DEMOGRAPHIA

# 4th Annual Demographia International Housing Affordability Survey: 2008

## Ratings for Major Urban Markets

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

(Data for 3rd Quarter 2007)

*Pavletich Properties Limited*

## INTRODUCTION

By Dr. Donald Brash

Once again, the Demographia survey leads inevitably to one clear conclusion: the affordability of housing is overwhelmingly a function of just one thing, the extent to which governments place artificial restrictions on the supply of residential land.

Dr. Donald Brash

This is most strikingly shown by U.S. experience. In a country with considerable population mobility and common interest rates, there are cities such as Pittsburgh, Atlanta and Houston where housing is eminently affordable, with median house prices three times or less the median household income in those cities, and other cities such as New York and Los Angeles where the Median Multiple is from 7 to over 11.

And the one factor which clearly separates all of the urban areas with high Median Multiples from all those with low Median Multiples is the severity of the artificial restraints on the availability of land for residential building.

Australia is perhaps the least densely populated major country in the world, but state governments there have contrived to drive land prices in major urban areas to very high levels, with the result that in that country housing in major state capitals has become severely unaffordable, with Median Multiples of eight in Sydney and seven in Melbourne.

Despite all the evidence, governments continue to pretend that they are powerless to make housing more affordable or, worse still, implement futile interventions which make the situation worse, as the New Zealand government is proposing for this year.

We all owe Wendell Cox and Hugh Pavletich a huge debt of gratitude for making the pathway to affordable housing abundantly clear: remove Metropolitan Urban Limits (urban growth boundaries) and other artificial restraints on the availability of residential land.

Dr. Donald Brash
Governor, Reserve Bank of New Zealand (1988-2002)
Chairman, Centre for Resource Management Studies

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By Wendell Cox and Hugh Pavletich

## EXECUTIVE SUMMARY

The *4th Annual Demographia International Housing Affordability Survey* expands coverage to 227 markets in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States. A principal consideration in this expansion into many smaller markets is the expanding evidence that households are moving from more expensive markets to smaller and less expensive markets. The *Demographia International Housing Affordability Survey* employs the "Median House Price to Median Household Income Multiple," ("Median Multiple") to rate housing affordability (Table ES-1).

Table ES-1
Demographia Housing Affordability Ratings

| 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 |

In recent decades, 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 historic 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.

### Housing Affordability Ratings

The housing affordability crisis is most pervasive in Australia and New Zealand, each with an overall Median Multiple of 6.3. Affordability is only somewhat better in the United Kingdom (5.5) and Ireland (4.7), however is still far worse than historical norms. On the other hand, the national Median Multiple in Canada is 3.1, indicating that housing is less than one-half as expensive relative to incomes as in New Zealand or Australia. The national Median Multiple in the United States is 3.6.

**Least Affordable Markets:** The least affordable markets are generally in California, Hawaii, the US East Coast, Australia, the United Kingdom, New Zealand and Canada's province of British Columbia. The least affordable market is Los Angeles, with a Median Multiple of 11.5, approaching four times the 3.0 "affordability" standard (Table ES-2).

Table ES-2
50 Least Affordable Housing Markets
(All Severely Unaffordable)

| # | Nation | Market | Median Multiple | # | Nation | Market | Median Multiple |
|---|---|---|---|---|---|---|---|
| 1 | United States | Los Angeles, CA | 11.5 | 25 | United States | Riverside-San Bernardino, CA | 7.1 |
| 2 | United States | Salinas, CA | 10.9 | 25 | United States | Santa Barbara, CA | 7.1 |
| 3 | United States | San Francisco, CA | 10.8 | 28 | Australia | Bundaberg | 7.0 |
| 4 | United States | Honolulu, HI | 10.3 | 28 | United States | New York, NY-NJ,-CT-PA | 7.0 |
| 5 | United States | San Diego, CA | 10.0 | 28 | Australia | Wollongong | 7.0 |
| 6 | Australia | Mandurah | 9.5 | 31 | New Zealand | Auckland | 6.9 |
| 7 | United States | San Jose, CA | 9.3 | 31 | United Kingdom | Bristol-Bath | 6.9 |
| 7 | Australia | Sunshine Coast | 9.3 | 33 | Australia | Bunbury | 6.7 |
| 9 | United Kingdom | Bournemouth & Dorset | 8.9 | 34 | New Zealand | Christchurch | 6.6 |
| 10 | United Kingdom | Belfast | 8.8 | 35 | Australia | Adelaide | 6.5 |
| 11 | Australia | Gold Coast | 8.6 | 36 | Australia | Brisbane | 6.4 |
| 11 | Australia | Sydney | 8.6 | 36 | Australia | Cairns | 6.4 |
| 13 | Canada | Kelowna | 8.5 | 36 | United States | Stockton, CA | 6.4 |
| 13 | United States | Santa Rosa, CA | 8.5 | 36 | United States | Vallejo, CA | 6.4 |
| 15 | Canada | Vancouver | 8.4 | 40 | Australia | Geelong | 6.3 |
| 16 | United Kingdom | Exeter & Devon | 8.2 | 40 | New Zealand | Hamilton | 6.3 |
| 16 | United States | Ventura County, CA | 8.2 | 40 | Australia | Hobart | 6.3 |
| 18 | United Kingdom | London (GLA) | 7.7 | 40 | Australia | Newcastle | 6.3 |
| 19 | Australia | Perth | 7.6 | 40 | United Kingdom | Northampton | 6.3 |
| 20 | New Zealand | Tauranga | 7.5 | 45 | Australia | Townsville | 6.2 |
| 21 | United Kingdom | London Exurbs | 7.4 | 46 | United States | Boston, MA-NH | 6.1 |
| 22 | Australia | Melbourne | 7.3 | 46 | United States | Fresno, CA | 6.1 |
| 22 | Canada | Victoria | 7.3 | 46 | Australia | Mackay | 6.1 |
| 24 | Australia | Rockingham | 7.2 | 46 | United Kingdom | Newport | 6.1 |
| 25 | United States | Miami-West Palm Beach, FL | 7.1 | 46 | New Zealand | Wellington | 6.1 |

**Affordable Markets Remain:** At the same time, 59 markets remain "affordable." Thirteen (13) of the "affordable" markets are in Canada and 46 are in the United States. This includes large markets, such as Atlanta, Dallas-Fort Worth, Ottawa, Houston, Austin, Pittsburgh, Kansas City and Indianapolis (Table ES-3).

## The Importance of Home Ownership

Home ownership is an objective of public policy in each of the surveyed nations. Home ownership rates have risen strongly since World War II. This has been made possible by suburbanization, the development of housing on inexpensive urban fringe land. Suburbanization has been a principal driver in the democratization of prosperity that has lifted middle-class living standards to previously unimaginable heights. However, in recent years and in some markets, the historic house price to household income ratio that was so important to rising prosperity has been broken, as housing costs have inflated beyond precedent.

Table ES-3
Affordable Housing Markets

| # | Nation | Market | Median Multiple | # | Nation | Market | Median Multiple |
|---|---|---|---|---|---|---|---|
| 1 | Canada | Thunder Bay | 1.8 | 29 | United States | Kansas City, MO-KS | 2.7 |
| 2 | United States | Youngstown, OH | 1.9 | 29 | United States | Northwest Indiana | 2.7 |
| 3 | United States | Fort Wayne, IN | 2.0 | 29 | United States | Pittsburgh, PA | 2.7 |
| 4 | Canada | Saguenay | 2.1 | 29 | United States | St. Louis, MO-IL | 2.7 |
| 5 | United States | Flint, MI | 2.2 | 29 | United States | Tulsa OK | 2.7 |
| 5 | Canada | Saint John (NB) | 2.2 | 29 | Canada | Winnipeg | 2.7 |
| 5 | Canada | St. John's (NL) | 2.2 | 37 | United States | Atlanta, GA | 2.8 |
| 5 | United States | Toledo, OH | 2.2 | 37 | United States | Columbus, OH | 2.8 |
| 9 | United States | Indianapolis, IN | 2.3 | 37 | United States | Harrisburg, PA | 2.8 |
| 9 | United States | Rochester, NY | 2.3 | 37 | United States | Louisville, KY-IN | 2.8 |
| 9 | United States | Wichita, KS | 2.3 | 37 | Canada | Sudbury | 2.8 |
| 12 | United States | Akron, OH | 2.4 | 37 | United States | Winston-Salem, NC | 2.8 |
| 12 | United States | Buffalo, NY | 2.4 | 43 | United States | Columbia, SC | 2.9 |
| 12 | United States | Detroit, MI | 2.4 | 43 | United States | Fayetteville, AR-MO | 2.9 |
| 12 | United States | Grand Rapids, MI | 2.4 | 43 | United States | Houston, TX | 2.9 |
| 12 | United States | Lansing, MI | 2.4 | 43 | Canada | London | 2.9 |
| 12 | Canada | Regina | 2.4 | 43 | United States | Oklahoma City, OK | 2.9 |
| 12 | Canada | Windsor | 2.4 | 43 | United States | Scranton-Wilkes Barre, PA | 2.9 |
| 19 | United States | Dallas-Fort Worth, TX | 2.5 | 49 | United States | Chattanooga, TN-GA | 3.0 |
| 19 | United States | Dayton, OH | 2.5 | 49 | United States | Little Rock, AR | 3.0 |
| 19 | United States | Huntsville, AL | 2.5 | 49 | United States | Manchester, NH | 3.0 |
| 19 | United States | Omaha, NE-IA | 2.5 | 49 | United States | Memphis, TN-AR-MS | 3.0 |
| 23 | United States | Augusta, GA | 2.6 | 49 | United States | Mobile, AL | 3.0 |
| 23 | United States | Canton, OH | 2.6 | 49 | United States | Nashville, TN | 3.0 |
| 23 | United States | Cleveland, OH | 2.6 | 49 | Canada | Oshawa | 3.0 |
| 23 | Canada | Quebec | 2.6 | 49 | Canada | Ottawa | 3.0 |
| 23 | United States | Syracuse, NY | 2.6 | 49 | United States | Reading, PA | 3.0 |
| 23 | Canada | Trois-Rivieres | 2.6 | 49 | United States | Springfield, MO | 3.0 |
| 29 | United States | Cincinnati, OH-KY-IN | 2.7 | 49 | United States | York, PA | 3.0 |
| 29 | United States | Des Moines, IA | 2.7 | | | | |

These higher costs have serious social implications. In the markets where extraordinary price inflation has occurred, living standards are not likely to be sustainable. Further, many ethnic minority households, with their generally lower incomes are likely to find the dream of home ownership put out of reach.

**Planning Orthodoxy: Denying the Undeniable**

There is a general consensus among economists that the principal cause of the housing affordability loss has been *prescriptive planning*, the strategies of "urban consolidation" or "smart growth" that ration land and impose excessive fees on development. This is denied by many in the urban planning community.

- They claim that higher demand arising out of more liberal mortgage eligibility has driven prices up. If that were true, then prices would have risen in all markets. But they have not. Indeed, in some of the high-income world's fastest growing markets, there has been virtually no house price inflation (such as Atlanta, Houston and Dallas-Fort Worth).

- There is a claim that households no longer are willing to locate on the urban fringe for less expensive housing. Yet, wherever people are permitted to move to less expensive urban fringe housing, they do. It has been claimed that housing affordability is associated with depressed economic markets, yet an analysis of the largest markets shows no association between economic growth and house prices. Some slow growing or declining markets are unaffordable and some fast growing markets are affordable. The reverse is also true.

The arguments of prescriptive planning proponents are undermined by their own research. They claim that prescriptive planning will lower the price of housing relative to markets with more traditional planning (responsive planning). The record from 2000 to 2006 in the United States shows a starkly different pattern. Prescriptive planning markets have seen their prices escalate $160,000 relative to responsive markets. Most tellingly of all, the proponents own research indicates that the loss of housing affordability is a possibility with respect to 7 of their 10 favored strategies. What the proponents admit as possible has, in reality, developed as reality.

**How Planning Destroys Housing Affordability**

It is a law of economics that scarcity drives up prices. It is not surprising, therefore, that house price escalation should be associated with the land scarcity policies of prescriptive planning and inordinate fees on development. Previous *Demographia International Housing Affordability Surveys* have summarized the evidence, especially from the world's most respected economists. In the past year, additional respected voices have been added to the chorus, such as Governor of the Reserve Bank of Australia Glenn Stevens and Chairman of the Board of the Reserve Bank of New Zealand Arthur C. Grimes. Former Governor of the Reserve Bank of New Zealand Donald Brash has called for abolition of some smart growth or urban consolidation strategies, including urban growth boundaries.

**Housing Affordability and Economies**

A US Federal Reserve Board economic study associates slower than anticipated economic growth in metropolitan areas with more restrictive land use policies. This reality is becoming clearer in domestic migration patterns. Between 2000 and 2006, nearly 4,000,000 people left the more expensive markets of the United States, moving generally to less expensive areas. The losing markets had been among the fastest growing in previous decades. Housing affordability is also being associated with out-migration from Sydney to other states in Australia and from England to Scotland.

This migration is not surprising, given the financial incentives that the unprecedented price differentials have produced (what might be called a "relocation bonus"). A household moving from

San Jose can purchase and finance the median priced house for at least $1,500,000 less in Atlanta, Dallas-Fort Worth or Indianapolis --- the equivalent more than 25 years of median income in each of the new markets. A Sydney resident can save nearly $650,000 by moving to Adelaide, the equivalent of 13 years median income in Adelaide. The Frontier Centre for Public Policy and Demographia have posted a housing affordability calculator that summarizes monetary and years of income differences between markets within the United States, Canada and Australia (http://www.demographia.com/calculators.htm).

The central bank of central banks, the Bank for International Settlements expressed serious concerns about economies in its last annual report and specifically referred to the Japan property crisis of the early 1990s as a parallel. The mortgage crisis in the United States illustrates the importance of housing to economies. Central banks in the United States and New Zealand have undertaken differing strategies to deal with house prices. Any such focus results in disproportionate attention to a single sector, which can have distorting effects on the economy. The appropriate units of government for dealing with house prices are the planning authorities, whose policies created the problem in the first place. Smart growth and urban consolidation did not create the mortgage crisis, but in creating the scarcity that drove prices higher in some markets, made it more intense.

**Restoring Housing Affordability**

It is necessary to restore housing affordability to sustain the quality of life. Governments committed to a better future need to focus on (1) Allowing housing to be built on low-cost land on the urban fringe and (2) Removing unreasonable infrastructure charges on home buyers. In this process, governments can be aided by monitoring and publishing performance indicators, especially the Median Multiple.

# 4th Annual Demographia International Housing Affordability Survey

By Wendell Cox and Hugh Pavletich

## INTRODUCTION

This is the fourth 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.[1] This edition is expanded from 159 to 227 markets. This results in coverage of many smaller markets. The greater coverage is particularly appropriate in light of developing evidence that households are moving in increasing numbers from more expensive markets to less expensive markets, many of which are smaller and where cost increasing prescriptive planning policies have had less effect. This and the rise of telecommunications and telecommuting is removing barriers to a more dispersed pattern of urban development. This is especially evident in the United States (below).

The *Demographia International Housing Affordability Survey* is unique in providing standardized comparisons of housing affordability between international housing markets. The *4th Annual Demographia International Housing Affordability Survey* includes estimates from the September quarter of 2007.[2]

Most examinations of housing affordability focus on national data, which can mask significant differences between markets. In contrast, the *Demographia International Housing Affordability Survey* assess the international housing affordability at the regional 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.

The *Demographia International Housing Affordability Survey* uses the "Median Multiple" (median house price divided by median household income) to assess housing affordability. The Median Multiple is widely used for evaluating urban markets, for example being recommended by the World Bank 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. Housing affordability ratings are assigned based upon the Median Multiple (Table 1).

| Table 1<br>Demographia Housing Affordability Ratings | |
|---|---|
| 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 |

In recent decades, 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 (3.0 is considered the "Median Multiple ceiling"). This historic 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.

## HOUSING AFFORDABILITY RATINGS

The *4th Annual Demographia International Housing Affordability Survey* uses existing house sales data to rate housing affordability in the 227 markets. Fifty-nine (59) markets are rated "affordable," 40 markets are rated "moderately unaffordable," 38 markets are rated seriously unaffordable and 90 markets are rated severely unaffordable (Table 2). The ratings for all housing markets are shown, by affordability rating category, in Schedule 1.[4]

**Least Affordable Markets:** The six least affordable markets are all in the United States (Table 3). Again, Los Angeles is the least affordable market in the six surveyed nations, with a Median Multiple of 11.5, which is approaching four times the historical affordability standard of 3.0. Salinas, California, San Francisco, Honolulu and San Diego also have Median Multiples of 10.0 or above.

The most unaffordable market outside the United States is Mandurah, in Western Australia, (6th) which is followed closely San Jose (7th) and by the Sunshine Coast in Queensland (8th). The 9th most unaffordable market is Bournemouth & Dorset in the United Kingdom and the 10th most unaffordable market is Belfast, also in the United Kingdom.

