the Council of Australian Governments, which intends to develop a national housing supply and housing affordability agenda.[38]

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[35] http://www.smh.com.au/news/national/fear-of-losing-homes-drove-labor-win/2007/12/07/1196813021229.html.
[36] Ibid.
[37] http://www.abc.net.au/news/stories/2009/11/24/2752254.htm?section=business
[38] See: http://www.coag.gov.au/coag_meeting_outcomes/2009-12-07/index.cfm?CFID=400384&CFTOKEN=40553867, Section 5.

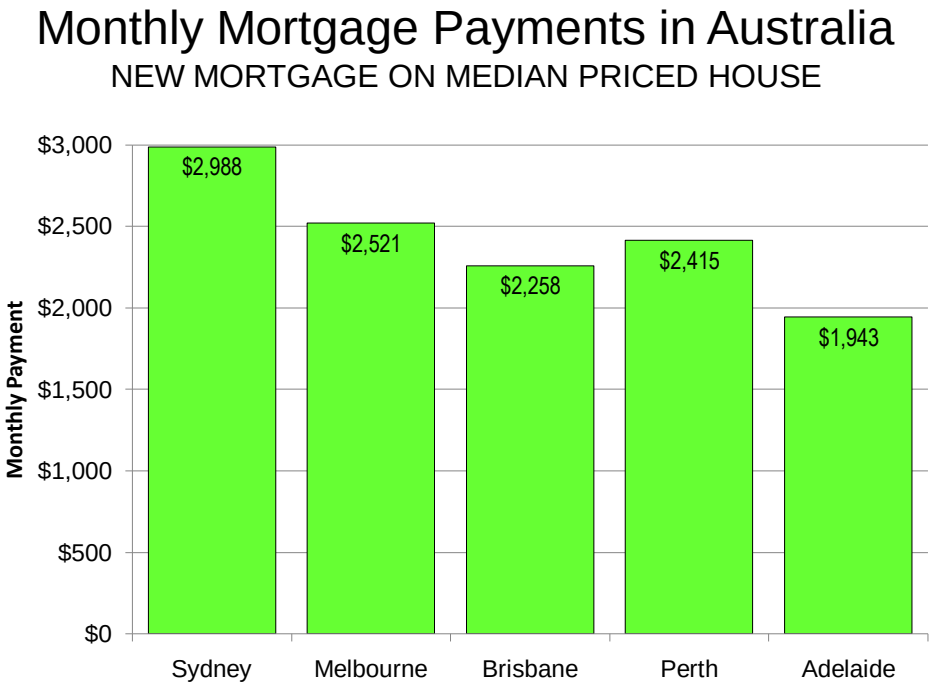

Figure 8

Housing affordability is also receiving greater attention at the state level. The government of Victoria intends to open sufficient Melbourne fringe land for 250,000 houses (and 650,000 people), which is a substantial expansion relative to previous plans.[39]

There is good reason for all levels of government to be concerned. However, the concern has not been matched by improving housing affordability. The Median Multiple has continued to rise.

Westpac (Bank) Chief Economist Bill Evans noted that housing prices were rising at an annual rate of 20 percent over the past 6 months and that: "A huge chasm is opening up between the demand and supply for housing."[40]

Joe Flood at the Flinders Institute for Housing Urban and Regional Research warned of the risks of high house prices and indicated that large gains in household incomes had been "wasted" by increasing house prices and accumulating debt to unreasonable levels.[41]

A recent Bank West report indicated that housing affordability was deteriorating for key workers (nurses, teachers, police officers, fire fighters and ambulance workers), with only 5 percent to 20

[39] http://www.theage.com.au/news/national/2028-bigger-than-sydney/2008/03/03/1204402365089.html.
[40] http://www.theaustralian.com.au/business/opinion/bottlenecks-choking-recovery/story-e6frg9if-1225795209001.
[41] http://www.news.com.au/adelaidenow/story/0,22606,26070619-5006301,00.html.

percent able to afford the median priced house in the larger urban areas.[42] Moreover, there are predictions that house price escalation will continue.[43]

The True Housing Crisis: Lack of Affordable Land: As has been noted above, the extraordinary increase in land costs has been the principal driver of higher house prices. The National Housing Council *State of Supply Report* indicates that Australia's plan-driven (more prescriptive regulation) urban development at the micro-scale level takes from 6.25 to 14.5 years for residential land to be designated for development to the completion of the first houses.[44] By comparison, the same process could as little as one year on the fringe of urban areas with demand-driven processes (more responsive regulation), in the United States. Further, before prescriptive regulation policies (urban consolidation) were adopted in Australia, the process tended to take from 1 to 1.5 years in what was then a demand-driven process.

Australia's plan-driven … urban development … takes from 6.25 to 14.5 years for residential land to be designated for development to the completion of the first houses. By comparison, the same process could as little as one year … with demand-driven processes

The long process in a plan-driven market provides land sellers and buyers with reliable information on where development will occur and, as a result, tends to significantly raise the price of land. This virtually eliminates any supply of affordable land and makes housing affordability an unrealizable goal.

State (and even federal) authorities may claim that there is sufficient "years of supply" of land for building new houses, in dismissing calls for additional land release. "Years of supply" is a meaningless measure. Plan-driven regulation skews land prices upward, making it impossible to produce housing that is affordable, regardless of the how many years of land supply is available.

The only genuine measure of scarcity or abundance is price. The problem is that there is not a sufficient supply of affordable land, because of the market distortions created by urban consolidation.

These land price increases have been avoided in more responsively regulated markets where the process of building new housing is driven by the preferences of consumers.

New Zealand: In 1991, New Zealand replaced its British style more prescriptive Town and Country Planning Act with the Resource Management Act. The intent of the new act was to establish a demand-driven regulatory framework, subject to reasonable environmental and building standards.

The Resource Management Act is widely assessed as having failed to achieve its objectives, due to implementation failures at virtually all levels of government. Environment Minister Dr. Nick Smith noted that the Act "has not lived up to its full promise" and that a "significant tune up" is

[42] http://www.bankwest.com.au/library/scripts/objectifyMedia.aspx?file=pdf/40/97.pdf&str_title=BankWest Key Worker Housing Affordability Report.pdf
[43] http://www.news.com.au/australian-house-prices-to-rise-by-up-to-20-per-cent/story-0-1225734646473
[44] http://www.fahcsia.gov.au/sa/housing/pubs/housing/national_housing_supply/Documents/NHSC_StateofSupplyReport.pdf, Page 50.

necessary.[45] It is likely that New Zealand would not have experienced a housing bubble if the Resource Management Act had been administered as intended.

It is likely that New Zealand would not have experienced a housing bubble if the Resource Management Act had been administered as intended.

Since 1991, housing affordability has declined substantially in New Zealand. Recently, the government's "2025 Taskforce" identified the "biggest obstacle" as "land." In particular, the Taskforce found that "Council zoning restrictions and arbitrary 'urban limits' prevent the release of sufficient land to lower the overall price of housing."

