

DEMOGRAPHIA

2nd Annual
Demographia
International Housing
Affordability Survey:
2006

Ratings for All Major Urban Markets

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

(Data for 3rd Quarter 2005)

... one of the best instincts in us is that which induces us to have one little piece of earth with a house and a garden which is ours; to which we can withdraw, in which we can be among our friends, into which no stranger may come against our will

(Sir) Robert Menzies, 1942
(Australia's Longest Serving Prime Minister)

Pavletich Properties Limited

2nd Annual Demographia International Housing Affordability Survey: 2006

(Data for 3rd Quarter 2005)

SUMMARY TABLES

20 Most Unaffordable Housing Markets							
Rank	Housing Market		Median Multiple	Rank	Housing Market		Median Multiple
1	US	Los Angeles	11.2	11	UK	London	6.9
2	US	San Diego	10.8	12	UK	Bristol	6.8
3	US	Honolulu	10.6	12	US	Fresno	6.8
4	US	Ventura County	9.6	12	US	Sacramento	6.8
5	US	San Francisco	9.3	15	NZ	Auckland	6.6
6	US	Miami	8.8	15	Australia	Hobart	6.6
7	Australia	Sydney	8.5	15	Canada	Vancouver	6.6
8	US	New York	7.9	18	Australia	Adelaide	6.5
9	US	Riverside	7.7	19	US	Las Vegas	6.4
10	US	San Jose	7.4	19	Australia	Melbourne	6.4

Affordable Housing Markets							
Rank	Housing Market		Median Multiple	Rank	Housing Market		Median Multiple
1	US	Buffalo	2.2	11	US	Oklahoma City	2.7
1	US	Rochester	2.2	14	US	Atlanta	2.8
3	US	Indianapolis	2.4	14	US	Austin	2.8
3	Canada	Winnipeg	2.4	14	US	Cincinnati	2.8
5	US	Akron	2.5	14	US	Dallas-Fort Worth	2.8
5	US	Omaha	2.5	14	Canada	Edmonton	2.8
5	US	Pittsburgh	2.5	14	US	Louisville	2.8
8	US	Grand Rapids	2.6	14	Canada	Quebec	2.8
8	US	St. Louis	2.6	21	US	Columbus	2.9
8	US	Tulsa	2.6	21	US	Houston	2.9
11	US	Dayton	2.7	21	US	San Antonio	2.9
11	US	Kansas City	2.7	24	US	Cleveland	3.0

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THE HOUSING AFFORDABILITY CRISIS

Executive Summary

This second annual *Demographia International Housing Affordability Survey* expands coverage to the United Kingdom and the Republic of Ireland together with the nations included in the first edition (Australia, Canada, New Zealand and the United States). The *Survey* employs the Median¹ House Price to Median Household Income Ratio, (“Median Multiple”) to rate housing affordability. The *Demographia International Housing Affordability Survey* uses data from September of 2005 for each of the markets and uses the rating system shown below (Table 1).

Table 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

Most Unaffordable Markets: The least affordable markets are generally in California, Hawaii, the US east coast, Australia, the United Kingdom, New Zealand and Vancouver. The most unaffordable market is Los Angeles & Orange County, with a Median Multiple of 11.2, far above the “severely unaffordable” threshold of 5.1. The Median Multiple is 8.5 in Sydney, 6.9 in London, 6.6 in Auckland, 6.6 in Vancouver and 6.0 in Dublin (Table 2).

The most pervasive housing affordability crisis is in Australia, where all markets in metropolitan areas with more than 1,000,000 have Median Multiples of 6.0 or higher. Affordability is only marginally better in Ireland, New Zealand and the United Kingdom.

Table 2 20 Most Unaffordable Housing Markets							
Rank	Housing Market		Median Multiple	Rank	Housing Market		Median Multiple
1	US	Los Angeles	11.2	11	UK	London	6.9
2	US	San Diego	10.8	12	UK	Bristol	6.8
3	US	Honolulu	10.6	12	US	Fresno	6.8
4	US	Ventura County	9.6	12	US	Sacramento	6.8
5	US	San Francisco	9.3	15	NZ	Auckland	6.6
6	US	Miami	8.8	15	Australia	Hobart	6.6
7	Australia	Sydney	8.5	15	Canada	Vancouver	6.6
8	US	New York	7.9	18	Australia	Adelaide	6.5
9	US	Riverside	7.7	19	US	Las Vegas	6.4
10	US	San Jose	7.4	19	Australia	Melbourne	6.4

Source: Schedule 1



Affordable Markets Remain: At the same time, many markets remain “affordable.” For example, the markets in the three fastest growing metropolitan areas over 5,000,000 population all have Median Multiples below 3.0 and are thus rated “affordable” (Atlanta, Dallas-Fort Worth and Houston). Other affordable markets include three in Canada (Winnipeg, Edmonton and Quebec) and another 18 in the United States (Table 3).