Among the larger markets, Sydney ranks 11th, with a Median Multiple of 8.6, London[5] ranks 18th, with a Median Multiple of 7.7, Perth ranks 19th, with a Median Multiple of 7.6 and the London Exurbs[6] rank 21st, with a Median Multiple of 7.4. Melbourne and New York are among the most unaffordable markets, with Median Multiples of 7.3 and 7.0 respectively.

The 92 severely unaffordable markets include 30 in the United States, 25 in the United Kingdom and 25 in Australia, seven (7) in New Zealand, four (4) in Canada and one (1) in Ireland.

| Table 2<br>Distribution of Markets by Housing Affordability Ratings | | |
|---|---|---|
| Rating | Median Multiple | Number of Markets |
| Affordable | 3.0 or Less | 59 |
| Moderately Unaffordable | 3.1 to 4.0 | 40 |
| Seriously Unaffordable | 4.1 to 5.0 | 36 |
| Severely Unaffordable | 5.1 & Over | 92 |
| TOTAL | | 227 |

Table 3
50 Least Affordable Housing Markets
(All Severely Unaffordable)

| # | Nation | Market | Median Multiple | # | Nation | Market | Median Multiple |
|---|---|---|---|---|---|---|---|
| 1 | United States | Los Angeles, CA | 11.5 | 25 | United States | Riverside-San Bernardino, CA | 7.1 |
| 2 | United States | Salinas, CA | 10.9 | 25 | United States | Santa Barbara, CA | 7.1 |
| 3 | United States | San Francisco, CA | 10.8 | 28 | Australia | Bundaberg | 7.0 |
| 4 | United States | Honolulu, HI | 10.3 | 28 | United States | New York, NY-NJ,-CT-PA | 7.0 |
| 5 | United States | San Diego, CA | 10.0 | 28 | Australia | Wollongong | 7.0 |
| 6 | Australia | Mandurah | 9.5 | 31 | New Zealand | Auckland | 6.9 |
| 7 | United States | San Jose, CA | 9.3 | 31 | United Kingdom | Bristol-Bath | 6.9 |
| 7 | Australia | Sunshine Coast | 9.3 | 33 | Australia | Bunbury | 6.7 |
| 9 | United Kingdom | Bournemouth & Dorset | 8.9 | 34 | New Zealand | Christchurch | 6.6 |
| 10 | United Kingdom | Belfast | 8.8 | 35 | Australia | Adelaide | 6.5 |
| 11 | Australia | Gold Coast | 8.6 | 36 | Australia | Brisbane | 6.4 |
| 11 | Australia | Sydney | 8.6 | 36 | Australia | Cairns | 6.4 |
| 13 | Canada | Kelowna | 8.5 | 36 | United States | Stockton, CA | 6.4 |
| 13 | United States | Santa Rosa, CA | 8.5 | 36 | United States | Vallejo, CA | 6.4 |
| 15 | Canada | Vancouver | 8.4 | 40 | Australia | Geelong | 6.3 |
| 16 | United Kingdom | Exeter & Devon | 8.2 | 40 | New Zealand | Hamilton | 6.3 |
| 16 | United States | Ventura County, CA | 8.2 | 40 | Australia | Hobart | 6.3 |
| 18 | United Kingdom | London (GLA) | 7.7 | 40 | Australia | Newcastle | 6.3 |
| 19 | Australia | Perth | 7.6 | 40 | United Kingdom | Northampton | 6.3 |
| 20 | New Zealand | Tauranga | 7.5 | 45 | Australia | Townsville | 6.2 |
| 21 | United Kingdom | London Exurbs | 7.4 | 46 | United States | Boston, MA-NH | 6.1 |
| 22 | Australia | Melbourne | 7.3 | 46 | United States | Fresno, CA | 6.1 |
| 22 | Canada | Victoria | 7.3 | 46 | Australia | Mackay | 6.1 |
| 24 | Australia | Rockingham | 7.2 | 46 | United Kingdom | Newport | 6.1 |
| 25 | United States | Miami-West Palm Beach, FL | 7.1 | 46 | New Zealand | Wellington | 6.1 |

**Affordable Markets:** All of the 59 affordable markets (having a Median Multiple of 3.0 or below) are in Canada and the United States (Table 4). The most affordable market is Thunder Bay in Canada, with a Median Multiple of 1.8. Fourteen (14) other markets have Median Multiples of 2.5 or less. These include Saguenay, (Quebec) St. John's (Newfoundland), Saint John (New Brunswick), Regina and Windsor. Larger US markets such as Dallas-Fort Worth, Indianapolis, Rochester and Buffalo also have Median Multiples of 2.5 or less. Other large markets are also rated as affordable (a Median Multiple of 3.0 or less), such as Atlanta, Houston, St. Louis, Ottawa and Kansas City.

Table 4
Affordable Housing Markets

| # | Nation | Market | Median Multiple | # | Nation | Market | Median Multiple |
|---|---|---|---|---|---|---|---|
| 1 | Canada | Thunder Bay | 1.8 | 29 | United States | Kansas City, MO-KS | 2.7 |
| 2 | United States | Youngstown, OH | 1.9 | 29 | United States | Northwest Indiana | 2.7 |
| 3 | United States | Fort Wayne, IN | 2.0 | 29 | United States | Pittsburgh, PA | 2.7 |
| 4 | Canada | Saguenay | 2.1 | 29 | United States | St. Louis, MO-IL | 2.7 |
| 5 | United States | Flint, MI | 2.2 | 29 | United States | Tulsa OK | 2.7 |
| 5 | Canada | Saint John (NB) | 2.2 | 29 | Canada | Winnipeg | 2.7 |
| 5 | Canada | St. John's (NL) | 2.2 | 37 | United States | Atlanta, GA | 2.8 |
| 5 | United States | Toledo, OH | 2.2 | 37 | United States | Columbus, OH | 2.8 |
| 9 | United States | Indianapolis, IN | 2.3 | 37 | United States | Harrisburg, PA | 2.8 |
| 9 | United States | Rochester, NY | 2.3 | 37 | United States | Louisville, KY-IN | 2.8 |
| 9 | United States | Wichita, KS | 2.3 | 37 | Canada | Sudbury | 2.8 |
| 12 | United States | Akron, OH | 2.4 | 37 | United States | Winston-Salem, NC | 2.8 |
| 12 | United States | Buffalo, NY | 2.4 | 43 | United States | Columbia, SC | 2.9 |
| 12 | United States | Detroit, MI | 2.4 | 43 | United States | Fayetteville, AR-MO | 2.9 |
| 12 | United States | Grand Rapids, MI | 2.4 | 43 | United States | Houston, TX | 2.9 |
| 12 | United States | Lansing, MI | 2.4 | 43 | Canada | London | 2.9 |
| 12 | Canada | Regina | 2.4 | 43 | United States | Oklahoma City, OK | 2.9 |
| 12 | Canada | Windsor | 2.4 | 43 | United States | Scranton-Wilkes Barre, PA | 2.9 |
| 19 | United States | Dallas-Fort Worth, TX | 2.5 | 49 | United States | Chattanooga, TN-GA | 3.0 |
| 19 | United States | Dayton, OH | 2.5 | 49 | United States | Little Rock, AR | 3.0 |
| 19 | United States | Huntsville, AL | 2.5 | 49 | United States | Manchester, NH | 3.0 |
| 19 | United States | Omaha, NE-IA | 2.5 | 49 | United States | Memphis, TN-AR-MS | 3.0 |
| 23 | United States | Augusta, GA | 2.6 | 49 | United States | Mobile, AL | 3.0 |
| 23 | United States | Canton, OH | 2.6 | 49 | United States | Nashville, TN | 3.0 |
| 23 | United States | Cleveland, OH | 2.6 | 49 | Canada | Oshawa | 3.0 |
| 23 | Canada | Quebec | 2.6 | 49 | Canada | Ottawa | 3.0 |
| 23 | United States | Syracuse, NY | 2.6 | 49 | United States | Reading, PA | 3.0 |
| 23 | Canada | Trois-Rivieres | 2.6 | 49 | United States | Springfield, MO | 3.0 |
| 29 | United States | Cincinnati, OH-KY-IN | 2.7 | 49 | United States | York, PA | 3.0 |
| 29 | United States | Des Moines, IA | 2.7 | | | | |

**Summary by Nation:** Historic housing affordability has been lost in nearly all markets of Australia, Ireland, New Zealand and the United Kingdom, while the housing affordability crisis is considerably less severe in Canada and the United States (Table 5 and Figure 1).

- **Australia:** Australia (with New Zealand) has the most unaffordable housing in the surveyed nations, with an overall Median Multiple of 6.3, more than double the Median Multiple ceiling. There are no "affordable" markets in Australia and there are no "moderately unaffordable" markets. Twenty-five (25) of the 28 markets are rated severely unaffordable. All of the large capital cities (Sydney, Perth, Melbourne, Brisbane and Adelaide) are rated "severely unaffordable." The best ratings are "seriously unaffordable" in three smaller markets, Maitland (New South Wales), Ballarat (Victoria) and Bendigo (Victoria).

- **Canada:** In Canada, there are 13 "affordable" markets and 8 "moderately unaffordable" markets. Three (3) markets are rated "seriously unaffordable" and four markets are rated

"severely unaffordable." All four of the "severely unaffordable" markets are in British Columbia. The least affordable is Kelowna, with a Median Multiple of 8.5. The national Median Multiple is 3.1, slightly above the Median Multiple ceiling of 3.0.

- **Ireland:** Ireland's has no "affordable" markets and has the only "moderately unaffordable" market outside Canada and the United States (Limerick, with a Median Multiple of 3.5). Four markets are rated "seriously unaffordable," including the Dublin Exurbs.[7] Dublin[8] is rated "severely unaffordable," with a Median Multiple of 5.7.

- **New Zealand:** New Zealand (with Australia) has the least affordable housing among all of the surveyed nations. The national Median Multiple is 6.3, more than double the Median Multiple ceiling of 3.0. New Zealand is the only surveyed nation in which *all* of its markets are rated "severely unaffordable." Tauranga is the least affordable, with a Median Multiple of 7.5. Auckland has a Median Multiple of 6.9.

- **United Kingdom:** The United Kingdom has no "affordable" markets and no "moderately unaffordable" markets. Twenty-five (25) of the 28 markets in the United Kingdom are "severely unaffordable" and three markets are "seriously unaffordable." The best ratings are "seriously unaffordable," in Falkirk (Scotland), Dundee and Middlesborough & Durham. The most unaffordable markets are Bournemouth & Dorset (8.9), Belfast (8.8) and Exeter & Devon (8.2). Among the larger markets, London (7.7) and the London Exurbs (7.4) are the least affordable. The national Median Multiple is 5.5, which is approaching double the Median Multiple ceiling of 3.0.

- **United States:** In the United States, there are 46 "affordable" markets and 30 "moderately unaffordable" markets. Twenty-Five (25) markets are "seriously unaffordable" and 28 markets are "severely unaffordable." The United States, as noted above, has the most unaffordable housing among the surveyed nations, but also has some of the most affordable housing. The least affordable housing tends to be concentrated in California, the Northeast and Hawaii. Much of the rest of the nation retains housing affordability consistent with historic norms. The national Median Multiple is 3.6, which is above the Median Multiple ceiling of 3.0.

**Table 5**
**Housing Affordability Market 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 | Median |
|---|---|---|---|---|---|---|
| Australia | 0 | 0 | 3 | 25 | 28 | 6.3 |
| Canada | 13 | 9 | 3 | 4 | 29 | 3.1 |
| Ireland | 0 | 1 | 4 | 1 | 6 | 4.7 |
| New Zealand | 0 | 0 | 0 | 7 | 7 | 6.3 |
| United Kingdom | 0 | 0 | 3 | 25 | 28 | 5.5 |
| United States | 46 | 30 | 23 | 30 | 129 | 3.6 |
| TOTAL | 59 | 40 | 36 | 92 | 227 | 4.5 |

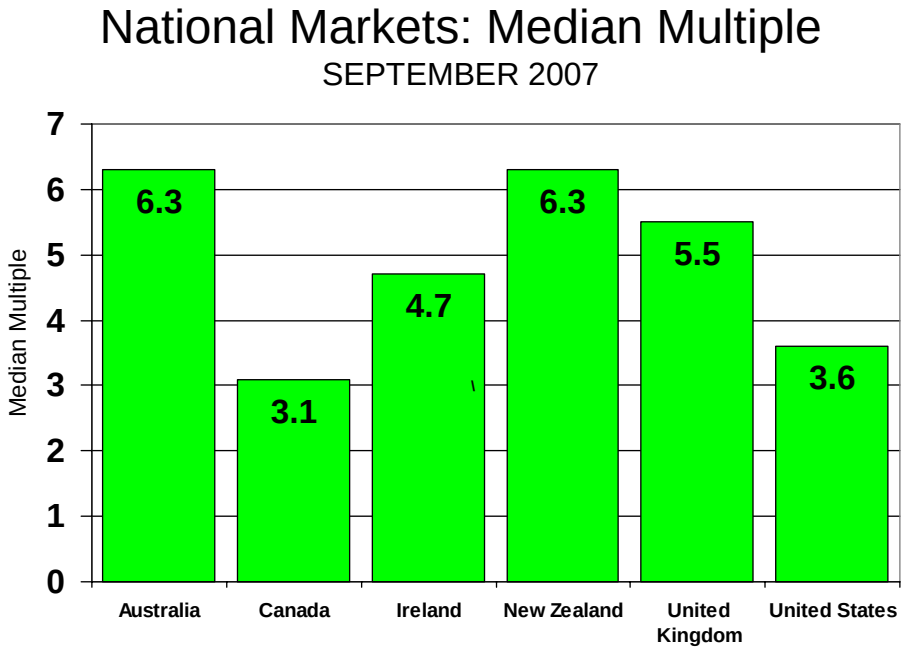


***Figure 1***

## THE IMPORTANCE OF HOME OWNERSHIP

Home ownership is important to national economies both because of its economic and social cohesion advantages. As a result, home ownership is generally favored by public policies in all of the surveyed nations.

**Democratizing Prosperity:** Prosperity has been largely democratized in high-income economies. The overwhelming majority of households in the high-income world live well. Australian demographer Bernard Salt puts the matter squarely, suggesting that before the 1960s, there was no middle class as we know it today.[9] At the same time, the democratized economies produce enough income to provide, by world standards, levels of financial assistance to low-income households that were not previously conceivable (or affordable).

There is a fundamental difference between purchasing a home and paying rent. By purchasing a home, a household gains wealth, greater financial security and independence. Part of the monthly mortgage payment is used to reduce the amount owed and becomes a part of the owner's equity in the home. In contrast, there is no potential equity or wealth creation for the renter in the rented home

Home ownership is a principal mechanism for creating wealth, and is thus a principal mechanism for democratizing prosperity. Since World War II, there has been an unprecedented expansion of home ownership in the surveyed nations and an unprecedented expansion of the middle class. The expansion of home ownership is to a large degree the result of suburbanization (pejoratively called

"urban sprawl"), which consisted of building new housing on inexpensive land on and beyond the fringes of urban areas. This process is described by Barbara Kelly of Hofstra University in describing Levittown, one of the first large suburban developments (Long Island, New York) after World War II:

> *Levittown's reputation had essentially completed the metamorphosis from that of housing development for lower income workers to a middle class suburb in 1967. … as the residents reshaped their built environment, they raised it to a new socio-economic level and then, in turn, derived their own status from that of the community and from their membership in the home owning class.*[10]

Thus, home ownership is important to people and economies. Any development that would reduce home ownership is of concern. Such a concern faces many markets in the six nations covered by the *4th Annual Demographia International Housing Affordability Survey*. Housing affordability has been virtually destroyed in many such markets, as the historic norms that have governed the relationship between house prices and household incomes have been broken.

**Unprecedented House Price Inflation:** The extent of the housing affordability crisis is unprecedented. This is illustrated by Median Multiple data across 105 markets in the United States since 1980, as compiled by the John F. Kennedy School of Government of Harvard University. Between 1980 and 2000, there an average of less than two markets were "severely unaffordable" (Median Multiple over 5.0) each year.[11] The peak was reached between 1989 and 1993, when from three to five markets were "severely unaffordable" out of 105. In no other year between 1980 and 2000 were there more than two "severely unaffordable: markets. The highest Median Multiples reached during this period were 7.6 in Honolulu and 5.8 in San Diego.

Housing affordability has deteriorated markedly. In 2000, there were two "severely unaffordable" markets. By 2006 there were 23 "severely unaffordable markets" (Figure 2).

The unprecedented nature of the housing affordability crisis is also evident in other countries. The national Median Multiple stands well above historical levels in each of the surveyed nations. In Australia (Figure 3),[12] New Zealand and the United Kingdom, more than one-half of the increase above the 3.0 Median Multiple ceiling has occurred since 2000 and in Ireland nearly one-half of the increase above 3.0 has occurred since 2000.