The report went on to note that land just inside Auckland's urban growth boundary (where development is permitted) is "about 10 times" the price of otherwise identical land outside (where development is not permitted).[46]

Even this "across the boundary" or "across the road" factor understates the difference. Hugh Pavletich notes that a true comparison can be obtained only by looking at somewhat more distant land (such as 3 miles or 5 kilometers away), which does not exhibit "urban echo values," the added value of the expectation that the land might eventually be included within the urban growth boundary.

This difference can be far more substantial than the 10 times indicated in the New Zealand research. Tim Leunig of the London School of Economics estimates that the granting of planning permission in southeast England can raise the value of land up to 500 times.[47]

The "2025 Taskforce" recommended that such price differences be monitored and that "there should be a strong presumption that scarcity of zoned land (judged largely by reference to price indicators) should prompt action by the relevant council to increase the supply of land zoned for residential development."[48]

Minister of Housing Phil Heatley responded to last year's *5th Annual Demographia International Housing Affordability Survey* by expressing the government's concern about housing affordability and promising initiatives to start the process to making more affordable land available.[49]

Prior to the election, Prime Minister John Key had criticized the use of infrastructure cost (Section 3) concerns to limit the supply of housing.

> *Is New Zealand really going to stop building houses on the grounds that it will require investment in roads, public transport, sewerage and water systems?*[50]

[45] http://www.beehive.govt.nz/speech/next+phase+rma+reform.
[46] http://www.2025taskforce.govt.nz/pdfs/2025tf-1streport-nov09.pdf.
[47] http://www.guardian.co.uk/society/2004/sep/02/housingdemand.uknews.
[48] http://www.2025taskforce.govt.nz/pdfs/2025tf-1streport-nov09.pdf.
[49] http://beehive.govt.nz/release/bringing+better+balance+housing+market.
[50] http://www.johnkey.co.nz/archives/213-SPEECH-NZ-Contractors-Federation.html

Deputy Prime Minister and Infrastructure Minister Bill English has indicated that a bond bank could be established to assist regional and local governments finance infrastructure, which would remove barriers to housing construction.[51]

Responding to the *3rd Annual Demographia International Housing Affordability Survey,* the New Zealand Planning Institute stated the importance of placing housing affordability on the public agenda, expressing that it "strongly supports Demographia's call for planners, local councils and developers to collaborate more proactively and effectively on the provision of an adequate supply of affordable new residential housing."[52]

United Kingdom: Housing affordability has received considerable attention, especially in the housing supply and housing market reviews commissioned by the Labour government. These were performed by Kate Barker, a member of the Monetary Policy Committee of the Bank of England. The reports cited land regulation and the resulting land scarcity as a principal factor in the inordinate housing price increases and associated loss of affordability.[53] Ms. Barker pointed out that "house prices have risen sharply in almost all parts of the UK, fuelling concerns about affordability with consequent unwelcome effects on individuals and the economy" and estimated that UK homeowners would have saved $8 billion if prices had risen at the same rate as in continental Europe.[54] A recent examination made a strong connection between more prescriptive land use regulation, and political corruption scandals in local government, which "so often turn on planning permission."[55] However, policy reforms that would restore housing affordability in the United Kingdom have not been implemented.

Elsewhere: In the United States, Canada and Ireland, housing affordability has received little or no political attention, even in the bubble markets where booms escalated housing prices to unprecedented heights. Indeed, in the United States, there are serious proposals at the national level to expand more prescriptive land use regulation, in a political environment largely oblivious to the inevitable negative impacts on housing affordability.

6. RESTORING HOUSING AFFORDABILITY

Prescriptive land use regulation policies (principally compact development and urban consolidation) have virtually destroyed housing affordability in many markets. As a result, the next generation will pay a larger share of their incomes for housing than their parents. Markets with more traditional, more responsive planning will continue to supply housing for the next generation for approximately the same share of household income as in previous generations.

Structural issues should receive urgent attention to restore housing affordability in more prescriptively regulated markets and to ensure its continuation in more responsive markets. The

[51] http://www.billenglish.co.nz/index.php?/archives/463-Government-considers-local-body-bond-bank.html
[52] http://www.scoop.co.nz/stories/PO200702/S00134.htm.
[53] 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. http://www.hm-treasury.gov.uk/barker_review_of_housing_supply_recommendations.htm and *Barker Review of Land Use Planning,* http://www.hm-treasury.gov.uk/barkerreview_land_use_planning_index.htm.
[54] http://news.bbc.co.uk/2/hi/business/3517182.stm
[55] Paul Barker, *The Freedoms of Suburbia,* (London: Francis Lincoln Limited (, 2009; p.197.

focus should be on (1) establishing sound and simple performance measures (2) appropriately financing infrastructure and (3) allowing sufficient inexpensive urban fringe land on which to construct housing that is affordable.

Authorities should adopt performance programs that include such easily understood measures. The principal indicator should be:

- Housing affordability (the Median Multiple)

The Median Multiple should be supplemented with the additional indicators, such as.

- Fringe urban and adjoining rural and extended true rural land price differences.
- Housing stock per 1,000 population
- Housing construction rates per 1,000 population
- Age of housing stock in decadal bands
- Residential rental vacancy rates.
- Population growth and trends

It is important for policy makers to consider the impact both on households and society, however unintentionally created, by planning policies that have been adopted without rigorous consideration of the social, environmental and economic consequences.

… some governments … have, in effect, established unaffordable housing as a public policy objective…

Unaffordable Housing as Public Policy: In effect, the state governments of Australia, the national government of the United Kingdom the local authorities of New Zealand and some governments elsewhere have, in effect, established unaffordable housing as an objective of public policy, however unwittingly. Affordable housing requires affordable land for building houses. Heavy-handed intervention in land markets makes affordable housing impossible.

A Perth, Australia land developer told one of the authors that the future development maps published by planning authorities "told him exactly where to buy." Indeed, they also tell competitors where to buy. Further, they signal owners of property within the designated areas that their properties are worth much more than if planning permission were permitted on properties outside the favored areas. This substantially raises prices, simply because government plans restrict the market for land. This is exacerbated by the expectation (often correct) by buyers and sellers that planning authorities will not respond quickly or adequately enough to the increasing demand. Developers quickly buy the limited amount of land on which development is permitted, to ensure they have sufficient inventory for future business. As the price of developable land rises, smaller companies are forced out and the development industry becomes far more concentrated.

To Avoid the Next Bubble: Further, plan-driven land regulation could lead to yet another destructive housing bubble. The world is only beginning to recover from the devastating financial and social impacts of the economic downturn. The Great Recession was generated by the burst of the housing bubble in the United States, which resulted from the intensity of mortgage losses in the prescriptively regulated bubble markets. The restoration of near historic housing affordability in some markets provides an opportunity to repeal more prescriptive land regulation policies, which would not only minimize the potential for future busts, but would also ensure housing affordability for future generations.

The Great Recession was generated by the burst of the housing bubble in the United States, which itself resulted from the intensity of mortgage losses in the more prescriptively regulated bubble markets.