**Many Markets Remain Affordable:** Yet, as the experience in Canada and the United States illustrates, the housing affordability loss is by no means pervasive. Looking beneath national affordability trends reveals a wide range of relationships between house prices and household incomes, even in nations where house prices have escalated in an unprecedented manner. More importantly, in many markets, including the fastest growing markets, housing affordability has been retained.

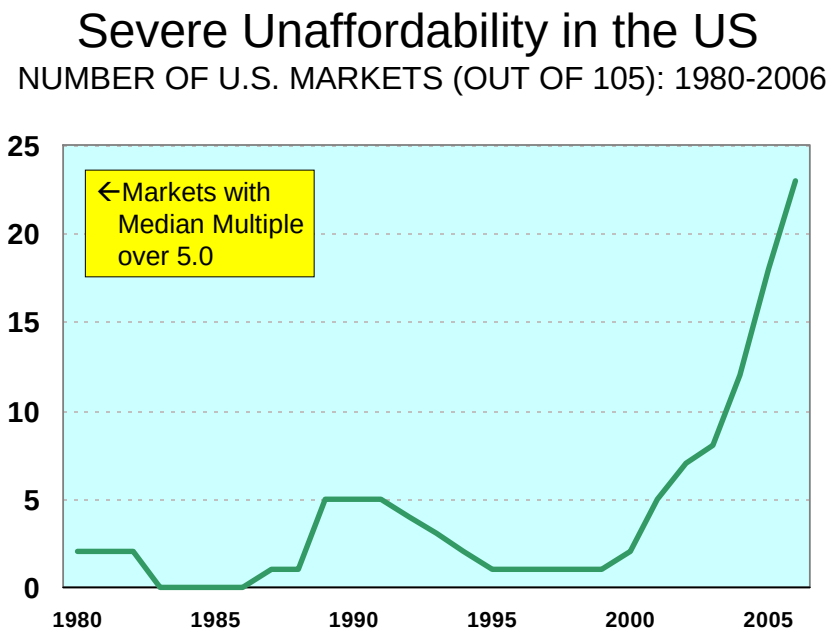


***Figure 2***

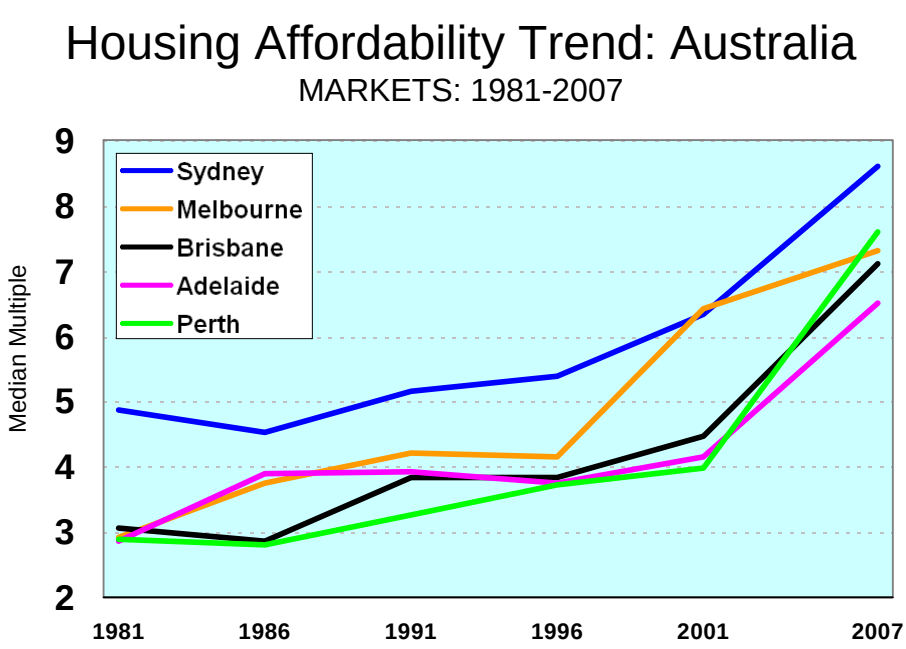


***Figure 3***

**Impact on Household Budgets:** The housing affordability crisis has serious implications for household budgets. The share of median household income required to pay a mortgage on the median priced house increased materially between 2000 and 2007:[13]

- In Los Angeles, 29 percent of the median household income was required to pay the median mortgage in 2000. By 2007, that figure had risen to 82 percent.

- In Vancouver, 41 percent of the median household income was required to pay the median mortgage in 2000. By 2007, 71 percent was required.

- In Perth (Australia), 35 percent of the median household income was required to pay the median mortgage in 2000. By 2007, 70 percent was required.

Each of these amounts is not likely to be affordable to the median income household.[14] As a result, historic middle-income housing affordability will not be sustainable in such markets and the standard of living is likely to decline. Households will not be able to afford as much in housing quality as their parents and as they pay more for less house, they will have less to spend on other consumer goods. This all assumes that the over-valued markets will not experience sufficient house price corrections to restore the historic balance with household incomes.

On the other hand, many other markets remain far more affordable. For example:

- In Ottawa, 18 percent of the median household income was required to pay the median mortgage in 2000. By 2007, this had risen modestly, to 25 percent.

- In Atlanta, 19 percent of the median household income was required to pay the median mortgage in 2000. By 2007, a small rise to 20 percent had occurred.

- In Dallas-Fort Worth, 18.6 percent of the median household income was required to pay the median mortgage in 2000. By 2007, this had dropped to 18.4 percent.

These differing market experiences also emphasize the "two-speed" nature of housing affordability in the surveyed nations (Figure 4). Some markets retain the historic relationships between house prices and household incomes. Other markets have experienced significant increases (or historic over-valuations) in house prices.

**The Social Consequences:** The higher housing prices have potential negative social consequences. Home ownership is becoming increasingly difficult for younger households, many of which could be renters for life or purchase their first homes much later in life. Ethnic minorities, such as Maori in New Zealand and Hispanics and African-Americans in the United States tend to have lower incomes and will be, as a result, disadvantaged to a greater degree by higher house prices. The higher costs of housing will consume a greater portion of budgets, making it more difficult for households to build up savings for retirement. This could place significant burdens on national pension systems and government assistance programs.

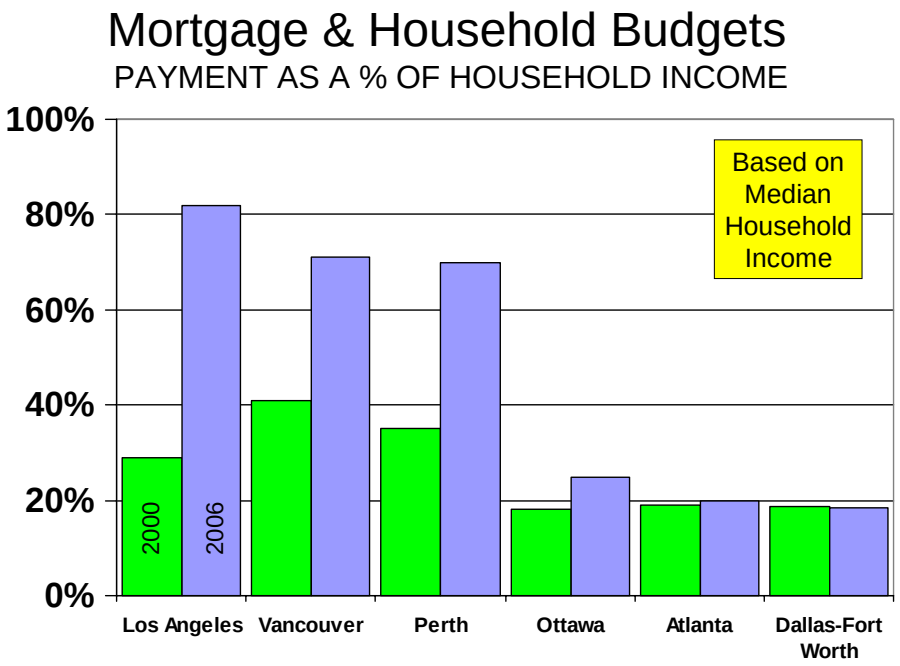


***Figure 4***

The likely reductions in home ownership will mean fewer households with a significant stake in neighborhoods and the economy. Harvard University economist Benjamin Friedman has shown that social cohesion can be threatened where there is not broadly shared economic growth.[15]

## PLANNING ORTHODOXY: DENYING THE UNDENIABLE

Previous *Demographia International Housing Affordability Surveys* have cited economic evidence that much of the difference in housing affordability is attributable to differences in land use planning. Generally, "prescriptive planning" systems (also called "smart growth," "urban consolidation," "growth management, and "compact city policies") have been associated with a severe loss of housing affordability. On the other hand, housing affordability has been retained in more "responsive planning" markets. This relationship has been documented by some of the world's most respected economists and is described in greater detail (below).

Prescriptive planning policies have been justified on the basis of environmental sustainability[16] and the costs of infrastructure.[17] There is considerable controversy about the validity of the prescriptive planning sustainability arguments, which are not evaluated here.[18]

Nonetheless, advocates continue to deny the relationship between prescriptive planning and the housing affordability crisis. The advocates base their denials on various explanations, the most important of which are summarized below.

**Demand Driving Up Prices?** There is a view that house prices have escalated due to the increased demand that has resulted from the more liberal availability of mortgage credit and greater speculative activity. This explanation ignores the important role played by supply. Demand does not increase prices, except where there is a shortage of supply. Supply constrictions are at the very heart of prescriptive planning.

If demand alone were the cause of housing price increases, then prices would have increased strongly in Ottawa, Atlanta, Dallas-Fort Worth, Houston, Indianapolis, Kansas City Austin and the host of other markets that have remained affordable even in the environment of more liberal credit and heightened speculation (Box 1).

**Box 1**
**Demand, Supply and Housing Affordability: A Tale of Four Markets**

The relative roles of planning and demand are illustrated by an examination of trends in four markets, Sydney, Melbourne, Dallas-Fort Worth and Atlanta.

In 1981, the four markets had populations between 2.4 million (Atlanta) and 3.2 million (Sydney and Dallas-Fort Worth). Since 1981, Sydney and Melbourne have grown at approximately 1.2 percent per year. Dallas-Fort Worth and Atlanta have grown at from more than two to nearly three times the rates of Sydney and Melbourne. Dallas-Fort Worth's population growth rate has been 2.7 percent, while Atlanta's has been 3.4 percent.

In 1981, Sydney and Dallas-Fort Worth were approximately the same population. Today, Dallas-Fort Worth is nearly 50 percent larger. In 1981, Melbourne was larger than Atlanta. Today, Atlanta is approximately 50 percent larger than Melbourne and more than a quarter larger than Sydney. Atlanta and Dallas-Fort Worth are the first and third fastest growing metropolitan markets with more than 5,000,000 in the high-income world (Figure 5).[19]

Yet, housing affordability has been retained in faster growing Atlanta and Dallas-Fort Worth. Both Atlanta and Dallas-Fort Worth were rated "affordable" in 2007, with Median Multiples below 3.0 (2.8 and 2.5 respectively). By comparison, Melbourne was affordable in 1981, with a Median Multiple of 2.9. Melbourne had become severely unaffordable by 2007, with a Median Multiple of 7.3. Sydney, which implemented strong prescriptive planning and became unaffordable earlier, had a Median Multiple of 4.9 in 1981. By 2006, Sydney's Median Multiple had risen to 8.6 (Figure 6).

Defying the conventional wisdom in the urban planning community, Atlanta and Dallas-Fort Worth have far lower densities ("sprawl" more) than Sydney and Melbourne, yet have strong and growing economies. Atlanta is the lowest density urban area with more than 5,000,000 population in the world (1,800 per square mile or 700 per square kilometer), while Dallas-Fort Worth is near the US average (2,900 per square mile or 1,100 per square kilometer). Melbourne (4,100 & 1,550) and Sydney (5,300 & 2,050) are more than two to three times Atlanta's density and considerably higher than Dallas-Fort Worth's.[20] Yet, Atlanta and Dallas-Fort Worth have gross domestic products per capita from one-quarter to one-half greater than Sydney and Melbourne according to OECD data.[21]

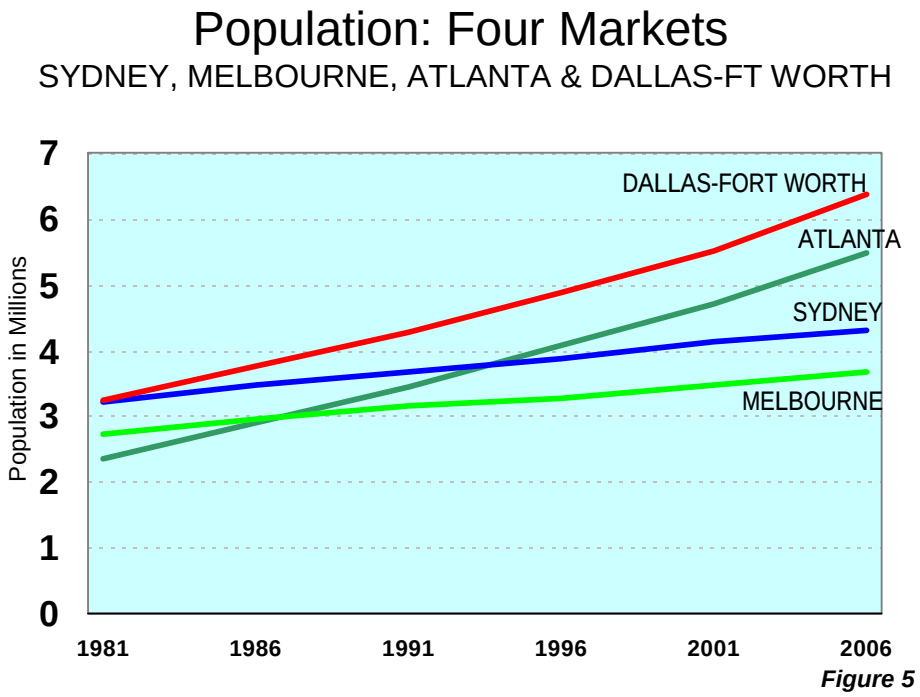


***Figure 5***

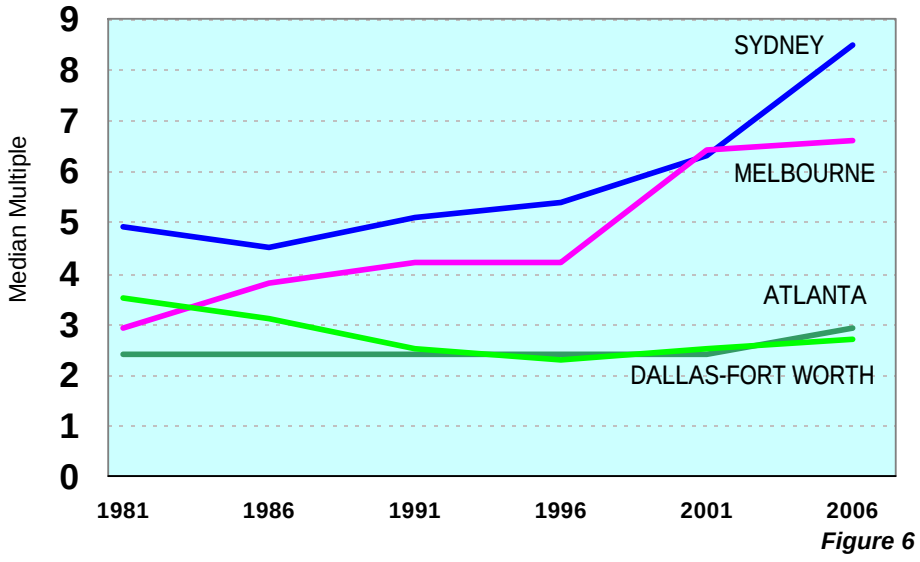


***Figure 6***

Indeed, most of the markets that *have not* experienced inordinate house price escalation are in the United States, where the current mortgage crisis is focused, because credit terms there were

apparently *more liberal* than elsewhere. If demand were the cause, then these markets would have experienced greater, not lesser housing cost inflation (as occurred in markets such as Los Angeles, San Diego and San Francisco). Moreover, speculation is itself a product of the scarcity created by prescriptive planning. In the absence of scarcity, prices do not rise inordinately and there is thus no incentive for speculation. The "demand" theory fails because it is not a "law of demand" that operates in economics; it is a "law of supply and demand."

Planning Professor Shlomo Angel of New York University, a co-author of the United Nations and World Bank housing indicators program, wrote in 1999 of the dynamics that would destroy housing affordability in many markets in the years that followed:

> *Enabling mortgage finance and subsidy policies, for example, can increase the demand for housing, while heavy-handed regulations and infrastructure shortages can constrain supply. The overall result can be a shortage of housing, accompanied by high prices and low affordability for all.*[22]

**Rejecting the Urban Fringe?** A view has been expressed, especially in Australia, that urban areas have expanded so much that households no longer seek to live in new, less expensive houses on the fringe. This more concentrated demand is purported to have substantially increased housing prices within the already developed areas, Reference is made to long travel distances to the central business districts and the need to build expensive public transport rail lines to take people from their homes to the core. This belies a monocentric conception of the urban areas that is at least a half century outdated.[23] In fact, employment follows residential development and urban areas have become much larger in their geographical expanse, while becoming more productive.