SCHEDULE 1

Housing Affordability Rankings

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple
1	1	United States	Detroit, MI	1.6
1	1	United States	South Bend-Mishawaka, IN-MI	1.6
3	3	United States	Fort Wayne, IN	1.7
3	3	United States	Lansing, MI	1.7
3	3	United States	Youngstown, OH	1.7
6	6	United States	Flint, MI	1.8
7	7	United States	Cape Coral-Fort Myers, FL	1.9
7	7	United States	Columbus, GA-AL	1.9
7	7	United States	Grand Rapids, MI	1.9
10	10	United States	Canton-Massillon, OH	2.0
10	10	United States	Erie, PA	2.0
10	10	United States	Evansville, IN-KY	2.0
10	10	United States	Fort Smith, AR-OK	2.0
10	10	United States	Kingsport-Bristol-Bristol, TN-VA	2.0
10	10	United States	Rockford, IL	2.0
10	10	United States	Toledo, OH	2.0
17	17	United States	Akron, OH	2.1
17	17	United States	Atlanta, GA	2.1
17	17	United States	Davenport-Moline-Rock Island, IA-IL	2.1
20	1	Canada	Thunder Bay	2.2
20	1	Canada	Windsor	2.2
20	20	United States	Clarksville, TN-KY	2.2
20	20	United States	Indianapolis, IN	2.2
20	20	United States	Peoria, IL	2.2
25	23	United States	Dayton, OH	2.3
25	23	United States	Fayetteville, NC	2.3
25	23	United States	Huntsville, AL	2.3
25	23	United States	Ogden-Clearfield, UT	2.3
25	23	United States	Rochester, NY	2.3
25	23	United States	Utica-Rome, NY	2.3
31	29	United States	Augusta, GA	2.4
31	29	United States	Cedar Rapids, IA	2.4
31	29	United States	Cincinnati, OH-KY-IN	2.4
31	29	United States	Cleveland, OH	2.4
31	29	United States	Duluth, MN-WI	2.4
31	29	United States	Holland-Grand Haven, MI	2.4
31	29	United States	Huntington-Ashland, WV-KY-OH	2.4
31	29	United States	Kalamazoo-Portage, MI	2.4
31	29	United States	Las Vegas, NV	2.4

SCHEDULE 1

Housing Affordability Rankings

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple
31	29	United States	Melbourne, FL	2.4
31	29	United States	Port St. Lucie-Fort Pierce, FL	2.4
31	29	United States	Wichita, KS	2.4
43	3	Canada	Moncton	2.5
43	41	United States	Anchorage, AK	2.5
43	41	United States	Buffalo, NY	2.5
43	41	United States	Fayetteville, AR-MO	2.5
43	41	United States	Harrisburg, PA	2.5
43	41	United States	Hickory-Lenoir-Morganton, NC	2.5
43	41	United States	Lubbock, TX	2.5
43	41	United States	Omaha, NE-IA	2.5
43	41	United States	Spartanburg, SC	2.5
43	41	United States	Springfield, MO	2.5
43	41	United States	Winston-Salem, NC	2.5
54	51	United States	Beaumont-Port Arthur, TX	2.6
54	51	United States	Columbus, OH	2.6
54	51	United States	Green Bay, WI	2.6
54	51	United States	Kansas City, MO-KS	2.6
54	51	United States	Killeen-Temple-Fort Hood, TX	2.6
54	51	United States	Lafayette, LA	2.6
54	51	United States	Lakeland, FL	2.6
54	51	United States	Phoenix, AZ	2.6
54	51	United States	Pittsburgh, PA	2.6
54	51	United States	Provo-Orem, UT	2.6
54	51	United States	St. Louis, MO-IL	2.6
54	51	United States	Syracuse, NY	2.6
66	63	United States	Ann Arbor, MI	2.7
66	63	United States	Chattanooga, TN-GA	2.7
66	63	United States	Dallas-Fort Worth, TX	2.7
66	63	United States	Daytona Beach, FL	2.7
66	63	United States	Des Moines, IA	2.7
66	63	United States	Jacksonville, FL	2.7
66	63	United States	Lincoln, NE	2.7
66	63	United States	Modesto, CA	2.7
66	63	United States	Montgomery, AL	2.7
66	63	United States	Ocala, FL	2.7
66	63	United States	York, PA	2.7
77	4	Canada	Saguenay	2.8
77	4	Canada	Saint John, NB	2.8
77	74	United States	Charleston, WV	2.8
77	74	United States	Louisville, KY-IN	2.8
77	74	United States	Memphis, TN-AR-MS	2.8
77	74	United States	Minneapolis-St. Paul, MN-WI	2.8

SCHEDULE 1

Housing Affordability Rankings

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple
77	74	United States	Scranton-Wilkes Barre, PA	2.8
77	74	United States	Tulsa OK	2.8
85	80	United States	Bakersfield, CA	2.9
85	80	United States	Houston, TX	2.9
85	80	United States	Lancaster, PA	2.9
85	80	United States	Lexington, KY	2.9
85	80	United States	Little Rock, AR	2.9
85	80	United States	Reading, PA	2.9
85	80	United States	Savannah, GA	2.9
85	80	United States	Stockton, CA	2.9
85	80	United States	Vallejo-Fairfield, CA	2.9
85	80	United States	Visalia-Porterville, CA	2.9
95	90	United States	Boise, ID	3.0
95	90	United States	Columbia, SC	3.0
95	90	United States	Corpus Christi, TX	3.0
95	90	United States	Greensboro, NC	3.0
95	90	United States	Oklahoma City, OK	3.0
95	90	United States	Poughkeepsie, NY	3.0
95	90	United States	Riverside-San Bernardino, CA	3.0
95	90	United States	Roanoke, VA	3.0
95	90	United States	Tampa-St. Petersburg, FL	3.0
104	6	Canada	St. John's, NL	3.1
104	6	Canada	Sudbury	3.1
104	99	United States	Birmingham, AL	3.1
104	99	United States	Jackson, MS	3.1
104	99	United States	Knoxville, TN	3.1
104	99	United States	Mobile, AL	3.1
104	99	United States	Orlando, FL	3.1
104	99	United States	Sacramento, CA	3.1
112	8	Canada	London	3.2
112	1	Ireland	Galway	3.2
112	105	United States	Austin, TX	3.2
112	105	United States	Hagerstown-Martinsburg, MD-WV	3.2
112	105	United States	Nashville, TN	3.2
112	105	United States	Norwich-New London, CT	3.2
112	105	United States	San Antonio, TX	3.2
112	105	United States	Tallahassee, FL	3.2
120	9	Canada	Winnipeg	3.3
120	111	United States	Albany, NY	3.3
120	111	United States	Colorado Springs, CO	3.3
120	111	United States	Gainesville, FL	3.3
120	111	United States	Naples-Marco Island, FL	3.3
120	111	United States	Pensacola, FL	3.3