In Australia, urban areas have urban footprints far smaller than some more productive urban areas. New York, with the world's largest urban footprint, covers 8 times as much land area as Perth and 6 times as much land area as Sydney,[24] yet work trip travel times are less to jobs in the far suburbs than to the core.[25] Atlanta's urban footprint is approximately triple that of Sydney, its average work trip travel time is virtually the same.

If the "rejection of the suburbs" argument were valid, then the infill and densification objectives of urban consolidation and smart growth would occur as a matter of consumer preference and restrictions on urban fringe development would have no effect. In fact, however, consumers continue overwhelmingly to show their preference for housing on the urban fringe wherever they are free to do so. Indeed, where barriers are erected to suburban expansion, many households simply move farther away from the large city centers. This is illustrated by movements to rural areas in New Zealand (called "lifestyle blocks"[26]) and the migration of households in the United States to smaller metropolitan areas where fringe development prohibitions are rare.

**Housing Affordability Associated with Depressed Markets?** One claim is that many of the affordable metropolitan areas have depressed economies that are not growing, which has kept house prices low. In fact, there is no association between rates of growth and housing affordability (Figure 7).[27]

- Some of the affordable markets have the highest demand, such as Atlanta and Dallas-Fort Worth, which are the two fastest growing metropolitan areas over 5,000,000 population in the high-income world.[28] Oshawa, in Canada, is an additional example of a high demand market that has remained affordable. At the same time, other affordable markets are slow growing or declining in population, such as Pittsburgh and Buffalo.

- At the same time, some severely unaffordable markets have high demand, such as Las Vegas and Riverside-San Bernardino. Other severely unaffordable markets are slow growing or declining in population, such as Manchester and Liverpool.[29] Adelaide is also an example of severe unaffordability and slow growth.

More recent data, however, indicates a growing association between severe unaffordability and lower demand. For example, formerly fast growing and now severely unaffordable Los Angeles and San Diego have seen their growth come to a virtual halt. The formerly fast growing and now severely unaffordable San Francisco-San Jose area has grown at a rate slower than that of Italy since 2000, which is often cited as an international example of slow growth.[30] Finally, growth has nearly stopped in New York and Boston. Sydney, the most unaffordable large market in Australia, has experienced a decline in its growth rate as well.

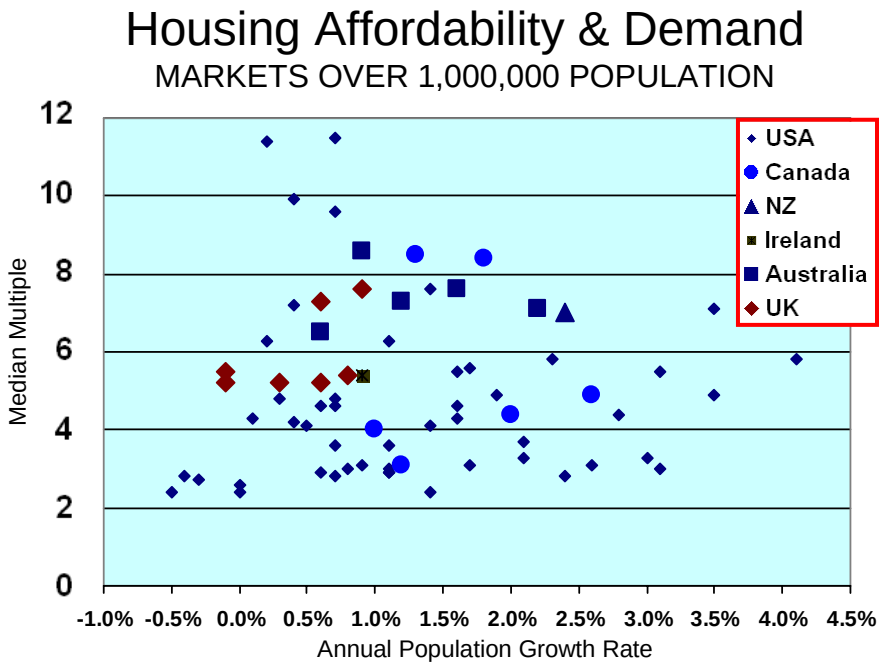


***Figure 7***

**Wildly Inaccurate Forecasts:** Proponents of prescriptive planning have even predicted that their policies will reduce house prices. For example, the *Costs of Sprawl---2000*, which may be the premier prescriptive planning policy advocacy report,[31] predicted that smart growth would reduce average new house costs $11,000 (inflation adjusted) per unit in the United States between 2000 and 2025 relative to areas with responsive planning policies.[32] Yet, this forecast has already been demonstrated

to be grossly inaccurate. Median house prices rose more than $160,000 in prescriptive planning areas relative to prices in markets with responsive planning just between 2000 and 2006 (Figure 8).

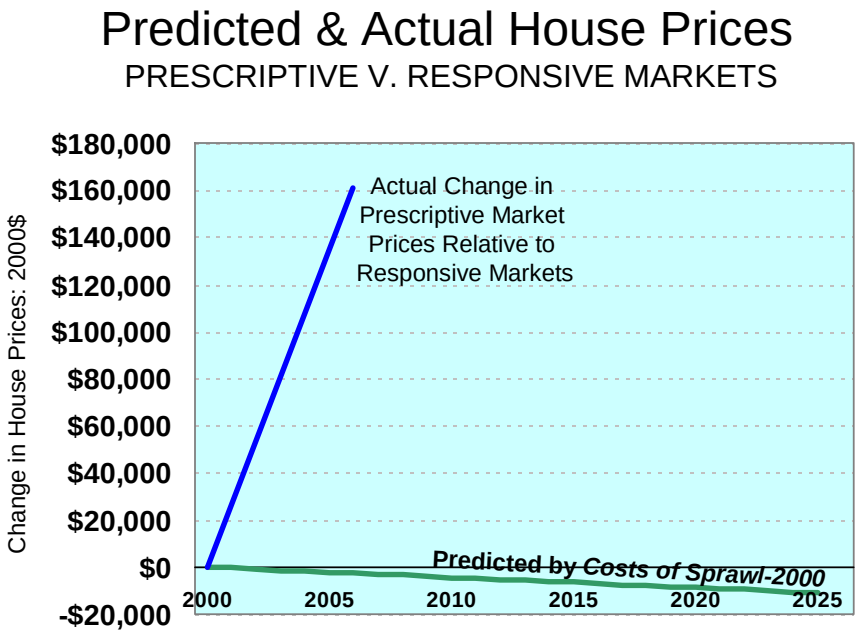


***Figure 8***

**Qualifying the Denials:** Even the advocates of prescriptive planning qualify their denials that their policies lead to house prices increases. The *Costs of Sprawl---2000,* however, indicates the potential for seven of its ten recommended land use tactics to raise housing prices (Table 6).[33] According to a Brookings Institution report supportive of prescriptive planning:

> *The housing price effects of growth management (prescriptive planning) policies depend heavily on how they are designed and implemented. If the policies tend to restrict land supplies, then housing price increases are expected.*[34]

Prescriptive planning has restricted land supplies and the "expected" house price increases have resulted, as the record in the surveyed markets indicates.

## HOW PLANNING DESTROYS HOUSING AFFORDABILITY

Prescriptive planning relies on urban growth boundaries, other development prohibitions, development moratoria and large infrastructure fees levied ultimately on new home buyers. There is also a preference among urban planners for regional planning approaches; however, prescriptive planning is often practiced without regional planning.[35]

| Table 6<br>Prescriptive Planning Policies & Housing Affordability | | |
|---|---|---|
| | Strategy | Potential to Increase Housing Prices |
| 1 | Regional Urban Growth Boundaries | YES |
| 2 | Local Urban Growth Boundaries | YES |
| 3 | Regional Urban Service Districts | YES |
| 4 | Local Urban Service Districts | YES |
| 5 | Large-Lot Zoning in Rural Areas | YES |
| 6 | High Development Fees & Exactions | YES |
| 7 | Restrictions on Physically Developable Land | YES |
| 8 | State Aid Contingent on Local Growth Zones | |
| 9 | Transferable Development Rights | |
| 10 | Adequacy of Facilities Requirements | |
| From Table 15.4, "Costs of Sprawl---2000" | | |
| Potential to Increase Housing Prices from "Costs of Sprawl---2000" | | |

The connection between prescriptive planning and higher housing costs is both simple and fundamental. This is delineated by the Canada Mortgage and Housing Corporation (a federal government corporation).

> *It is a fundamental law of economics that prices rise when supply is scarce. This law is true regardless of whether the scarcity is intrinsic or the result of government policies such as zoning. Zoning rules can artificially constrain the supply of developable land and available lots in various ways. Minimum lots sizes—which are extremely common throughout much of the United States—effectively reduce the number of lots available for residential construction. Growth boundaries and greenbelts can do the same. Furthermore, a variety of other non-zoning building restrictions can have the same ultimate effect as reducing land supply and thus can also increase housing prices.*[36]

**Land Rationing:** Once an urban growth boundary is set, the price of developable property increases, consistent with the economic law cited above. Property inside the urban growth boundary will be worth much more than an adjacent piece of property outside the urban growth boundary. The differences can be stark. For example, Tim Leunig of the London School of Economics has reported that agricultural land reclassified for residential development in the London area can increase in value 500 times.[37] The higher values on the land designated for development translate into higher prices for potential homebuyers.

**Infrastructure Charges:** Infrastructure charges or development impact fees increase the price of housing and are typical of prescriptive planning markets. There is a perception that these are developer or home builder fees. In fact, they are fees on the purchasers of homes, which are included in final purchase prices. Infrastructure charges and development impact fees are used to pay for core infrastructure, such as arterial roadways, schools, parks and utilities. Local infrastructure, such as the local roads, utilities and parks within new developments are typically included in purchase prices and have been for decades.

In the past, core infrastructure was financed through a variety of mechanisms, such as taxes, rates and debt issues. The emerging practice of imposing all of these charges on buyers of new homes has contributed substantially to price increases. Recognizing this difficulty, the Iemma government in New South Wales reduced infrastructure fees in 2007.[38]

Moreover, the justification for infrastructure fees and development impact fees can be questionable, as Patrick Troy of the Australian National University has noted.[39] The excessive fees are often justified on the basis that fringe development is more expensive to serve. This is not the case in the United States, where the costs of public infrastructure are *less* in outer ring suburbs than in central areas.[40]

Further, even the *Costs of Sprawl—2000* analysis shows that the purported higher infrastructure costs its authors associate with suburbanization are miniscule. Their estimate indicates that prescriptive planning in the United States will increase infrastructure costs $80 per household in 2025 compared to 2000. By comparison, just the house price increase difference between prescriptive and responsive planning markets between 2000 to 2006 noted above ($160,000) would translate into an annual mortgage payment increase of more than $12,000 for the median priced house. This is more than 3,000 times the $4.00 per annual increase per household predicted by *Costs of Sprawl---2000*.[41]

In fact, the core infrastructure that was required to support the unprecedented growth that occurred from the 1950s and 1960s was largely financed by the rate base or tax base. This is despite the fact that incomes were considerably lower at that time. Core infrastructure should financed by the community, not imposed on new home buyers. New Zealand opposition leader John Key stated the matter rhetorically:

> *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?*[42]

**Research:** Previous *Demographia International Housing Affordability Surveys* have summarized research and statements showing the association between higher house prices and prescriptive planning that the "law of economics" predicts (Figure 9). These have included some of the world's most respected economists, such as Kate Barker, a member of the Monetary Policy Committee of the Bank of England, Ian MacFarlane, former governor of the Reserve Bank of Australia, Paul Krugman of Princeton University and *The New York Times* and Edward Glaeser of Harvard University and an OECD report.[43]

While the most serious house price inflation relative to incomes has occurred in the last few years, the effect was identified much earlier in markets that were among the earliest to embrace prescriptive planning (such as the United Kingdom, California, Sydney and New Zealand).

> Economist William Fischell of Dartmouth University showed an association between the inordinate housing cost increases that began to occur more than 30 years ago in California and the more restrictive land use policies that were implemented.[44]

In the early 1970s, it was already clear that policies arising from the Town and Country Planning Act of 1947 had driven up housing prices in England.[45]

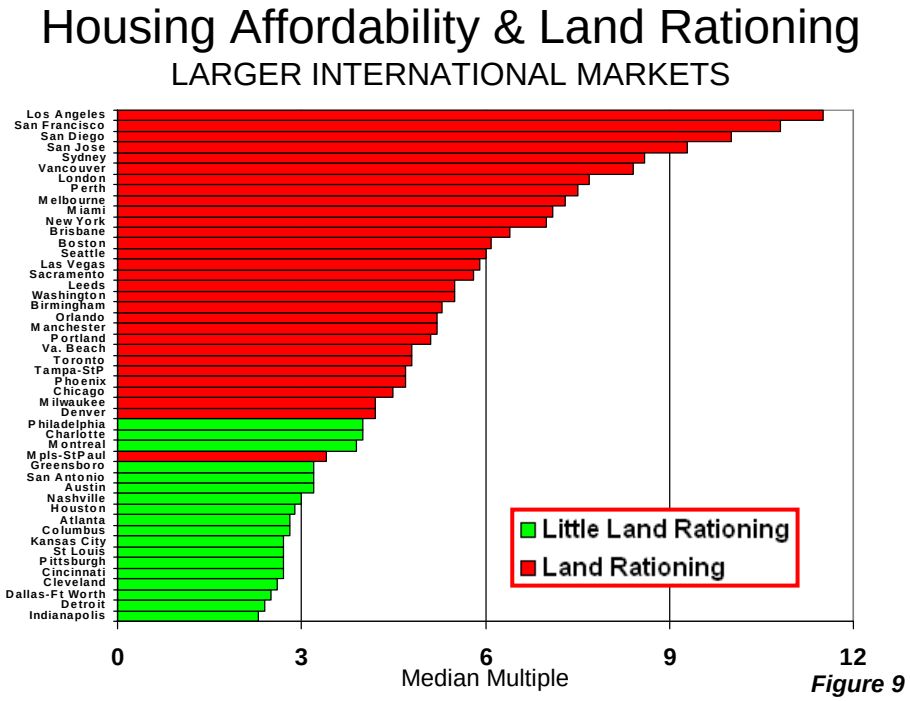


***Figure 9***

During the last year, additional economists have expressed similar conclusions.

- In 2007, Arthur Grimes, Chairman of the Board of the Reserve Bank of New Zealand blamed the loss of housing affordability in the nation's largest urban area, Auckland, on prescriptive land use policies.[46]

- Reserve Bank of Australia Governor Glenn Stevens told a parliamentary committee that "An increase in state government zoning regulations is a significant factor driving up the cost of housing." He also noted the increase in local and state government levies on new developments as a driver of higher housing prices.[47]

- Hoover Institution economist Thomas Sowell blamed prescriptive planning for the higher house prices that have occurred in some markets.[48]

- Respected British economist Roger Bootle of Capital Economics indicated that the principal problem in housing affordability in the United Kingdom is the lack of land available for new building.[49]

Finally, Donald Brash, former Governor of the Reserve Bank of New Zealand has urged that urban growth boundaries and similar restrictions be prohibited due to their negative impacts on households and the economy (as he indicates in the introduction to this *Survey*).[50]

## HOUSING AFFORDABILITY AND ECONOMIES

Prescriptive planning can lead to less robust economic growth. This was the conclusion of research by economist Raven Saks of the Federal Reserve Board, which noted:

> *…metropolitan areas with stringent development regulations generate less employment growth than expected given their industrial bases.*[51]

Lower rates of employment growth are likely to lead to greater unemployment and greater poverty. Again, all of this is likely to lead to diminished home ownership levels, as is already being witnessed in New Zealand. Planning may be on the way to undoing the great democratization of prosperity and could lead to economies with greater gaps between rich and poor (Box 2).

### Box 2
### Prescriptive Planning: A Fatal Strain?

Smart growth or urban consolidation reduces living standards in affluent western nation by rationing land, driving up the price of housing and making it difficult, if not impossible for a middle-class of the present size to be sustainable. But if they have the potential to make the middle class smaller in western nations, smart growth or urban consolidation policies can be a fatal blow to any hope for affluence for millions of households in developing nations. Regrettably, the modern day western missionaries of prescriptive planning seek to spread their ideas to developing countries, where all too many regional plans have been adopted that increase poverty by blocking the path to affluence.