SCHEDULE 1

Housing Affordability Rankings

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple
120	111	United States	Reno-Sparks, NV	3.3
120	111	United States	Worcester, MA-CT	3.3
128	10	Canada	Barrie	3.4
128	10	Canada	Kitchener	3.4
128	118	United States	Baton Rouge, LA	3.4
128	118	United States	Chicago, IL	3.4
128	118	United States	Fresno, CA	3.4
128	118	United States	Greenville, SC	3.4
128	118	United States	Manchester-Nashua, NH	3.4
128	118	United States	Raleigh, NC	3.4
128	118	United States	Trenton-Ewing, NJ	3.4
137	12	Canada	Regina	3.5
137	125	United States	Brownsville-Harlingen, TX	3.5
137	125	United States	Durham, NC	3.5
137	125	United States	Hartford, CT	3.5
137	125	United States	New Orleans, LA	3.5
137	125	United States	Shreveport-Bossier City, LA	3.5
143	13	Canada	Halifax	3.6
143	13	Canada	Quebec	3.6
143	2	Ireland	Cork	3.6
143	130	United States	Atlantic City, NJ	3.6
143	130	United States	Charlotte, NC-SC	3.6
143	130	United States	El Paso, TX	3.6
143	130	United States	Madison, WI	3.6
143	130	United States	McAllen, TX	3.6
143	130	United States	Salt Lake City, UT	3.6
152	15	Canada	Kingston	3.7
152	3	Ireland	Waterford	3.7
152	136	United States	Charleston, SC	3.7
152	136	United States	Fort Collins-Loveland, CO	3.7
152	136	United States	Milwaukee, WI	3.7
152	136	United States	Philadelphia, PA-NJ-DE-MD	3.7
152	136	United States	Portland, ME	3.7
152	136	United States	Richmond, VA	3.7
152	136	United States	Salem, OR	3.7
152	136	United States	Spokane, WA	3.7
152	136	United States	Tucson, AZ	3.7
163	16	Canada	Ottawa-Gatineau, ON-QC	3.8
163	16	Canada	St. Catharine's-Niagara	3.8
163	145	United States	Asheville, NC	3.8
163	145	United States	Denver, CO	3.8
163	145	United States	Springfield, MA	3.8
163	145	United States	Virginia Beach-Norfolk, VA-NC	3.8

SCHEDULE 1

Housing Affordability Rankings

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple
163	145	United States	Washington, DC-VA-MD-WV	3.8
163	145	United States	Wilmington, NC	3.8
171	18	Canada	Peterborough	3.9
171	151	United States	Albuquerque, NM	3.9
171	151	United States	Allentown, PA-NJ	3.9
171	151	United States	New Haven, CT	3.9
171	151	United States	Salinas, CA	3.9
171	151	United States	Sarasota, FL	3.9
177	156	United States	Baltimore.MD	4.0
178	19	Canada	Edmonton	4.1
178	157	United States	Providence, RI-MA	4.1
180	20	Canada	Hamilton	4.2
180	4	Ireland	Limerick	4.2
180	158	United States	Portland, OR-WA	4.2
183	21	Canada	Saskatoon	4.4
183	1	United Kingdom	Middlesborough & Durham	4.4
183	159	United States	Miami-West Palm Beach, FL	4.4
186	2	United Kingdom	Sheffield & South Yorkshire	4.5
186	160	United States	Eugene-Springfield, OR	4.5
188	22	Canada	Calgary	4.6
188	1	New Zealand	Palmerston North-Manawatu	4.6
188	3	United Kingdom	Dundee	4.6
188	3	United Kingdom	Kingston Upon Hull & Humberside	4.6
188	3	United Kingdom	Manchester & Greater Manchester	4.6
193	5	Ireland	Dublin	4.7
193	6	United Kingdom	Birmingham & West Midlands	4.7
193	6	United Kingdom	Blackpool & Lancashire	4.7
193	161	United States	Bridgeport, CT	4.7
197	8	United Kingdom	Leeds & West Yorkshire	4.8
197	8	United Kingdom	Liverpool & Merseyside	4.8
197	162	United States	Seattle-Tacoma, WA	4.8
200	1	Australia	Ballarat	4.9
200	23	Canada	Montreal	4.9
200	10	United Kingdom	Nottingham & Nottinghamshire	4.9
200	10	United Kingdom	Swansea	4.9
200	163	United States	Boston, MA-NH	4.9
205	2	New Zealand	Hamilton-Waikato	5.0
205	2	New Zealand	Napier-Hastings	5.0
205	12	United Kingdom	Cardiff	5.0
205	12	United Kingdom	Falkirk	5.0
205	12	United Kingdom	Glasgow	5.0
205	164	United States	Boulder, CO	5.0
211	15	United Kingdom	Derby & Derbyshire	5.1

SCHEDULE 1

Housing Affordability Rankings

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple
211	15	United Kingdom	Newcastle & Tyneside	5.1
211	15	United Kingdom	Newport	5.1
211	15	United Kingdom	Perth (Scotland)	5.1
215	24	Canada	Toronto	5.2
216	19	United Kingdom	Edinburgh	5.3
216	19	United Kingdom	Leicester & Leicestershire	5.3
216	19	United Kingdom	Stoke on Trent & Staffordshire	5.3
219	2	Australia	Rockingham	5.4
219	2	Australia	Toowoomba	5.4
221	4	Australia	Bunbury	5.5
221	22	United Kingdom	Belfast	5.5
221	22	United Kingdom	Northamptonshire	5.5
224	4	New Zealand	Dunedin	5.6
224	24	United Kingdom	Warrington & Cheshire	5.6
226	165	United States	Los Angeles-Orange County, CA	5.7
226	165	United States	Santa Rosa-Petaluma, CA	5.7
228	5	Australia	Canberra	5.8
228	5	Australia	Townsville	5.8
228	5	New Zealand	Wellington	5.8
228	167	United States	Oxnard-Ventura, CA	5.8
232	7	Australia	Cairns	5.9
232	7	Australia	Mackay	5.9
232	25	Canada	Kelowna	5.9
232	25	United Kingdom	Aberdeen	5.9
236	9	Australia	Geelong	6.0
236	168	United States	San Diego, CA	6.0
238	10	Australia	Launceston	6.1
238	6	New Zealand	Christchurch	6.1
238	26	United Kingdom	Bristol-Bath	6.1
238	26	United Kingdom	Telford & Shropshire	6.1
238	26	United Kingdom	Warwickshire	6.1
243	29	United Kingdom	Swindon & Wiltshire	6.3
244	30	United Kingdom	Plymouth & Devon	6.4
244	169	United States	San Jose, CA	6.4
244	169	United States	Santa Barbara-Santa Maria, CA	6.4
247	171	United States	San Luis Obispo-Paso Robles, CA	6.5
248	26	Canada	Abbotsford	6.6
249	11	Australia	Brisbane	6.7
249	7	New Zealand	Auckland	6.7
249	31	United Kingdom	London Exurbs	6.7
252	12	Australia	Hobart	6.8
252	8	New Zealand	Taraunga-Western Bay of Plenty	6.8
254	13	Australia	Perth	6.9