The recently published United Nations Population Report[52] recognizes this difficulty and notes that: *There is no lack of land. The problem is dysfunctional land markets, misguided regulations and a lack of pro-active management policies.* The report goes on to point out that *Lack of good regulation actually increases poverty.*

The United Nations characterizes the situation facing developing world urban areas as follows: *An alleged shortage of land has been a main obstacle to more effective housing policies for the poor. The need to safeguard environmental and agricultural land from chaotic urban expansion is a genuine concern. However, most cities still have buildable land in good locations, but it is owned or controlled by private interests or by state agencies with no interest in socially directed uses of the land. The real shortage is thus not of land, but of serviced land at affordable prices.* The same applies to Los Angeles, Sydney, Vancouver, Auckland and London,

**Housing Affordability and Migration:** The economic losses imposed by prescriptive planning's impact on house prices is already evident in the radically changing migration patterns within the United States. Some of the most competitive markets have become uncompetitive, while others that have been less competitive have become more competitive.

According to United States Bureau of the Census estimates, the most expensive housing markets lost nearly 4,000,000 residents to other parts of the nation between 2000 and 2006. Perhaps most surprisingly, unaffordable and formerly fast growing Los Angeles, San Francisco, San Jose and San Diego are losing domestic migrants at the same or higher rate than the Rust Belt region metropolitan areas of Pittsburgh, Buffalo, Detroit and Cleveland.

Many of the domestic migrants have moved to large metropolitan areas, from the interior of California[53] to the South and even the Middle West. In a substantial change, however, nearly one-half of the movement has been to smaller metropolitan areas, which have generally grown less quickly in the past. This unprecedented and expanding dispersion of the population may be partially attributable to improved telecommunications, which has improved the competitiveness of smaller urban areas relative to larger urban areas.

Similar, but somewhat more moderate migration patterns are evident in Australia, where the housing affordability differences are less. New South Wales, with unaffordable Sydney, continues to lose domestic migrants to other states. This includes not only Queensland, but also Victoria, which had previously grown much more slowly than New South Wales.

It is also reported that Scotland is experiencing net domestic migration from England, at least partially because the housing affordability crisis in Scotland is less severe.[54]

**The Relocation Bonus:** As a result of these unprecedented housing affordability differences, households can earn a substantial bonus by moving from less affordable markets to more affordable markets. This is illustrated by the difference between purchase and financing costs for the median priced house in various markets.[55] For example:

- A household moving from Sydney to Adelaide would save nearly $650,000 in purchase and mortgage costs for the median priced house. This is the equivalent of 10 years median household income in Sydney or 13 years in Adelaide, or one-quarter of a 40-year career pre-tax income. Moving from Sydney to Ballarat, in Victoria, could earn a relocation bonus of $930,000 or 21 years of Ballarat median income.

- A household moving from Vancouver to Winnipeg would save nearly $1,000,000 in purchase and mortgage costs for the median priced house. This is the equivalent of 16 years median household income in Vancouver income levels or 17 years in Winnipeg rates. This is the equivalent of 40 percent or more of a 40-year career pre-tax income.

- A household moving from San Jose to Austin would save more than $1,000,000 in purchase and mortgage costs for the median priced house. This is the equivalent of 17 years median household income in San Jose or 26 years in Austin. Moving to Atlanta, Dallas-Fort Worth, Houston or Indianapolis[56] from San Jose would save more than $1,500,000, which is the equivalent of from 25 to 30 years of median household income in the less costly markets.

Differences of this magnitude have arisen only in this decade and are unprecedented.

The impacts on metropolitan and even national competitiveness could be substantial. This can be illustrated by San Jose, which is otherwise known as the "Silicon Valley," San Jose has been the world's most important information technology center. Yet, San Jose is encountering difficulty recruiting information technology professionals because of high housing costs. As a result, some jobs that might have been created in the San Jose area are now being created in more affordable parts of the nation, or even in places like Bangalore (India).

**International Differences:** While migration between nations is more difficult, there is some cause for concern. For example, New Zealand has the highest cost housing among the surveyed nations in relation to incomes. New Zealand also has the highest interest rates, which are the result of central bank interest rate hikes that have failed to cool housing inflation. As a result, it takes nearly 19 years of median household income to buy and pay for the median priced house in New Zealand. This is 0.7 years more than in Australia. There is relative freedom in moving between Australia and New Zealand and this differential could be contributing to the current out-migration of New Zealanders to Australia. On the other hand, in responsive markets such as Atlanta, Dallas-Fort Worth and Indianapolis, the median income household can buy and pay for the median priced house with less than seven years of income --- 12 or more years less than in New Zealand (Figure 10).[57]

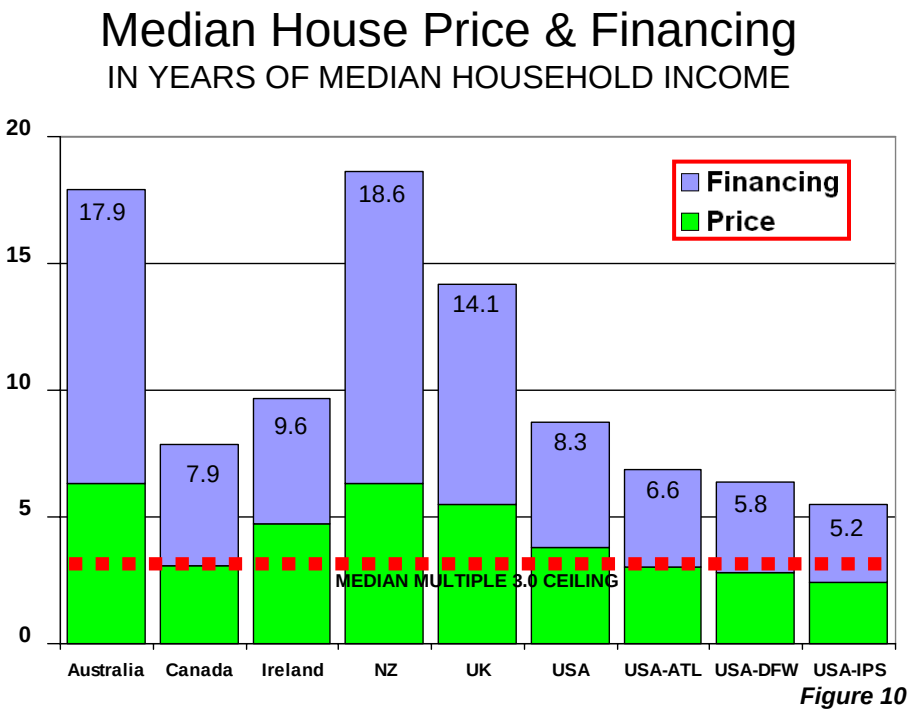


***Figure 10***

**Housing Affordability Calculators:** Accompanying the *4th Annual Demographia Housing Affordability Survey* are housing affordability calculators, which show the financial gain or loss from moving between markets within Australia, Canada and the United States and financial implications in years of median household income. The housing affordability calculators are co-sponsored by the Frontier

Centre for Public Policy and area at the following internet address: http://www.demographia.com/calculators.htm.[58]

**Inflated Markets and the Mortgage Crisis:** There is rising concern about the overvaluation of housing and its potential impact on economies. The world's "central bank of central banks," the Bank for International Settlements in Basel, Switzerland went beyond its typical measured words in expressing caution at housing market inflation that has occurred in recent years. Demonstrating the potential seriousness of the present situation, the Bank cited the Japan property crisis of the early 1990s as a parallel.[59]

The ongoing mortgage crisis in the United States has been associated with house cost declines in some markets (Box 3). Thus far, the price decreases are far smaller than would be required to restore the historic balance between housing costs and household incomes. While the mortgage crisis in and of itself is not a result of prescriptive planning policies, the inability of smart growth and urban consolidation markets to supply sufficient housing explains the substantial difference in price inflation that occurred between some markets (such as Los Angeles, New York and other prescriptive markets) and others, where there was little price inflation at all (such as Dallas-Fort Worth, Atlanta and other responsive markets).

**Box 3**
**A Mortgage Crisis, Not a "Sub-Prime" Crisis**

The mortgage crisis in the United States is often referred to as the "sub-prime" crisis. However, there is much more involved in the financial distress than sub-prime loans. The unprecedented liberal loaning practices at the root of the crisis extend far beyond sub-prime borrowers, even to prime borrowers. One report indicates that in California, prime borrowers could finance $1,000,000 homes on $90,000 incomes, which is 11 times an income. This is nearly four times the historic norm.[60] In a responsive market, such as Atlanta or Dallas-Fort Worth, a $90,000 income borrower could have qualified under conventional lending practices for a $270,000 house (at a Median Multiple ceiling of 3.0). Mortgage lenders could not have loaned $1,000,000 for a $270,000 house. This illustrates the nature of the market distortion created by prescriptive planning.

The mortgage crisis precipitated the recent discount rate reductions by the Federal Reserve Board of the United States. Overvalued housing markets create market volatility, as is indicated by the situations faced by central banks (reserve banks). The Reserve Bank of New Zealand has taken the opposite course of its US counterpart, seeking to moderate escalating house prices by a series of interest rate increases. Considerable political pressure has been placed on the Reserve Bank of Australia to maintain lower interest rates (which it has resisted) out of fears that increases could further place further stress on households who are already burdened by mortgages on their severely over valued homes.

Central banks have broader responsibilities than trying to control house prices. Much of the emerging mortgage crisis can be charged to the intense overvaluing of housing in some markets that has been the result of scarcity producing smart growth or urban consolidation. Without such policies, house price inflation would have been no more than modest, because responsive planning systems would have allowed sufficient housing to be built at prices consistent with historic norms.

## RESTORING HOUSING AFFORDABILITY

The prescriptive planning policies of smart growth and urban consolidation have virtually destroyed housing affordability in many markets. As a result, it is unlikely that the quality of life will be sustainable for many middle income households in the future. At the same time, a deteriorating standard of living is unnecessary. Markets with responsive planning continue to exhibit housing affordability consistent with the relationship to household incomes (Median Multiple) and consistent with the laws of economics.

> *If … supply-side policies are enabling, then housing supply may be able to expand quickly to meet demand, with the result that higher demand will result in more housing at affordable prices.*[61]

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

**Genuine Strategies Required:** Genuine, rather than token strategies are required. Too often, proposed solutions are insufficient to the task. For example, "inclusionary zoning," under which builders are required to provide a quota of low-cost units can, at best, assist only a miniscule share of the households that require relief. Another token strategy, first home-buyer grants, are typically so small that they negate little of the lost affordability. There is good reason for this. No economy can afford to subsidize the huge housing affordability losses that prescriptive planning policies have created. The most significant problem with token solutions is that they convey the impression that something is being done, diverting attention away from the housing affordability crisis and "crowd out" the strategies that are necessary for material progress.

**The Necessary Focus:** Governments seeking to create the conditions that sustain and improve the standard of living will need to place housing affordability high on the policy agenda, through the use of policies that genuinely address the problem. The required policies may be local, regional, state, provincial or national, depending upon local laws and traditions. At any level of government, however, the following strategies are essential to restore housing affordability and maintain the quality of life for future generations:

1. **Allowing housing to be built on low-cost urban fringe land.** Governments should allow housing to be built on inexpensive urban fringe land. Some urban markets have a "housing affordability crisis" due to policies that drive up the price of fringe land or prohibit building on the fringe. Governments need to ensure that their regulations and fees do not increase the price of land and that houses can be built on urban fringe land.

2. **Appropriately financing infrastructure:** Infrastructure should be financed with user fees, equity and debt, for reasons of both social equity and economic efficiency. Infrastructure costs should not be shifted to new home buyers, who often are the young and have lower incomes.

**Performance Indicators:** A comprehensive performance indicator monitoring and reporting program can be important to governments seeking to improve housing affordability.[62] The Median Multiple should be the principal indicator. Supplemental indicators can also be used, such as measures of growth, home building rates, fringe property differentials and Median Multiples for first home buyers[63] and ethnic minorities.[64] It would also be useful for public and private research institutes and universities to devote additional research to the structural aspects of housing markets and housing affordability.

SCHEDULE 1

# Housing Affordability Ratings

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

## 2007 - 3rd Quarter

| Rank | | | | |
|---|---|---|---|---|
| International | National | Nation | Market | Median Multiple |
| **AFFORDABLE** | | | | |
| 1 | 1 | Canada | Thunder Bay | 1.8 |
| 2 | 1 | United States | Youngstown, OH | 1.9 |
| 3 | 2 | United States | Fort Wayne, IN | 2.0 |
| 4 | 2 | Canada | Saguenay | 2.1 |
| 5 | 3 | United States | Flint, MI | 2.2 |
| 5 | 3 | Canada | Saint John (NB) | 2.2 |
| 5 | 3 | Canada | St. John's (NL) | 2.2 |
| 5 | 4 | United States | Toledo, OH | 2.2 |
| 9 | 5 | United States | Indianapolis, IN | 2.3 |
| 9 | 7 | United States | Rochester, NY | 2.3 |
| 9 | 6 | United States | Wichita, KS | 2.3 |
| 12 | 11 | United States | Akron, OH | 2.4 |
| 12 | 9 | United States | Buffalo, NY | 2.4 |
| 12 | 12 | United States | Detroit, MI | 2.4 |
| 12 | 8 | United States | Grand Rapids, MI | 2.4 |
| 12 | 10 | United States | Lansing, MI | 2.4 |
| 12 | 5 | Canada | Regina | 2.4 |
| 12 | 5 | Canada | Windsor | 2.4 |
| 19 | 16 | United States | Dallas-Fort Worth, TX | 2.5 |
| 19 | 13 | United States | Dayton, OH | 2.5 |
| 19 | 14 | United States | Huntsville, AL | 2.5 |
| 19 | 15 | United States | Omaha, NE-IA | 2.5 |
| 23 | 19 | United States | Augusta, GA | 2.6 |
| 23 | 18 | United States | Canton, OH | 2.6 |
| 23 | 20 | United States | Cleveland, OH | 2.6 |
| 23 | 7 | Canada | Quebec | 2.6 |
| 23 | 17 | United States | Syracuse, NY | 2.6 |
| 23 | 7 | Canada | Trois-Rivieres | 2.6 |
| 29 | 25 | United States | Cincinnati, OH-KY-IN | 2.7 |
| 29 | 22 | United States | Des Moines, IA | 2.7 |
| 29 | 24 | United States | Kansas City, MO-KS | 2.7 |
| 29 | 26 | United States | Northwest Indiana | 2.7 |
| 29 | 27 | United States | Pittsburgh, PA | 2.7 |
| 29 | 23 | United States | St. Louis, MO-IL | 2.7 |
| 29 | 21 | United States | Tulsa OK | 2.7 |
| 29 | 9 | Canada | Winnipeg | 2.7 |
| 37 | 31 | United States | Atlanta, GA | 2.8 |
| 37 | 30 | United States | Columbus, OH | 2.8 |

| | | | | |
|---|---|---|---|---|
| 37 | 28 | United States | Harrisburg, PA | 2.8 |
| 37 | 32 | United States | Louisville, KY-IN | 2.8 |
| 37 | 10 | Canada | Sudbury | 2.8 |
| 37 | 29 | United States | Winston-Salem, NC | 2.8 |
| 43 | 37 | United States | Columbia, SC | 2.9 |
| 43 | 35 | United States | Fayetteville, AR-MO | 2.9 |
| 43 | 33 | United States | Houston, TX | 2.9 |
| 43 | 11 | Canada | London | 2.9 |
| 43 | 34 | United States | Oklahoma City, OK | 2.9 |
| 43 | 36 | United States | Scranton-Wilkes Barre, PA | 2.9 |
| 49 | 39 | United States | Chattanooga, TN-GA | 3.0 |
| 49 | 40 | United States | Little Rock, AR | 3.0 |
| 49 | 42 | United States | Manchester, NH | 3.0 |
| 49 | 38 | United States | Memphis, TN-AR-MS | 3.0 |
| 49 | 46 | United States | Mobile, AL | 3.0 |
| 49 | 45 | United States | Nashville, TN | 3.0 |
| 49 | 12 | Canada | Oshawa | 3.0 |
| 49 | 12 | Canada | Ottawa | 3.0 |
| 49 | 42 | United States | Reading, PA | 3.0 |
| 49 | 42 | United States | Springfield, MO | 3.0 |
| 49 | 41 | United States | York, PA | 3.0 |

**MODERATELY UNAFFORDABLE**

| | | | | |
|---|---|---|---|---|
| 60 | 14 | Canada | Barrie | 3.1 |
| 60 | 14 | Canada | Halifax | 3.1 |
| 60 | 47 | United States | Lexington, KY | 3.1 |
| 63 | 48 | United States | Austin, TX | 3.2 |
| 63 | 49 | United States | Greensboro, NC | 3.2 |
| 63 | 16 | Canada | Kingston | 3.2 |
| 63 | 16 | Canada | Kitchener-Waterloo | 3.2 |
| 63 | 50 | United States | San Antonio, TX | 3.2 |
| 68 | 54 | United States | Birmingham, AL | 3.3 |
| 68 | 51 | United States | Jackson, MS | 3.3 |
| 68 | 53 | United States | Lancaster, PA | 3.3 |
| 68 | 52 | United States | McAllen, TX | 3.3 |
| 68 | 18 | Canada | Sherbrooke | 3.3 |
| 73 | 55 | United States | Greenville, SC | 3.4 |
| 73 | 57 | United States | Lafayette, LA | 3.4 |
| 73 | 58 | United States | Minneapolis-St. Paul, MN-WI | 3.4 |
| 73 | 56 | United States | Ogden-Clearfield, UT | 3.4 |
| 77 | 1 | Ireland | Limerick | 3.5 |
| 77 | 19 | Canada | Saskatoon | 3.5 |
| 79 | 62 | United States | Corpus Christi, TX | 3.6 |
| 79 | 65 | United States | El Paso, TX | 3.6 |
| 79 | 20 | Canada | Hamilton | 3.6 |
| 79 | 64 | United States | Jacksonville, FL | 3.6 |
| 79 | 60 | United States | Knoxville, TN | 3.6 |
| 79 | 59 | United States | Lakeland, FL | 3.6 |
| 79 | 61 | United States | New Orleans, LA | 3.6 |
| 79 | 62 | United States | Spokane, WA | 3.6 |

| | | | | |
|---|---|---|---|---|
| 79 | 20 | Canada | St. Catherines-Niagara | 3.6 |
| 88 | 66 | United States | Baton Rouge, LA | 3.7 |
| 88 | 68 | United States | Durham, NC | 3.7 |
| 88 | 67 | United States | Melbourne, FL | 3.7 |
| 91 | 69 | United States | Pensacola, FL | 3.8 |
| 92 | 70 | United States | Albany, NY | 3.9 |
| 92 | 72 | United States | Madison, WI | 3.9 |
| 92 | 22 | Canada | Montreal | 3.9 |
| 92 | 71 | United States | Poughkeepsie, NY | 3.9 |
| 92 | 73 | United States | Raleigh, NC | 3.9 |
| 97 | 75 | United States | Charlotte, NC-SC | 4.0 |
| 97 | 74 | United States | Colorado Springs, CO | 4.0 |
| 97 | 76 | United States | Philadelphia, PA-NJ-DE-MD | 4.0 |

**SERIOUSLY UNAFFORDABLE**

| | | | | |
|---|---|---|---|---|
| 100 | 79 | United States | Boise, ID | 4.1 |
| 100 | 77 | United States | Hartford, CT | 4.1 |
| 100 | 78 | United States | Richmond, VA | 4.1 |
| 100 | 2 | Ireland | Waterford | 4.1 |
| 104 | 82 | United States | Denver, CO | 4.2 |
| 104 | 80 | United States | Milwaukee, WI | 4.2 |
| 104 | 81 | United States | Springfield, MA | 4.2 |
| 107 | 23 | Canada | Edmonton | 4.3 |
| 107 | 83 | United States | Portland, ME | 4.3 |
| 109 | 85 | United States | Albuquerque, NM | 4.4 |
| 109 | 86 | United States | Daytona Beach, FL | 4.4 |
| 109 | 1 | United Kingdom | Dundee | 4.4 |
| 109 | 1 | United Kingdom | Falkirk | 4.4 |
| 109 | 84 | United States | Provo-Orem, UT | 4.4 |
| 114 | 88 | United States | Asheville, NC | 4.5 |
| 114 | 89 | United States | Chicago, IL | 4.5 |
| 114 | 87 | United States | Salt Lake City, UT | 4.5 |
| 117 | 91 | United States | Baltimore. MD | 4.6 |
| 117 | 3 | Ireland | Galway | 4.6 |
| 117 | 90 | United States | Port St. Lucie, FL | 4.6 |
| 120 | 4 | Ireland | Cork | 4.7 |
| 120 | 95 | United States | Fort Myers, FL | 4.7 |
| 120 | 93 | United States | New Haven, CT | 4.7 |
| 120 | 94 | United States | Phoenix, AZ | 4.7 |
| 120 | 96 | United States | Tampa-St. Petersburg, FL | 4.7 |
| 120 | 92 | United States | Worcester, MA-CT | 4.7 |
| 126 | 24 | Canada | Calgary | 4.8 |
| 126 | 98 | United States | Charleston, SC | 4.8 |
| 126 | 1 | Australia | Maitland | 4.8 |
| 126 | 24 | Canada | Toronto | 4.8 |
| 126 | 97 | United States | Virginia Beach, VA-NC | 4.8 |
| 131 | 99 | United States | Allentown, PA-NJ | 5.0 |
| 131 | 2 | Australia | Ballarat | 5.0 |
| 131 | 2 | Australia | Bendigo | 5.0 |
| 131 | 5 | Ireland | Dublin Exurbs | 5.0 |

| | | | | |
|---|---|---|---|---|
| 131 | 3 | United Kingdom | Middlesborough & Durham | 5.0 |

**SEVERELY UNAFFORDABLE**

| | | | | |
|---|---|---|---|---|
| 136 | 100 | United States | Bakersfield, CA | 5.1 |
| 136 | 4 | United Kingdom | Peth | 5.1 |
| 136 | 101 | United States | Portland, OR-WA | 5.1 |
| 139 | 102 | United States | Orlando, FL | 5.2 |
| 139 | 5 | United Kingdom | Hull & Humber | 5.2 |
| 139 | 5 | United Kingdom | Liverpool | 5.2 |
| 139 | 5 | United Kingdom | Manchester (Greater) | 5.2 |
| 139 | 5 | United Kingdom | Sheffield & South Yorkshire | 5.2 |
| 139 | 5 | United Kingdom | Swansea | 5.2 |
| 139 | 4 | Australia | Toowoomba | 5.2 |
| 146 | 10 | United Kingdom | Birmingham & West Midlands | 5.3 |
| 146 | 10 | United Kingdom | Blackpool & Lancashire | 5.3 |
| 146 | 5 | Australia | Canberra | 5.3 |
| 146 | 1 | New Zealand | Dunedin | 5.3 |
| 146 | 10 | United Kingdom | Newcastle | 5.3 |
| 151 | 6 | Ireland | Dublin City/County | 5.4 |
| 151 | 13 | United Kingdom | Glasgow | 5.4 |
| 151 | 13 | United Kingdom | Nottingham | 5.4 |
| 154 | 6 | Australia | Albury-Wodonga | 5.5 |
| 154 | 15 | United Kingdom | Leeds-Bradford | 5.5 |
| 154 | 6 | Australia | Wagga Wagga | 5.5 |
| 154 | 103 | United States | Tucson, AZ | 5.5 |
| 154 | 104 | United States | Washington, DC-VA-MD-WV | 5.5 |
| 159 | 16 | United Kingdom | Edinburgh | 5.6 |
| 159 | 105 | United States | Providence, RI-MA | 5.6 |
| 161 | 17 | United Kingdom | Aberdeen | 5.7 |
| 161 | 17 | United Kingdom | Cardiff | 5.7 |
| 161 | 8 | Australia | Launceston | 5.7 |
| 161 | 2 | New Zealand | Napier-Hastings | 5.7 |
| 161 | 106 | United States | Reno-Sparks, NV | 5.7 |
| 161 | 107 | United States | Sarasota, FL | 5.7 |
| 167 | 108 | United States | Sacramento, CA | 5.8 |
| 167 | 109 | United States | Modesto, CA | 5.8 |
| 167 | 26 | Canada | Abbotsford | 5.8 |
| 167 | 110 | United States | Visalia, CA | 5.8 |
| 171 | 9 | Australia | Darwin | 5.9 |
| 171 | 9 | Australia | Rockhampton | 5.9 |
| 171 | 111 | United States | Las Vegas, NV | 5.9 |
| 174 | 112 | United States | Seattle-Tacoma, WA | 6.0 |
| 174 | 19 | United Kingdom | Leicester | 6.0 |
| 174 | 19 | United Kingdom | Stoke on Trent | 6.0 |
| 174 | 113 | United States | Bridgeport, CT | 6.0 |
| 178 | 114 | United States | Fresno, CA | 6.1 |
| 178 | 115 | United States | Boston, MA-NH | 6.1 |
| 178 | 11 | Australia | Mackay | 6.1 |
| 178 | 21 | United Kingdom | Newport | 6.1 |
| 178 | 3 | New Zealand | Wellington | 6.1 |

| | | | | |
|---|---|---|---|---|
| 183 | 12 | Australia | Townsville | 6.2 |
| 184 | 13 | Australia | Geelong | 6.3 |
| 184 | 4 | New Zealand | Hamilton | 6.3 |
| 184 | 13 | Australia | Hobart | 6.3 |
| 184 | 13 | Australia | Newcastle | 6.3 |
| 184 | 22 | United Kingdom | Northampton | 6.3 |
| 189 | 116 | United States | Stockton, CA | 6.4 |
| 189 | 16 | Australia | Brisbane | 6.4 |
| 189 | 16 | Australia | Cairns | 6.4 |
| 189 | 117 | United States | Vallejo, CA | 6.4 |
| 193 | 18 | Australia | Adelaide | 6.5 |
| 194 | 5 | New Zealand | Christchurch | 6.6 |
| 195 | 19 | Australia | Bunbury | 6.7 |
| 196 | 6 | New Zealand | Auckland | 6.9 |
| 196 | 23 | United Kingdom | Bristol-Bath | 6.9 |
| 198 | 118 | United States | New York, NY-NJ,-CT-PA | 7.0 |
| 198 | 20 | Australia | Bundaberg | 7.0 |
| 198 | 20 | Australia | Wollongong | 7.0 |
| 201 | 119 | United States | Miami-West Palm Beach, FL | 7.1 |
| 201 | 120 | United States | Santa Barbara, CA | 7.1 |
| 201 | 121 | United States | Riverside-San Bernardino, CA | 7.1 |
| 204 | 22 | Australia | Rockingham | 7.2 |
| 205 | 23 | Australia | Melbourne | 7.3 |
| 205 | 27 | Canada | Victoria | 7.3 |
| 207 | 24 | United Kingdom | London Exurbs | 7.4 |
| 208 | 7 | New Zealand | Tauranga | 7.5 |
| 209 | 24 | Australia | Perth | 7.6 |
| 210 | 25 | United Kingdom | London (GLA) | 7.7 |
| 211 | 26 | United Kingdom | Exeter & Devon | 8.2 |
| 211 | 122 | United States | Ventura County, CA | 8.2 |
| 213 | 28 | Canada | Vancouver | 8.4 |
| 214 | 29 | Canada | Kelowna | 8.5 |
| 214 | 123 | United States | Santa Rosa, CA | 8.5 |
| 216 | 25 | Australia | Gold Coast | 8.6 |
| 216 | 25 | Australia | Sydney | 8.6 |
| 218 | 27 | United Kingdom | Belfast | 8.8 |
| 219 | 28 | United Kingdom | Bournemouth & Dorset | 8.9 |
| 220 | 27 | Australia | Sunshine Coast | 9.3 |
| 220 | 124 | United States | San Jose, CA | 9.3 |
| 222 | 28 | Australia | Mandurah | 9.5 |
| 223 | 125 | United States | San Diego, CA | 10.0 |
| 224 | 126 | United States | Honolulu, HI | 10.3 |
| 225 | 127 | United States | San Francisco, CA | 10.8 |
| 226 | 128 | United States | Salinas, CA | 10.9 |
| 227 | 129 | United States | Los Angeles, CA | 11.5 |