SCHEDULE 1

Housing Affordability Rankings

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple
255	14	Australia	Bundaberg	7.0
255	172	United States	New York, NY-NJ,-CT-PA	7.0
255	172	United States	San Francisco, CA	7.0
258	15	Australia	Darwin	7.1
258	16	Australia	Mandurah	7.1
258	32	United Kingdom	London (GLA)	7.1
261	17	Australia	Newcastle	7.2
261	174	United States	Santa Cruz-Watsonville, CA	7.2
263	18	Australia	Adelaide	7.4
264	19	Australia	Wollongong	7.5
265	27	Canada	Victoria	7.9
266	20	Australia	Melbourne	8.0
267	33	United Kingdom	Bournemouth & Dorsett	8.1
268	175	United States	Honolulu, HI	8.2
269	21	Australia	Gold Coast , QLD-NSW	8.6
270	22	Australia	Sunshine Coast	9.0
271	23	Australia	Sydney	9.1
272	28	Canada	Vancouver	9.3

SCHEDULE 2

Housing Affordability by Nation

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
263	18	Australia	Adelaide	7.4	$370,000	$49,800
200	1	Australia	Ballarat	4.9	$224,200	$46,100
249	11	Australia	Brisbane	6.7	$430,000	$63,800
221	4	Australia	Bunbury	5.5	$365,000	$66,800
255	14	Australia	Bundaberg	7.0	$269,000	$38,700
232	7	Australia	Cairns	5.9	$355,000	$60,100
228	5	Australia	Canberra	5.8	$484,000	$83,700
258	15	Australia	Darwin	7.1	$499,000	$70,600
236	9	Australia	Geelong	6.0	$295,000	$48,900
269	21	Australia	Gold Coast , QLD-NSW	8.6	$480,900	$55,600
252	12	Australia	Hobart	6.8	$347,500	$50,900
238	10	Australia	Launceston	6.1	$265,400	$43,700
232	7	Australia	Mackay	5.9	$386,000	$65,000
258	15	Australia	Mandurah	7.1	$380,000	$53,300
266	20	Australia	Melbourne	8.0	$480,000	$60,000
261	17	Australia	Newcastle	7.2	$355,000	$49,000
254	13	Australia	Perth	6.9	$460,000	$67,100
219	2	Australia	Rockingham	5.4	$306,000	$56,300
270	22	Australia	Sunshine Coast	9.0	$460,000	$50,900
271	23	Australia	Sydney	9.1	$569,000	$62,400
219	2	Australia	Toowoomba	5.4	$279,000	$52,000
228	5	Australia	Townsville	5.8	$365,000	$63,000
264	19	Australia	Wollongong	7.5	$390,000	$51,700
			National Median	6.8		
248	26	Canada	Abbotsford	6.6	$382,200	$57,500
128	10	Canada	Barrie	3.4	$236,100	$70,100
188	22	Canada	Calgary	4.6	$353,900	$76,500
178	19	Canada	Edmonton	4.1	$286,700	$70,300
143	13	Canada	Halifax	3.6	$207,400	$57,900
180	20	Canada	Hamilton	4.2	$269,900	$64,300
232	25	Canada	Kelowna	5.9	$314,900	$53,100
152	15	Canada	Kingston	3.7	$220,900	$59,000
128	10	Canada	Kitchener	3.4	$233,000	$67,900
112	8	Canada	London	3.2	$192,700	$59,300
43	3	Canada	Moncton	2.5	$137,800	$55,300
200	23	Canada	Montreal	4.9	$247,000	$50,800
163	16	Canada	Ottawa-Gatineau, ON-QC	3.8	$270,800	$70,700

SCHEDULE 2

Housing Affordability by Nation

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
171	18	Canada	Peterborough	3.9	$217,000	$55,900
143	13	Canada	Quebec	3.6	$188,300	$52,600
137	12	Canada	Regina	3.5	$214,600	$61,800
77	4	Canada	Saguenay	2.8	$135,700	$49,200
77	4	Canada	Saint John, NB	2.8	$149,600	$53,900
183	21	Canada	Saskatoon	4.4	$247,600	$56,800
163	16	Canada	St. Catharine's-Niagara	3.8	$212,400	$56,300
104	6	Canada	St. John's, NL	3.1	$183,300	$58,200
104	6	Canada	Sudbury	3.1	$179,500	$58,400
20	1	Canada	Thunder Bay	2.2	$128,200	$57,000
215	24	Canada	Toronto	5.2	$358,400	$68,600
272	28	Canada	Vancouver	9.3	$540,900	$58,200
264	27	Canada	Victoria	7.9	$444,900	$56,200
20	1	Canada	Windsor	2.2	$136,900	$63,300
120	9	Canada	Winnipeg	3.3	$185,700	$56,300
			National Median	3.7		
143	2	Ireland	Cork	3.6	192,700 €	52,800 €
193	5	Ireland	Dublin	4.7	279,700 €	59,600 €
112	1	Ireland	Galway	3.2	173,000 €	53,700 €
180	4	Ireland	Limerick	4.2	214,400 €	50,500 €
152	3	Ireland	Waterford	3.7	190,100 €	50,900 €
			National Median	3.7		
249	7	New Zealand	Auckland	6.7	$457,500	$68,500
238	6	New Zealand	Christchurch	6.1	$319,200	$52,100
224	4	New Zealand	Dunedin	5.6	$254,500	$45,800
205	2	New Zealand	Hamilton-Waikato	5.0	$292,100	$58,100
205	2	New Zealand	Napier-Hastings	5.0	$263,200	$52,400
188	1	New Zealand	Palmerston North-Manawatu	4.6	$237,200	$51,100
252	8	New Zealand	Taraunga-Western Bay of Plenty	6.8	$353,900	$51,900
228	5	New Zealand	Wellington	5.8	$381,200	$65,900
			National Median	5.7		
232	25	United Kingdom	Aberdeen	5.9	£156,000	£26,400
221	22	United Kingdom	Belfast	5.5	£138,400	£25,300
193	6	United Kingdom	Birmingham & West Midlands	4.7	£130,000	£27,500
193	6	United Kingdom	Blackpool & Lancashire	4.7	£124,400	£26,300
266	33	United Kingdom	Bournemouth & Dorsett	8.1	£205,400	£25,400
238	26	United Kingdom	Bristol-Bath	6.1	£179,600	£29,500
205	12	United Kingdom	Cardiff	5.0	£130,200	£26,000
211	15	United Kingdom	Derby & Derbyshire	5.1	£132,900	£26,100