**SCHEDULE 2**

# Housing Affordability by Nation

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

## 2007 - 3rd Quarter

| Rank Inter-national | Rank National | Nation | Market | Median Multiple | Median House Price | Median Household Income |
|---|---|---|---|---|---|---|
| **AUSTRALIA** | | | | | | |
| 192 | 18 | Australia | Adelaide | 6.5 | $320,000 | $49,000 |
| 154 | 6 | Australia | Albury-Wodonga | 5.5 | $275,900 | $50,200 |
| 131 | 2 | Australia | Ballarat | 5.0 | $227,000 | $45,500 |
| 131 | 2 | Australia | Bendigo | 5.0 | $222,800 | $45,000 |
| 188 | 16 | Australia | Brisbane | 6.4 | $383,500 | $60,100 |
| 194 | 19 | Australia | Bunbury | 6.7 | $399,200 | $59,800 |
| 197 | 20 | Australia | Bundaberg | 7.0 | $258,300 | $36,700 |
| 188 | 16 | Australia | Cairns | 6.4 | $365,000 | $56,600 |
| 146 | 5 | Australia | Canberra | 5.3 | $425,000 | $80,200 |
| 171 | 9 | Australia | Darwin | 5.9 | $400,000 | $68,300 |
| 184 | 13 | Australia | Geelong | 6.3 | $302,500 | $48,200 |
| 216 | 25 | Australia | Gold Coast | 8.6 | $452,300 | $52,700 |
| 184 | 13 | Australia | Hobart | 6.3 | $317,000 | $50,600 |
| 161 | 8 | Australia | Launceston | 5.7 | $249,000 | $43,500 |
| 178 | 11 | Australia | Mackay | 6.1 | $375,000 | $61,600 |
| 126 | 1 | Australia | Maitland | 4.8 | $260,000 | $54,500 |
| 222 | 28 | Australia | Mandurah | 9.5 | $455,100 | $47,700 |
| 205 | 23 | Australia | Melbourne | 7.3 | $431,000 | $59,100 |
| 184 | 13 | Australia | Newcastle | 6.3 | $310,000 | $49,200 |
| 208 | 24 | Australia | Perth | 7.6 | $455,000 | $60,000 |
| 171 | 9 | Australia | Rockhampton | 5.9 | $298,000 | $50,600 |
| 204 | 22 | Australia | Rockingham | 7.2 | $380,600 | $52,900 |
| 220 | 27 | Australia | Sunshine Coast | 9.3 | $443,900 | $47,900 |
| 216 | 25 | Australia | Sydney | 8.6 | $538,400 | $62,700 |
| 139 | 4 | Australia | Toowoomba | 5.2 | $255,000 | $49,000 |
| 182 | 12 | Australia | Townsville | 6.2 | $370,000 | $59,300 |
| 154 | 6 | Australia | Wagga Wagga | 5.5 | $280,000 | $50,900 |
| 197 | 20 | Australia | Wollongong | 7.0 | $361,000 | $51,900 |
| | | | *Median: 28 Markets* | *6.3* | | |
| **CANADA** | | | | | | |
| 166 | 26 | Canada | Abbotsford | 5.8 | $360,900 | $62,100 |
| 60 | 14 | Canada | Barrie | 3.1 | $225,000 | $71,700 |
| 126 | 24 | Canada | Calgary | 4.8 | $366,800 | $77,000 |
| 107 | 23 | Canada | Edmonton | 4.3 | $300,100 | $70,400 |
| 60 | 14 | Canada | Halifax | 3.1 | $188,200 | $60,000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 79 | 20 | Canada | Hamilton | 3.6 | $231,000 | $63,300 |
| 214 | 29 | Canada | Kelowna | 8.5 | $446,300 | $52,200 |
| 63 | 16 | Canada | Kingston | 3.2 | $193,800 | $60,400 |
| 63 | 16 | Canada | Kitchener-Waterloo | 3.2 | $219,900 | $68,200 |
| 43 | 11 | Canada | London | 2.9 | $173,900 | $59,100 |
| 92 | 22 | Canada | Montreal | 3.9 | $198,100 | $51,200 |
| 49 | 12 | Canada | Oshawa | 3.0 | $231,200 | $78,300 |
| 49 | 12 | Canada | Ottawa | 3.0 | $215,400 | $71,700 |
| 23 | 7 | Canada | Quebec | 2.6 | $144,700 | $54,800 |
| 12 | 5 | Canada | Regina | 2.4 | $154,300 | $63,200 |
| 4 | 2 | Canada | Saguenay | 2.1 | $106,700 | $51,800 |
| 5 | 3 | Canada | Saint John (NB) | 2.2 | $117,200 | $53,200 |
| 77 | 19 | Canada | Saskatoon | 3.5 | $212,900 | $60,900 |
| 68 | 18 | Canada | Sherbrooke | 3.3 | $152,000 | $45,900 |
| 79 | 20 | Canada | St. Catherines-Niagara | 3.6 | $193,300 | $54,100 |
| 5 | 3 | Canada | St. John's (NL) | 2.2 | $132,000 | $59,800 |
| 37 | 10 | Canada | Sudbury | 2.8 | $160,200 | $57,200 |
| 1 | 1 | Canada | Thunder Bay | 1.8 | $107,800 | $58,500 |
| 126 | 24 | Canada | Toronto | 4.8 | $318,500 | $66,300 |
| 23 | 7 | Canada | Trois-Rivieres | 2.6 | $102,900 | $40,100 |
| 213 | 28 | Canada | Vancouver | 8.4 | $503,400 | $59,900 |
| 205 | 27 | Canada | Victoria | 7.3 | $427,200 | $58,600 |
| 12 | 5 | Canada | Windsor | 2.4 | $145,900 | $61,600 |
| 29 | 9 | Canada | Winnipeg | 2.7 | $148,500 | $55,600 |
| | | | *Median: 29 Markets* | *3.1* | | |
| IRELAND | | | | | | |
| 120 | 4 | Ireland | Cork | 4.7 | €271,000 | €57,900 |
| 150 | 6 | Ireland | Dublin City/County | 5.4 | €349,800 | €64,800 |
| 131 | 5 | Ireland | Dublin Exurbs | 5.0 | €278,700 | €55,200 |
| 117 | 3 | Ireland | Galway | 4.6 | €262,000 | €56,600 |
| 77 | 1 | Ireland | Limerick | 3.5 | €211,900 | €59,700 |
| 100 | 2 | Ireland | Waterford | 4.1 | €225,800 | €55,200 |
| | | | *Median: 6 Markets* | *4.7* | | |
| NEW ZEALAND | | | | | | |
| 197 | 6 | New Zealand | Auckland | 6.9 | $445,500 | $65,000 |
| 195 | 5 | New Zealand | Christchurch | 6.6 | $328,000 | $49,400 |
| 150 | 1 | New Zealand | Dunedin | 5.3 | $234,000 | $44,000 |
| 192 | 4 | New Zealand | Hamilton | 6.3 | $356,800 | $56,400 |
| 166 | 2 | New Zealand | Napier-Hastings | 5.7 | $282,300 | $49,700 |
| 209 | 7 | New Zealand | Tauranga | 7.5 | $367,400 | $48,800 |
| 182 | 3 | New Zealand | Wellington | 6.1 | $373,700 | $61,200 |
| | | | *Median: 7 Markets* | *6.3* | | |
| UNITED KINGDOM | | | | | | |
| 161 | 17 | United Kingdom | Aberdeen | 5.7 | £149,400 | £26,200 |
| 218 | 27 | United Kingdom | Belfast | 8.8 | £209,400 | £23,800 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 146 | 10 | United Kingdom | Birmingham & West Midlands | 5.3 | £133,000 | £25,100 |
| 146 | 10 | United Kingdom | Blackpool & Lancashire | 5.3 | £125,200 | £23,600 |
| 219 | 28 | United Kingdom | Bournemouth & Dorset | 8.9 | £212,800 | £23,800 |
| 196 | 23 | United Kingdom | Bristol-Bath | 6.9 | £187,100 | £27,300 |
| 161 | 17 | United Kingdom | Cardiff | 5.7 | £136,200 | £24,100 |
| 109 | 1 | United Kingdom | Dundee | 4.4 | £109,700 | £24,900 |
| 159 | 16 | United Kingdom | Edinburgh | 5.6 | £144,500 | £26,000 |
| 211 | 26 | United Kingdom | Exeter & Devon | 8.2 | £187,500 | £22,900 |
| 109 | 1 | United Kingdom | Falkirk | 4.4 | £100,200 | £22,800 |
| 150 | 13 | United Kingdom | Glasgow | 5.4 | £130,100 | £24,200 |
| 139 | 5 | United Kingdom | Hull & Humber | 5.2 | £129,600 | £25,000 |
| 154 | 15 | United Kingdom | Leeds-Bradford | 5.5 | £135,000 | £24,700 |
| 174 | 19 | United Kingdom | Leicester | 6.0 | £149,000 | £24,700 |
| 139 | 5 | United Kingdom | Liverpool | 5.2 | £130,000 | £24,800 |
| 207 | 24 | United Kingdom | London Exurbs | 7.4 | £202,300 | £27,300 |
| 209 | 25 | United Kingdom | London (GLA) | 7.7 | £258,000 | £33,500 |
| 139 | 5 | United Kingdom | Manchester (Greater) | 5.2 | £132,000 | £25,200 |
| 131 | 3 | United Kingdom | Middlesborough & Durham | 5.0 | £114,800 | £22,900 |
| 146 | 10 | United Kingdom | Newcastle | 5.3 | £125,000 | £23,500 |
| 178 | 21 | United Kingdom | Newport | 6.1 | £150,400 | £24,700 |
| 184 | 22 | United Kingdom | Northampton | 6.3 | £152,500 | £24,100 |
| 150 | 13 | United Kingdom | Nottingham | 5.4 | £128,500 | £24,000 |
| 136 | 4 | United Kingdom | Peth | 5.1 | £140,800 | £27,500 |
| 139 | 5 | United Kingdom | Sheffield & South Yorkshire | 5.2 | £123,000 | £23,700 |
| 174 | 19 | United Kingdom | Stoke on Trent | 6.0 | £137,200 | £23,000 |
| 139 | 5 | United Kingdom | Swansea | 5.2 | £123,100 | £23,600 |
| | | | *Median: 28 Markets* | *5.5* | | |
| UNITED STATES | | | | | | |
| 12 | 11 | United States | Akron, OH | 2.4 | $124,700 | $51,200 |
| 92 | 70 | United States | Albany, NY | 3.9 | $204,500 | $53,100 |
| 109 | 85 | United States | Albuquerque, NM | 4.4 | $204,800 | $46,500 |
| 131 | 99 | United States | Allentown, PA-NJ | 5.0 | $272,900 | $54,100 |
| 114 | 88 | United States | Asheville, NC | 4.5 | $186,000 | $41,400 |
| 37 | 31 | United States | Atlanta, GA | 2.8 | $175,300 | $61,800 |
| 23 | 19 | United States | Augusta, GA | 2.6 | $119,400 | $45,700 |
| 63 | 48 | United States | Austin, TX | 3.2 | $188,200 | $58,600 |
| 136 | 100 | United States | Bakersfield, CA | 5.1 | $225,000 | $44,500 |
| 117 | 91 | United States | Baltimore. MD | 4.6 | $291,400 | $63,100 |
| 88 | 66 | United States | Baton Rouge, LA | 3.7 | $176,700 | $48,400 |
| 68 | 54 | United States | Birmingham, AL | 3.3 | $165,900 | $50,100 |
| 100 | 79 | United States | Boise, ID | 4.1 | $209,000 | $50,500 |
| 178 | 115 | United States | Boston, MA-NH | 6.1 | $414,700 | $68,200 |
| 174 | 113 | United States | Bridgeport, CT | 6.0 | $491,100 | $81,200 |
| 12 | 9 | United States | Buffalo, NY | 2.4 | $110,900 | $46,800 |
| 23 | 18 | United States | Canton, OH | 2.6 | $113,100 | $43,900 |
| 126 | 98 | United States | Charleston, SC | 4.8 | $212,300 | $43,800 |
| 97 | 75 | United States | Charlotte, NC-SC | 4.0 | $220,100 | $55,000 |
| 49 | 39 | United States | Chattanooga, TN-GA | 3.0 | $133,200 | $44,800 |
| 114 | 89 | United States | Chicago, IL | 4.5 | $286,400 | $63,200 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29 | 25 | United States | Cincinnati, OH-KY-IN | 2.7 | $145,300 | $53,900 |
| 23 | 20 | United States | Cleveland, OH | 2.6 | $132,700 | $50,300 |
| 97 | 74 | United States | Colorado Springs, CO | 4.0 | $222,400 | $55,800 |
| 43 | 37 | United States | Columbia, SC | 2.9 | $149,500 | $51,100 |
| 37 | 30 | United States | Columbus, OH | 2.8 | $151,600 | $53,700 |
| 79 | 62 | United States | Corpus Christi, TX | 3.6 | $136,000 | $37,600 |
| 19 | 16 | United States | Dallas-Fort Worth, TX | 2.5 | $146,800 | $57,600 |
| 109 | 86 | United States | Daytona Beach, FL | 4.4 | $195,000 | $44,200 |
| 19 | 13 | United States | Dayton, OH | 2.5 | $121,400 | $49,500 |
| 104 | 82 | United States | Denver, CO | 4.2 | $254,100 | $60,800 |
| 29 | 22 | United States | Des Moines, IA | 2.7 | $153,900 | $57,900 |
| 12 | 12 | United States | Detroit, MI | 2.4 | $142,900 | $58,400 |
| 88 | 68 | United States | Durham, NC | 3.7 | $180,200 | $49,100 |
| 79 | 65 | United States | El Paso, TX | 3.6 | $135,800 | $37,600 |
| 43 | 35 | United States | Fayetteville, AR-MO | 2.9 | $127,300 | $43,200 |
| 5 | 3 | United States | Flint, MI | 2.2 | $103,400 | $47,400 |
| 120 | 95 | United States | Fort Myers, FL | 4.7 | $236,700 | $49,900 |
| 3 | 2 | United States | Fort Wayne, IN | 2.0 | $101,300 | $51,000 |
| 178 | 114 | United States | Fresno, CA | 6.1 | $265,000 | $43,700 |
| 12 | 8 | United States | Grand Rapids, MI | 2.4 | $128,600 | $54,700 |
| 63 | 49 | United States | Greensboro, NC | 3.2 | $155,500 | $48,300 |
| 73 | 55 | United States | Greenville, SC | 3.4 | $159,600 | $47,100 |
| 37 | 28 | United States | Harrisburg, PA | 2.8 | $150,400 | $54,000 |
| 100 | 77 | United States | Hartford, CT | 4.1 | $270,100 | $66,600 |
| 224 | 126 | United States | Honolulu, HI | 10.3 | $649,900 | $63,100 |
| 43 | 33 | United States | Houston, TX | 2.9 | $155,800 | $54,300 |
| 19 | 14 | United States | Huntsville, AL | 2.5 | $131,000 | $52,400 |
| 9 | 5 | United States | Indianapolis, IN | 2.3 | $123,500 | $54,500 |
| 79 | 64 | United States | Jacksonville, FL | 3.6 | $189,200 | $52,500 |
| 68 | 51 | United States | Jackson, MS | 3.3 | $145,400 | $44,500 |
| 29 | 24 | United States | Kansas City, MO-KS | 2.7 | $157,000 | $58,300 |
| 79 | 60 | United States | Knoxville, TN | 3.6 | $158,400 | $44,400 |
| 73 | 57 | United States | Lafayette, LA | 3.4 | $132,000 | $38,800 |
| 79 | 59 | United States | Lakeland, FL | 3.6 | $157,300 | $44,100 |
| 68 | 53 | United States | Lancaster, PA | 3.3 | $174,300 | $53,000 |
| 12 | 10 | United States | Lansing, MI | 2.4 | $126,000 | $52,900 |
| 171 | 111 | United States | Las Vegas, NV | 5.9 | $295,500 | $50,000 |
| 60 | 47 | United States | Lexington, KY | 3.1 | $150,100 | $48,500 |
| 49 | 40 | United States | Little Rock, AR | 3.0 | $131,600 | $44,100 |
| 227 | 129 | United States | Los Angeles, CA | 11.5 | $588,400 | $51,100 |
| 37 | 32 | United States | Louisville, KY-IN | 2.8 | $141,900 | $49,900 |
| 92 | 72 | United States | Madison, WI | 3.9 | $234,500 | $59,800 |
| 49 | 42 | United States | Manchester, NH | 3.0 | $209,000 | $69,600 |
| 68 | 52 | United States | McAllen, TX | 3.3 | $99,000 | $30,200 |
| 88 | 67 | United States | Melbourne, FL | 3.7 | $182,400 | $49,600 |
| 49 | 38 | United States | Memphis, TN-AR-MS | 3.0 | $141,300 | $47,800 |
| 201 | 119 | United States | Miami-West Palm Beach, FL | 7.1 | $346,800 | $49,100 |
| 104 | 80 | United States | Milwaukee, WI | 4.2 | $231,100 | $55,500 |
| 73 | 58 | United States | Minneapolis-St. Paul, MN-WI | 3.4 | $229,600 | $66,800 |
| 49 | 46 | United States | Mobile, AL | 3.0 | $136,300 | $45,000 |
| 166 | 109 | United States | Modesto, CA | 5.8 | $289,500 | $50,200 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 49 | 45 | United States | Nashville, TN | 3.0 | $160,000 | $53,300 |
| 120 | 93 | United States | New Haven, CT | 4.7 | $292,400 | $62,300 |
| 79 | 61 | United States | New Orleans, LA | 3.6 | $160,200 | $44,600 |
| 197 | 118 | United States | New York, NY-NJ,-CT-PA | 7.0 | $476,100 | $68,400 |
| 29 | 26 | United States | Northwest Indiana | 2.7 | $144,300 | $53,400 |
| 73 | 56 | United States | Ogden-Clearfield, UT | 3.4 | $173,800 | $51,800 |
| 43 | 34 | United States | Oklahoma City, OK | 2.9 | $130,000 | $45,300 |
| 19 | 15 | United States | Omaha, NE-IA | 2.5 | $142,800 | $57,100 |
| 139 | 102 | United States | Orlando, FL | 5.2 | $266,800 | $51,700 |
| 91 | 69 | United States | Pensacola, FL | 3.8 | $166,500 | $43,500 |
| 97 | 76 | United States | Philadelphia, PA-NJ-DE-MD | 4.0 | $243,000 | $60,100 |
| 120 | 94 | United States | Phoenix, AZ | 4.7 | $255,500 | $53,900 |
| 29 | 27 | United States | Pittsburgh, PA | 2.7 | $127,700 | $46,900 |
| 117 | 90 | United States | Port St. Lucie, FL | 4.6 | $200,000 | $43,700 |
| 107 | 83 | United States | Portland, ME | 4.3 | $245,900 | $56,600 |
| 136 | 101 | United States | Portland, OR-WA | 5.1 | $299,700 | $58,200 |
| 92 | 71 | United States | Poughkeepsie, NY | 3.9 | $258,900 | $66,300 |
| 159 | 105 | United States | Providence, RI-MA | 5.6 | $291,000 | $51,700 |
| 109 | 84 | United States | Provo-Orem, UT | 4.4 | $202,700 | $45,600 |
| 92 | 73 | United States | Raleigh, NC | 3.9 | $229,500 | $58,200 |
| 49 | 42 | United States | Reading, PA | 3.0 | $156,300 | $52,700 |
| 161 | 106 | United States | Reno-Sparks, NV | 5.7 | $302,300 | $53,000 |
| 100 | 78 | United States | Richmond, VA | 4.1 | $238,800 | $58,800 |
| 201 | 121 | United States | Riverside-San Bernardino, CA | 7.1 | $377,000 | $52,900 |
| 9 | 7 | United States | Rochester, NY | 2.3 | $123,000 | $53,400 |
| 166 | 108 | United States | Sacramento, CA | 5.8 | $335,700 | $58,300 |
| 226 | 128 | United States | Salinas, CA | 10.9 | $574,500 | $52,500 |
| 114 | 87 | United States | Salt Lake City, UT | 4.5 | $246,700 | $55,400 |
| 63 | 50 | United States | San Antonio, TX | 3.2 | $154,700 | $47,800 |
| 223 | 125 | United States | San Diego, CA | 10.0 | $589,300 | $58,800 |
| 225 | 127 | United States | San Francisco, CA | 10.8 | $825,400 | $76,100 |
| 220 | 124 | United States | San Jose, CA | 9.3 | $852,500 | $91,500 |
| 201 | 120 | United States | Santa Barbara, CA | 7.1 | $395,000 | $55,500 |
| 214 | 123 | United States | Santa Rosa, CA | 8.5 | $522,500 | $61,700 |
| 161 | 107 | United States | Sarasota, FL | 5.7 | $287,400 | $50,100 |
| 43 | 36 | United States | Scranton-Wilkes Barre, PA | 2.9 | $124,800 | $42,900 |
| 174 | 112 | United States | Seattle-Tacoma, WA | 6.0 | $394,700 | $65,900 |
| 79 | 62 | United States | Spokane, WA | 3.6 | $170,000 | $47,700 |
| 104 | 81 | United States | Springfield, MA | 4.2 | $214,900 | $51,600 |
| 49 | 42 | United States | Springfield, MO | 3.0 | $121,800 | $41,100 |
| 188 | 116 | United States | Stockton, CA | 6.4 | $330,000 | $51,700 |
| 29 | 23 | United States | St. Louis, MO-IL | 2.7 | $150,500 | $56,300 |
| 23 | 17 | United States | Syracuse, NY | 2.6 | $124,700 | $48,600 |
| 120 | 96 | United States | Tampa-St. Petersburg, FL | 4.7 | $218,300 | $46,000 |
| 5 | 4 | United States | Toledo, OH | 2.2 | $107,100 | $47,700 |
| 154 | 103 | United States | Tucson, AZ | 5.5 | $244,800 | $44,400 |
| 29 | 21 | United States | Tulsa OK | 2.7 | $124,300 | $46,800 |
| 188 | 117 | United States | Vallejo, CA | 6.4 | $399,000 | $62,400 |
| 211 | 122 | United States | Ventura County, CA | 8.2 | $615,000 | $74,700 |
| 126 | 97 | United States | Virginia Beach, VA-NC | 4.8 | $255,000 | $53,600 |
| 166 | 110 | United States | Visalia, CA | 5.8 | $209,000 | $36,200 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 154 | 104 | United States | Washington, DC-VA-MD-WV | 5.5 | $438,000 | $79,000 |
| 9 | 6 | United States | Wichita, KS | 2.3 | $118,800 | $52,000 |
| 37 | 29 | United States | Winston-Salem, NC | 2.8 | $127,900 | $46,400 |
| 120 | 92 | United States | Worcester, MA-CT | 4.7 | $282,800 | $60,600 |
| 49 | 41 | United States | York, PA | 3.0 | $169,800 | $56,700 |
| 2 | 1 | United States | Youngstown, OH | 1.9 | $81,600 | $43,500 |
| | | | *Median: 129 Markets* | *3.6* | | |

## METHODS AND SOURCES

Median house price information is generally obtained from national industry reporting agencies. In some cases, it has been necessary to estimate weighted median prices where available industry data is inconsistent with geographical market definitions. Where median house prices are unavailable, they are estimated from historic conversion factors. Median household income data is generally estimated using national statistics bureau generated base adjusted to a current estimate by the best available indicator of median income growth. In some cases statistical agencies recalibrate year to year data, while in other cases more reliable conversion factors are identified. Because of data variations and alternative estimation methods, caution should be employed in making definitive time-series income or housing cost comparisons. The most relevant comparisons are between overall categories of housing affordability.