SCHEDULE 2

Housing Affordability by Nation

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
188	3	United Kingdom	Dundee	4.6	£114,800	£25,000
216	19	United Kingdom	Edinburgh	5.3	£149,200	£27,900
205	12	United Kingdom	Falkirk	5.0	£113,900	£22,900
205	12	United Kingdom	Glasgow	5.0	£122,400	£24,400
188	3	United Kingdom	Kingston Upon Hull & Humberside	4.6	£125,300	£27,000
197	8	United Kingdom	Leeds & West Yorkshire	4.8	£129,000	£26,600
216	19	United Kingdom	Leicester & Leicestershire	5.3	£139,900	£26,300
197	8	United Kingdom	Liverpool & Merseyside	4.8	£129,000	£26,700
258	32	United Kingdom	London (GLA)	7.1	£270,000	£37,800
249	31	United Kingdom	London Exurbs	6.7	£199,100	£29,700
188	3	United Kingdom	Manchester & Greater Manchester	4.6	£125,000	£27,400
183	1	United Kingdom	Middlesborough & Durham	4.4	£113,500	£25,600
211	15	United Kingdom	Newcastle & Tyneside	5.1	£125,000	£24,500
211	15	United Kingdom	Newport	5.1	£134,600	£26,600
221	22	United Kingdom	Northamptonshire	5.5	£145,000	£26,600
200	10	United Kingdom	Nottingham & Nottinghamshire	4.9	£127,200	£26,200
211	15	United Kingdom	Perth (Scotland)	5.1	£140,500	£27,700
244	30	United Kingdom	Plymouth & Devon	6.4	£166,400	£26,000
186	2	United Kingdom	Sheffield & South Yorkshire	4.5	£120,000	£26,600
216	19	United Kingdom	Stoke on Trent & Staffordshire	5.3	£134,100	£25,400
200	10	United Kingdom	Swansea	4.9	£123,400	£25,400
243	29	United Kingdom	Swindon & Wiltshire	6.3	£178,200	£28,400
238	26	United Kingdom	Telford & Shropshire	6.1	£159,200	£25,900
224	24	United Kingdom	Warrington & Cheshire	5.6	£161,700	£29,000
238	26	United Kingdom	Warwickshire	6.1	£177,300	£29,300
			National Median	5.1		
17	17	United States	Akron, OH	2.1	$107,200	$50,000
120	111	United States	Albany, NY	3.3	$195,400	$58,800
171	151	United States	Albuquerque, NM	3.9	$183,500	$47,200
171	151	United States	Allentown, PA-NJ	3.9	$230,500	$58,800
43	41	United States	Anchorage, AK	2.5	$185,000	$75,000
66	63	United States	Ann Arbor, MI	2.7	$157,500	$57,800
163	145	United States	Asheville, NC	3.8	$166,100	$43,200
17	17	United States	Atlanta, GA	2.1	$129,400	$60,700
143	130	United States	Atlantic City, NJ	3.6	$191,900	$52,700
31	29	United States	Augusta, GA	2.4	$109,000	$46,300
112	105	United States	Austin, TX	3.2	$189,100	$59,200
85	80	United States	Bakersfield, CA	2.9	$128,000	$44,700
177	156	United States	Baltimore.MD	4.0	$261,100	$66,100
128	118	United States	Baton Rouge, LA	3.4	$166,900	$48,500
54	51	United States	Beaumont-Port Arthur, TX	2.6	$126,500	$47,800

SCHEDULE 2

Housing Affordability by Nation

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
104	99	United States	Birmingham, AL	3.1	$153,300	$49,300
95	90	United States	Boise, ID	3.0	$154,700	$52,000
200	163	United States	Boston, MA-NH	4.9	$348,000	$71,400
205	164	United States	Boulder, CO	5.0	$330,000	$66,500
193	161	United States	Bridgeport, CT	4.7	$398,200	$84,500
137	125	United States	Brownsville-Harlingen, TX	3.5	$108,600	$30,600
43	41	United States	Buffalo, NY	2.5	$119,700	$47,900
10	10	United States	Canton-Massillon, OH	2.0	$89,300	$44,500
7	7	United States	Cape Coral-Fort Myers, FL	1.9	$98,000	$50,700
31	29	United States	Cedar Rapids, IA	2.4	$130,300	$53,700
77	74	United States	Charleston, WV	2.8	$121,900	$42,900
152	136	United States	Charleston, SC	3.7	$195,100	$52,300
143	130	United States	Charlotte, NC-SC	3.6	$199,600	$55,000
66	63	United States	Chattanooga, TN-GA	2.7	$124,100	$45,300
128	118	United States	Chicago, IL	3.4	$210,100	$61,300
31	29	United States	Cincinnati, OH-KY-IN	2.4	$131,700	$54,100
20	20	United States	Clarksville, TN-KY	2.2	$96,500	$44,200
31	29	United States	Cleveland, OH	2.4	$115,800	$49,200
120	111	United States	Colorado Springs, CO	3.3	$195,100	$58,900
95	90	United States	Columbia, SC	3.0	$144,000	$48,800
7	7	United States	Columbus, GA-AL	1.9	$103,100	$54,400
54	51	United States	Columbus, OH	2.6	$142,600	$54,400
95	90	United States	Corpus Christi, TX	3.0	$137,800	$45,900
66	63	United States	Dallas-Fort Worth, TX	2.7	$150,500	$56,400
17	17	United States	Davenport-Moline-Rock Island, IA-IL	2.1	$102,400	$49,000
25	23	United States	Dayton, OH	2.3	$111,600	$48,200
66	63	United States	Daytona Beach, FL	2.7	$126,700	$46,100
163	145	United States	Denver, CO	3.8	$229,100	$60,300
66	63	United States	Des Moines, IA	2.7	$156,600	$57,900
1	1	United States	Detroit, MI	1.6	$81,600	$52,500
31	29	United States	Duluth, MN-WI	2.4	$108,300	$44,700
137	125	United States	Durham, NC	3.5	$184,300	$52,400
143	130	United States	El Paso, TX	3.6	$132,800	$36,500
10	10	United States	Erie, PA	2.0	$88,100	$44,200
186	160	United States	Eugene-Springfield, OR	4.5	$195,200	$43,300
10	10	United States	Evansville, IN-KY	2.0	$86,900	$43,300
25	23	United States	Fayetteville, NC	2.3	$101,400	$44,100
43	41	United States	Fayetteville, AR-MO	2.5	$108,000	$44,000
6	6	United States	Flint, MI	1.8	$79,200	$44,600
152	136	United States	Fort Collins-Loveland, CO	3.7	$210,000	$56,300
10	10	United States	Fort Smith, AR-OK	2.0	$76,500	$38,700
3	3	United States	Fort Wayne, IN	1.7	$83,400	$48,600