The principal data sources were as follows:

AMP Banking (Australia)
Australian Bureau of Statistics
Bank of Ireland
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
Department of the Environment, Heritage and Local Government (Ireland)
Domain.com (Australia)
Housing Industry Association (Australia)
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)
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 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
Royal Bank of Canada
Royal LePage Real Estate Services (Canada)
Statistics Canada
Statistics New Zealand
United States Department of Commerce: Bureau of Economic Administration
United States Department of Commerce: Bureau of the Census
United States Department of Housing and Urban Development
University of Ulster
Urban Development Institute of Australia

**Notes on Figures:**

Figure 1: Median Multiple data from this report.
Figure 2: Analysis of John F. Kennedy School of Government (Harvard University) data.
Figure 3: Estimated using Real Estate Institute of Australia median house prices and Australian Bureau of Statistics data.
Figure 4: Estimated based upon prevailing mortgage rates (2006) and median household income.
Figure 5: Estimated from Australian Bureau of Statistics and United States Census Bureau data.
Figure 6: Derived from Real Estate Institute of Australia and John F. Kennedy School of Government (Harvard University) data.
Figure 7: Median Multiple data from this report. Population growth rates calculated from national census agency data.
Figure 8: Estimated from *Costs of Sprawl—2000* and median house price data.
Figure 9: Schedule 1: All markets with a population of 1,500,000 or more. Excludes smaller markets in combined metropolitan areas (such as London Exurbs, San Jose, Providence and Riverside-San Bernardino).
Figure 10: Based upon prevailing interest rates on a 30-year mortgage.

Table 7
Markets Included in the
4th Annual Demographia International Housing Affordability Survey

| Nation | Markets Included (Where Complete Data is Available) |
|---|---|
| Australia | Markets over 50,000 population |
| Canada | Markets corresponding to metropolitan areas (CMAs) over 100,000 population |
| Ireland | Markets over 50,000 population |
| New Zealand | Markets over 100,000 population |
| United Kingdom | Markets corresponding to urban areas over 150,000 population |
| United States | Markets corresponding to metropolitan areas (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

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## BIOGRAPHIES

### Wendell Cox

Wendell Cox is co-author of the *Demographia International Housing Affordability Survey*. He is principal of Wendell Cox Consultancy (Demographia), an international public policy consulting firm. He also serves as a visiting professor at the Conservatoire National des Arts et Metiers in Paris (a national university). 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. Wendell Cox Consultancy sponsors three internet web sites (www.demographia.com, www.rentalcartours.net and www.publicpurpose.com. The latter has been twice honored as one of the nation's top internet transport sites by the *National Journal*.

### Hugh Pavletich

Hugh Pavletich co-author of the *Demographia International Housing Affordability Survey*. He 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*.

## ENDNOTES

[1] Somewhat more than one-half of the markets are in the United States, which has approximately two-thirds of the population of the surveyed nations.
[2] September quarter data for England and Wales was unavailable at publication. June quarter data used.
[3] *Promoting Sustainable Human Development*, United Nations, http://www.un.org/esa/sustdev/natlinfo/indicators/worklist.htm and http://esl.jrc.it/envind/un_meths/UN_ME050.htm and *Sectoral Indicators*, The World Bank, http://www.worldbank.org/html/opr/pmi/urban/urban006.html.
[4] States are shown for US markets in Schedules 1 and 2 because many markets are located in more than one state.
[5] Because of the large number of markets reported upon, there are some name duplications. Except where otherwise noted, London refers to the United Kingdom (not Canada), Birmingham to the United Kingdom (not the United States), Melbourne refers to Australia (not the United States), Hamilton refers to Canada (not New Zealand) and Perth refers to Australia (not the United Kingdom).
[6] The East and Southeast of England (exurbs outside the green belt).
[7] Kildare, Louth, Meath and Wicklow counties.
[8] Former Dublin County.
[9] Bernard Salt, "Our New Neighbourhoods Can't Be Built on Nostalgia," *The Australian*, June 1, 2006.
[10] Barbara M. Kelly, *Expanding the American Dream*: *Building and Rebuilding Levittown*, Albany: State University of New York Press, 1993, p. 17.
[11] Derived from http://www.jchs.harvard.edu/publications/markets/son2007/metro_affordability_index_2007.xls.
[12] An expanded figure, including Hobart, is at www.demographia.com/haff-hobart.jpg.
[13] In 2000, the share of household income required already above historical mortgage to income ratios. In the United States, it had been common for mortgage payments plus house related taxes and insurance to be limited to 28 percent of household income. These data include only the mortgage payment and in all of the example markets had escalated to levels far above the historic standard.
[14] By comparison, the average US household has experienced a two percentage point in the cost of gasoline (petrol) over the same period.
[15] Benjamin M. Friedman, *The Moral Consequences of Economic Growth*, New York: Alfred A. Knopf, 2005.
[16] Moreover, advocates of prescriptive planning have suggested that their policies are required for the achievement of greenhouse gas emission reduction objectives. This position has been undermined by comprehensive research associating lower greenhouse gas emissions per capita with *more suburban, less dense* portions of urban areas. See the Australian Conservation Atlas, at http://www.acfonline.org.au/custom_atlas/index.html.
[17] Infrastructure costs are discussed later in this section.
[18] A compilation of proponent arguments is in Robert W. Burchell, George Lowenstein, William R. Dolphin, Catherine C. Galley, Anthony Downs, Samuel Seskin, and Terry Moore, *Costs of Sprawl—2000*. Washington, DC: Transportation Research Board, 2002. Critiques of the anti-suburban perspective can be found in found in Shlomo Angel, *Housing Policy Matters: A Global Analysis:* Oxford University Press, 2000, Robert Bruegmann, *Sprawl: A Compact History* (Chicago: University of Chicago Press, 2005), William T. Bogart, Don't *Call It Sprawl: Metropolitan Structure in the 21st Century* and Wendell Cox, *War on the Dream: How Anti-Sprawl Policy Threatens the Quality of Life* (New York: Iuniverse, 2006).
[19] Houston ranks second.
[20] However, both Sydney and Melbourne are considerably less dense than Los Angeles, which is often mistakenly considered to be a classic example of "urban sprawl." In fact, Los Angeles has a population density of 6,200 per square mile or 2,400 per square kilometer, greater than Sydney (5,300 & 2,050) and Melbourne (4,100 & 1,550). See: http://www.demographia.com/db-worldua.pdf.
[21] http://www.oecd.org/document/2/0,3343,en_2649_201185_37801602_1_1_1_1,00.html
[22] Shlomo Angel, *Housing Policy Matters: A Global Analysis*, Oxford University Press, 2000, p. 19.
[23] The overwhelming majority of employment is *outside* the core (downtown or central business district) in all major western metropolitan areas. Core employment represents approximately 17 percent of total metropolitan area employment in Australia and Canada and approximately 20 percent in Western Europe. Approximately 10 percent of metropolitan employment is in urban cores in US metropolitan areas. Thus, on average, from 80 percent to 90

percent of employment is *not* in the central business districts. (see http://www.publicpurpose.com/db-auscapcbd.pdf and http://www.demographia.com/db-cbd2000.pdf, http://www.demographia.com/db-intlcbdarea.htm). The myth of monocentricity is partially fueled by the fact that the media and metropolitan business organizations have generally kept their headquarters locations in the core.

[24] http://www.demographia.com/db-worldua.pdf.

[25] These outer suburbs have 80 percent more employment than the Manhattan central business district in New York, which is the second largest central business district in the world (after Tokyo's Yamanote Loop). See http://www.demographia.com/db-nyc-employ.pdf.

[26] Research and trends on this issue are covered in Hugh Pavletich, "New Zealand Lifestyle Block Mythology," http://www.scoop.co.nz/stories/print.html?path=PO0711/S00183.htm.

[27] A linear regression analysis including the 69 markets with more than 1,000,000 population indicates no statistically significant relationship between growth rates and housing affordability. The "R-squared" was 0.00.

[28] http://www.demographia.com/db-5metrogrowth.pdf,

[29] Annual population growth rates since 2000 or 2001.

[30] Los Angeles and San Diego have been among the fastest growing metropolitan areas in the United States for more than 50 years. Between 2000 and 2002, the Los Angeles growth rate was 1.2 percent annually, while the San Diego growth rate was 1.3 percent annually. From 2004 to 2006, the Los Angeles growth rate dropped to 0.2 percent annually and the San Diego growth rate declined to 0.1 percent annually. New York's growth rate has dropped from 0.7 percent to 0.1 percent, while Boston's growth rate has fallen from 0.6 percent to 0.1 percent over the same period. The annual growth rate in the San Francisco-San Jose area was 0.25 percent from 2000 to 2006, compared to 0.33 percent in Italy (2000 to 2005).

[31] Robert W. Burchell, George Lowenstein, William R. Dolphin, Catherine C. Galley, Anthony Downs, Samuel Seskin, and Terry Moore, *Costs of Sprawl—2000*. Washington, DC: Transportation Research Board, 2002.

[32] Based upon median house prices as reported by the National Association of Realtors. The *Costs of Sprawl---2000* projection related to new housing. This analysis refers to existing housing, which typically exhibits similar cost increase trends and is closely related to the price of new housing. In 2006, the new starter house price (below) represented approximately 85 percent of the median house price in the reviewed responsive markets and 90 percent in the prescriptive markets. Thus, the increase in existing house prices is associated with similar increases in new house prices.

[33] Burchel, et al, p.500.

[34] Arthur C. Nelson, Rolf Pendall, Casey J. Dawkins and Gerrit J. Knaap. *The Link Between Growth Management and Housing Affordability: The Academic Evidence*, Washington: Brookings Institution, 2002.

[35] Regional planning is increasingly blamed for higher housing prices, largely because such initiatives of insufficient attention to economics. A perspective is in Randal O'Toole, *The Planning Tax: The Case Against Regional-Growth Management Planning*, Washington: Cato Institute, 2007 (http://www.cato.org/pubs/pas/pa-606.pdf).

[36] Canada Mortgage and Housing Corporation, *The Impact of Zoning and Building Restrictions on Housing Affordability* (Ottawa, ON: CMHC, 2005), pp. 1–2, https://www03.cmhc-schl.gc.ca/b2c/b2c/init.do?language=en&shop=Z01EN&areaID=0000000044&productID=00000000440000000007.

[37] Timothy Leunig, "Turning NIMBYs into IMBYs", *The Guardian*, September 2, 2004. http://society.guardian.co.uk/housingdemand/0,14488,1192601,00.html, accessed September 3, 2004. The article noted that a 220-acre (90 hectare) farm released for development would rise in value from £500,000 to £250,000,000.

[38] Sydney has imposed some of the highest infrastructure charges in the world. The government implemented a $25,000 per new house reduction, which is a small relative to the severe affordability problem of Sydney, but important first step. http://www.planning.nsw.gov.au/mediarelplan/fs20071012_625.html).

[39] Patrick N. Troy, *The Perils of Urban Consolidation*, Annandale, NSW, Australia: The Federation Press, 1996, pp. 55–76.

[40] Wendell Cox and Joshua Utt, *The Costs of Sprawl Reconsidered: What the Data Really Show*, http://www.heritage.org/Research/SmartGrowth/bg1770.cfm.

[41] Calculated from Burchel, et al and National Association of Realtors data.

[42] John Key MP, Leader of the National Party, Speech to the New Zealand Contractors Federation, 20 August 2007, http://www.johnkey.co.nz/index.php?url=archives/213-SPEECH-NZ-Contractors-Federation.html&serendipity%5Bcview%5D=linear.
[43] Kate Barker (2004 and 2006). *Review of Housing Supply: Delivering Stability: Securing Our Future Housing Needs: Final Report—Recommendations.* Norwich, England: Her Majesty's Stationery Office. www.hmtreasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm, and *Barker Review of Land Use Planning*, http://www.hm-treasury.gov.uk/media/4EB/AF/barker_finalreport051206.pdf; "Recent House Price Developments: The Role of Fundamentals," *OECD Economic Outlook #78* (2005); Official Committee Hansard, House of Representatives, Standing Committee on Economics, Finance and Public Administration, 12 August 2005, htwww.aph.gov.au/hansard/reps/commttee/R8516.pdf. http://www.oecd.org/dataoecd/41/56/35756053.pdf; Edward L. Glaeser, Jenny Schuetz, and Bryce Ward, *Regulation and the Rise of Housing Prices in Greater Boston*, Pioneer Institute for Public Policy Research and Rappaport Institute for Greater Boston, Kennedy School of Government, Harvard University (2005).
[44] William Fischel, *Regulatory Takings, Law, Economics and Politics*, Cambridge, MA: Harvard University Press, 1995.
[45] Roy Drewett, "Land Values and the Suburban Land Market," (pp 197-245) and Ray Thomas, "Housing Trends and Urban Growth," (pp. 245-294) in Peter Hall, Ray Thomas, Harry Grady and Roy Drewett, *The Containment of Urban England: Volume Two: The Planning System: Objectives, Operations, Impacts*, London: George Allen & Unwin, Ltd., 1973.
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[47] "RBA says land shortage driving house prices," *Adelaide Now*, 17 August 2007, http://www.news.com.au/adelaidenow/story/0,22606,22260763-5005962,00.html.
[48] Thomas Sowell, "Subprime Pols," *National Review*, http://article.nationalreview.com/print/?q=YjgwYzI4Njg3OWMxOGUzYmY0ZDMwYzYwNzkzYjc1NDI
[49] http://news.bbc.co.uk/1/hi/business/6990357.stm
[50] http://www.fcpp.org/main/publication_detail.php?PubID=1899.
[51] Raven E. Saks, *Job Creation and Housing Construction: Constraints on Metropolitan Area Employment Growth*, http://www.federalreserve.gov/pubs/feds/2005/200549/200549pap.pdf.
[52] http://www.unfpa.org/swp/2007/presskit/pdf/sowp2007_eng.pdf.
[53] Even so, newly released state migration data indicates that California's net domestic migration loss exceeded 1,200,000 between 2000 and 2007.
[54] "Migrants take the high road to better quality of life in Scotland," *Scotland on Sunday*, 6 January 2008 http://news.scotsman.com/scotland/Migrants-take-the-high-road.3644518.jp.
[55] Based upon typical mortgage terms.
[56] Illustrating the changing competitive position of affordable and unaffordable markets, Indianapolis is growing faster than San Jose. Since 2000, 44,000 domestic migrants have moved to Indianapolis, while 224,000 have left San Jose. Between 1950 and 2000, San Jose grew considerably faster than Indianapolis.
[57] Assumes currently prevailing interest rates, a 30-year amortization and a 100% loan. A 30-year mortgage is used for consistency in comparison. In the United States, the 30-year amortization is typical and 30-year amortizations are used increasingly in the other surveyed nations. Moreover, in some nations there are additional loan products amortized over more years and even some "interest only" mortgages. Annual interest rates used: Australia: 8.7%, Canada 7.5%, Ireland 5.5%, New Zealand 9.15%, United Kingdom 7.7%, United States 6.5%.
[58] A temporary calculator is on line. By 31 January a fully functional calculator will be available at the same internet address.
[59] Bank for International Settlements, *77th Annual Report 2006/07*, http://www.bis.org/publ/annualreport.htm.
[60] See Herb Greenberg's Market Blog, *Dow Jones Market Watch*, http://blogs.marketwatch.com/greenberg/2007/12/straight-talk-on-the-mortgage-mess-from-an-insider/
[61] Shlomo Angel, *Housing Policy Matters: A Global Analysis*, Oxford University Press, 2000, p. 19.
[62] A more detailed discussion of this issue will be provided in *Getting Performance Planning in Place*, by Hugh Pavletich, to be released in February. Also see Hugh Pavletich open letter to the New Zealand Housing Minister, http://www.scoop.co.nz/stories/print.html?path=PO0712/S00100.htm.

[63] See, for example, the *Demographia First-Home Buyer Affordability (Quartile Multiple) in the United States*, http://www.demographia.com/db-quartilemult.pdf.
[64] See, for example, the *Demographia Minority Median Multiples* for 2006, which include a Hispanic Median Multiple and an African-American Median Multiple for major United States markets, http://www.demographia.com/db-minmultiple.pdf.