SCHEDULE 2

Housing Affordability by Nation

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
128	118	United States	Fresno, CA	3.4	$148,500	$43,700
120	111	United States	Gainesville, FL	3.3	$141,300	$42,400
7	7	United States	Grand Rapids, MI	1.9	$97,100	$49,900
54	51	United States	Green Bay, WI	2.6	$137,600	$52,300
95	90	United States	Greensboro, NC	3.0	$135,300	$45,200
128	118	United States	Greenville, SC	3.4	$131,700	$39,200
112	105	United States	Hagerstown-Martinsburg, MD-WV	3.2	$159,300	$50,500
43	41	United States	Harrisburg, PA	2.5	$141,400	$57,100
137	125	United States	Hartford, CT	3.5	$237,500	$67,200
43	41	United States	Hickory-Lenoir-Morganton, NC	2.5	$103,800	$41,400
31	29	United States	Holland-Grand Haven, MI	2.4	$130,600	$55,500
267	175	United States	Honolulu, HI	8.2	$585,300	$71,000
85	80	United States	Houston, TX	2.9	$160,600	$56,300
31	29	United States	Huntington-Ashland, WV-KY-OH	2.4	$84,100	$35,500
25	23	United States	Huntsville, AL	2.3	$124,200	$53,400
20	20	United States	Indianapolis, IN	2.2	$120,200	$53,700
104	99	United States	Jackson, MS	3.1	$141,200	$46,100
66	63	United States	Jacksonville, FL	2.7	$145,700	$54,500
31	29	United States	Kalamazoo-Portage, MI	2.4	$108,000	$45,800
54	51	United States	Kansas City, MO-KS	2.6	$146,200	$56,500
54	51	United States	Killeen-Temple-Fort Hood, TX	2.6	$127,200	$49,800
10	10	United States	Kingsport-Bristol-Bristol, TN-VA	2.0	$108,500	$54,900
104	99	United States	Knoxville, TN	3.1	$142,000	$45,400
54	51	United States	Lafayette, LA	2.6	$121,700	$46,300
54	51	United States	Lakeland, FL	2.6	$116,900	$44,400
85	80	United States	Lancaster, PA	2.9	$161,700	$55,900
3	3	United States	Lansing, MI	1.7	$86,600	$49,600
31	29	United States	Las Vegas, NV	2.4	$138,500	$56,700
85	80	United States	Lexington, KY	2.9	$145,000	$50,700
66	63	United States	Lincoln, NE	2.7	$132,000	$49,300
85	80	United States	Little Rock, AR	2.9	$132,500	$45,300
226	165	United States	Los Angeles-Orange County, CA	5.7	$345,600	$60,300
77	74	United States	Louisville, KY-IN	2.8	$135,600	$48,700
43	41	United States	Lubbock, TX	2.5	$110,300	$44,800
143	130	United States	Madison, WI	3.6	$217,900	$60,900
128	118	United States	Manchester-Nashua, NH	3.4	$237,600	$69,200
143	130	United States	McAllen, TX	3.6	$108,700	$30,200
31	29	United States	Melbourne, FL	2.4	$117,300	$49,400
77	74	United States	Memphis, TN-AR-MS	2.8	$129,300	$46,200
183	159	United States	Miami-West Palm Beach, FL	4.4	$217,000	$49,300
152	136	United States	Milwaukee, WI	3.7	$199,500	$54,400
77	74	United States	Minneapolis-St. Paul, MN-WI	2.8	$184,800	$65,900

SCHEDULE 2

Housing Affordability by Nation

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
104	99	United States	Mobile, AL	3.1	$128,300	$41,100
66	63	United States	Modesto, CA	2.7	$136,700	$50,400
66	63	United States	Montgomery, AL	2.7	$127,000	$46,400
120	111	United States	Naples-Marco Island, FL	3.3	$200,000	$61,200
112	105	United States	Nashville, TN	3.2	$163,700	$51,800
171	151	United States	New Haven, CT	3.9	$241,300	$61,600
137	125	United States	New Orleans, LA	3.5	$164,300	$47,600
255	172	United States	New York, NY-NJ,-CT-PA	7.0	$449,700	$64,700
112	105	United States	Norwich-New London, CT	3.2	$217,100	$68,600
66	63	United States	Ocala, FL	2.7	$110,000	$40,200
25	23	United States	Ogden-Clearfield, UT	2.3	$138,300	$59,200
95	90	United States	Oklahoma City, OK	3.0	$144,100	$47,700
43	41	United States	Omaha, NE-IA	2.5	$137,600	$55,000
104	99	United States	Orlando, FL	3.1	$157,900	$50,400
228	167	United States	Oxnard-Ventura, CA	5.8	$447,300	$76,900
120	111	United States	Pensacola, FL	3.3	$151,700	$46,300
20	20	United States	Peoria, IL	2.2	$112,900	$52,500
152	136	United States	Philadelphia, PA-NJ-DE-MD	3.7	$227,500	$60,900
54	51	United States	Phoenix, AZ	2.6	$142,700	$55,900
54	51	United States	Pittsburgh, PA	2.6	$124,600	$47,800
31	29	United States	Port St. Lucie-Fort Pierce, FL	2.4	$111,300	$46,900
152	136	United States	Portland, ME	3.7	$202,800	$54,400
180	158	United States	Portland, OR-WA	4.2	$244,500	$58,800
95	90	United States	Poughkeepsie, NY	3.0	$210,600	$70,800
178	157	United States	Providence, RI-MA	4.1	$229,700	$55,900
54	51	United States	Provo-Orem, UT	2.6	$154,800	$59,500
128	118	United States	Raleigh, NC	3.4	$207,900	$61,900
85	80	United States	Reading, PA	2.9	$156,400	$54,600
120	111	United States	Reno-Sparks, NV	3.3	$192,200	$57,700
152	136	United States	Richmond, VA	3.7	$218,700	$58,700
95	90	United States	Riverside-San Bernardino, CA	3.0	$168,100	$56,500
95	90	United States	Roanoke, VA	3.0	$138,700	$46,400
25	23	United States	Rochester, NY	2.3	$121,500	$52,400
10	10	United States	Rockford, IL	2.0	$101,100	$49,800
104	99	United States	Sacramento, CA	3.1	$186,600	$61,000
152	136	United States	Salem, OR	3.7	$176,700	$48,400
171	151	United States	Salinas, CA	3.9	$231,700	$59,400
143	130	United States	Salt Lake City, UT	3.6	$218,900	$60,000
112	105	United States	San Antonio, TX	3.2	$152,800	$47,800
236	168	United States	San Diego, CA	6.0	$378,100	$63,000
255	172	United States	San Francisco, CA	7.0	$538,100	$76,800
244	169	United States	San Jose, CA	6.4	$566,000	$88,100

SCHEDULE 2

Housing Affordability by Nation

Using Median Multiple (Median House Price/Median Household Income)

2009 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Metropolitan Market	Median Multiple	Median Price	Median Household Income
247	171	United States	San Luis Obispo-Paso Robles, CA	6.5	$392,000	$60,500
260	174	United States	Santa Cruz-Watsonville, CA	7.2	$486,300	$67,500
244	169	United States	Santa Barbara-Santa Maria, CA	6.4	$393,200	$61,500
226	165	United States	Santa Rosa-Petaluma, CA	5.7	$354,800	$62,200
171	151	United States	Sarasota, FL	3.9	$185,200	$47,400
85	80	United States	Savannah, GA	2.9	$137,600	$48,100
77	74	United States	Scranton-Wilkes Barre, PA	2.8	$119,600	$42,000
197	162	United States	Seattle-Tacoma, WA	4.8	$321,500	$66,500
137	125	United States	Shreveport-Bossier City, LA	3.5	$136,700	$39,500
1	1	United States	South Bend-Mishawaka, IN-MI	1.6	$67,900	$43,700
43	41	United States	Spartanburg, SC	2.5	$111,300	$45,200
152	136	United States	Spokane, WA	3.7	$177,600	$48,400
163	145	United States	Springfield, MA	3.8	$195,400	$51,600
43	41	United States	Springfield, MO	2.5	$113,800	$45,300
54	51	United States	St. Louis, MO-IL	2.6	$136,400	$53,200
85	80	United States	Stockton, CA	2.9	$161,300	$54,900
54	51	United States	Syracuse, NY	2.6	$125,200	$49,000
112	105	United States	Tallahassee, FL	3.2	$139,800	$44,100
95	90	United States	Tampa-St. Petersburg, FL	3.0	$137,400	$46,300
10	10	United States	Toledo, OH	2.0	$88,300	$44,500
128	118	United States	Trenton-Ewing, NJ	3.4	$247,600	$73,800
152	136	United States	Tucson, AZ	3.7	$174,000	$46,600
77	74	United States	Tulsa OK	2.8	$132,100	$47,100
25	23	United States	Utica-Rome, NY	2.3	$103,000	$44,400
85	80	United States	Vallejo-Fairfield, CA	2.9	$204,000	$70,600
163	145	United States	Virginia Beach-Norfolk, VA-NC	3.8	$215,000	$57,100
85	80	United States	Visalia-Porterville, CA	2.9	$132,000	$45,100
163	145	United States	Washington, DC-VA-MD-WV	3.8	$324,700	$85,800
31	29	United States	Wichita, KS	2.4	$120,400	$49,800
163	145	United States	Wilmington, NC	3.8	$183,500	$48,100
43	41	United States	Winston-Salem, NC	2.5	$115,600	$46,000
120	111	United States	Worcester, MA-CT	3.3	$224,100	$66,900
66	63	United States	York, PA	2.7	$152,800	$56,900
3	3	United States	Youngstown, OH	1.7	$70,700	$40,500
			National Median	2.9		

METHODS AND SOURCES

Median house price information is generally obtained from leading national industry reporting agencies. 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 base adjusted to a current estimate by the best available indicator of median income growth. Because of data variations and alternative estimation methods and sources, caution should be employed in making definitive time-series comparisons. For example, house price data for some markets is not always available from the same reporting agencies and national statistical may recalibrate income. In other cases more reliable conversion factors may be identified. The most relevant comparisons are between the four overall housing affordability ratings.

The principal sources were as follows:

AMP Banking (Australia)
Australian Bureau of Statistics
Australian Property Monitors
Bank of Ireland
Calgary Real Estate Board
California Association of Realtors
Canada Mortgage and Housing Corporation
Canadian Home Builders Association
Canadian Real Estate Association
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)
Housing Industry Association (Australia)
Ireland Environment, Heritage and Local Government
John Burns Real Estate Consulting
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
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

The median house price estimates for all markets are for the 3rd quarter of 2009 (September quarter), or for the month of September.

Notes on Figures:

Figure 1: All markets with a population of 1,500,000 or more are included. In the United States, more prescriptive land use regulation or plan-driven housing 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 prescriptive land use metropolitan markets are identified based upon their widespread use of land rationing strategies, such as the pervasive urban consolidation or smart growth policies in all major United Kingdom (the national Town and Country Planning Act), Australia, Ireland (the National Spatial Strategy) and New Zealand, markets. 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 prescriptive markets. Montreal is classified as a more prescriptive market because its agricultural preservation zone is now reported as limiting development on the urban fringe. Under each of these more prescriptive 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 more responsive markets. Markets that are not classified as "more prescriptive" are classified as "more responsive" (or "demand-driven").

Figure 2: Estimated from Real Estate Institute of Australia and Australian Bureau of Statistics data.
Figure 3: Estimated from Australian Bureau of Statistics and United States Bureau of the Census data.
Figure 4: Based on data from the Harvard University Joint Center on Housing Studies, the Real Estate Institute of Australia, the Australian Bureau of Statistics *Demographia International Housing Affordability Surveys*.
Figure 5: See footnote at Figure 5 reference in text.
Figure 6: http://www.globalpropertyguide.com/Pacific/Australia/Price-History. Figure used by permission of globalpropertyguide.com.
Figure 7: See assumptions in footnote at *Figure 5* reference in text.
Figure 8: See assumptions in footnote at *Figure 5* reference in text.

Table 8
Metropolitan 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
Ireland	Metropolitan markets over 50,000 population
New Zealand	Markets corresponding to urban areas over 75,000 population
United Kingdom	London, London Exurbs, markets corresponding to urban areas over 150,000 population.
United States	Metropolitan markets (MSAs) over 400,000 population

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), Frontier Centre (Winnipeg), Texas Public Policy Foundation, Independence Institute (Denver), Institut économique de Montréal, National Center for Policy Analysis (Dallas), Georgia Public Policy Foundation, Virginia Institute for Public Policy and Maryland Public Policy Institute. He has lectured widely, including a month long tour to all Australian state and territorial capitals in 2006. Wendell Cox 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. Demographia annually publishes the only list of world urban areas (agglomerations) over 500,000 population, together with land area and population density estimates. The latter has been twice honored by the *National Journal* as one of the nation's top internet transport sites. 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. During that year, he felt there was a need for an international measure of housing affordability and teamed up with Wendell Cox, 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.

Dr. Tony Recsei

Dr. Tony Recsei is an environmental consultant and president of Save Our Suburbs (SOS). As president of SOS, Dr. Recsei has led a campaign to stop the densification of neighborhoods that has been forced upon local authorities and citizens by successive New South Wales governments as a part of their "urban consolidation" ("smart growth") policies. He has written extensively on the subject and has participated in international conferences on urbanization and suburbanization. He initiated a long-running campaign to overhaul practices relating to lobbying and donations to political parties and has organized public rallies against government planning practices. He has led many attempts to discuss these topics with government. Dr. Recsei was born in South Africa, where he was awarded a degree in Chemistry and Zoology by Rhodes University and served on the city council of East London. He was also President of the Chamber of Industries in East London and managed a pharmaceutical company for 20 years before moving to Australia. He was awarded a Masters degree in Waste Management and a PhD. in Civil Engineering at the University of New South Wales. Dr. Recsei has held other positions with civic organizations and is a committee member of the Sydney Mozart Society.

ERRATA NOTICE:
28 January 2010
Darwin, Australia

After release of the *6th Annual Demographia International Housing Affordability Survey* (25 January 2010), the Real Estate Institute of the Northern Territory issued a press release (28 January) revising the September quarter median house price that had been widely reported in the media. The REINT press release stated that "the data sets reported in the June and September 2009 quarter Real Estate Local Market analysis (RELM) had created anomalies that presented the overall median prices for Darwin incorrectly."

According to the REINT press release, the previously reported median house price of ($607,000) should have been $499,000. The *6th Annual Demographia International Housing Affordability Survey* has now been revised to reflect this correction.

The corrected data continues to show Darwin as *severely unaffordable*, though its ranking among the 272 markets has risen from 268 in affordability to 258.

Demographia
(Wendell Cox Consultancy)
P.O. Box 841
Belleville, Illinois 62269 USA
(St. Louis Metropolitan Region)
www.demographia.com
demographia2@earthlink.net
Contact: Wendell Cox
+1.618.632.8507: United States
+33.6.16.63.58.76: France

Performance Urban Planning

Performance Urban Planning
PO Box 13 439
Christchurch, New Zealand
www.performanceurbanplanning.org/
hugh.pavletich@xtra.co.nz
Contact: Hugh Pavletich
+64.3.343.9944