Table 3 Affordable Housing Markets							
Rank	Housing Market		Median Multiple	Rank	Housing Market		Median Multiple
1	US	Buffalo	2.2	11	US	Oklahoma City	2.7
1	US	Rochester	2.2	14	US	Atlanta	2.8
3	US	Indianapolis	2.4	14	US	Austin	2.8
3	Canada	Winnipeg	2.4	14	US	Cincinnati	2.8
5	US	Akron	2.5	14	US	Dallas-Fort Worth	2.8
5	US	Omaha	2.5	14	Canada	Edmonton	2.8
5	US	Pittsburgh	2.5	14	US	Louisville	2.8
8	US	Grand Rapids	2.6	14	Canada	Quebec	2.8
8	US	St. Louis	2.6	21	US	Columbus	2.9
8	US	Tulsa	2.6	21	US	Houston	2.9
11	US	Dayton	2.7	21	US	San Antonio	2.9
11	US	Kansas City	2.7	24	US	Cleveland	3.0

Source: Schedule 1

Unprecedented House Price Increases: In recent decades, the Median Multiple has been below 3.0 in most markets. However, this historic relationship has been broken, as unprecedented house price escalation has occurred relative to incomes in some markets.

This is a matter for concern. Home ownership has played an important role in democratizing prosperity in the nations covered in the *Survey*. Widespread home equity, together with the related quality of life, neighborhood, community and social cohesion benefits make home ownership a "pillar" of a sustainable affluent economy. These benefits are threatened by the high housing prices that are likely to reduce home ownership and household wealth creating capacity. A nation with more renters is likely to be both less prosperous and less cohesive.

The Recent Past: Nearly All Markets were Affordable: Moreover, in nearly all markets, the Median Multiple has been near or below 3.0 at some point in the recent past. The long-standing relationship between house prices and incomes has been upset, however, in the markets that have experienced inordinate house price increases.

The run-up in housing prices has caused business writers to evaluate the market as they might a stock or shares market. Markets in which there is excessive escalation are characterized as strong, while markets where house prices remain in their historical relationship with incomes are referred to as weak. However, this characterization is inappropriate. Housing prices that escalate to the point that millions of households are denied home ownership is anything but good news for the future of an economy.



Price Run-Up not the Result of Macroeconomic Factors: Macroeconomic factors, especially low interest rates, have been often cited as the reason for the extraordinary housing price increases. However, if macroeconomics were a major factor, then similar price escalation would have occurred in all markets. However, they have not. There are both significant Median Multiple variations among the markets. Virtually all of the differences are of recent vintage. For example, from 2000 to 2005, fast growing Atlanta experienced a 0.6 point increase in the Median Multiple, while slower growing San Diego experienced a 6.6 point increase.

Regional Variations Explained by Regional Land Use Regulation Differences: These regional variations can only be explained by regional factors. A growing body of university and international research indicates that the proximate cause of the extraordinary house price escalation in the unaffordable markets is government policies that create land scarcity. These policies, which range from so-called “smart growth” policies that prohibit housing on large swaths of land to government land hoarding, are found throughout the markets rated as “severely unaffordable.” At the same time, much lighter land regulation is typical of the “affordable” markets.

Smaller House and Lot Sizes in Ireland and the United Kingdom: Ireland and the United Kingdom are building houses far smaller than in the other four nations. Moreover, the UK and Ireland are crowding three or more houses on the same land that would be used for a single house in Australia and six or more compared to the United States. The Median Multiple, as presented, is not adjusted for differences in house or lot (block or section) size.

A Case of Negative Externalities: The unprecedented housing affordability crisis appears attributable to the negative effects (negative externalities) of land regulation, rather than natural market forces. The main cause seems to be excessive land use regulation that strangles housing markets and drives prices upward at rates far higher than can be attributed to conventional economic trends.

The Prospect: Diminished Economic Growth: Simply stated, scarcity raises prices, including the price of land and houses. The loss of affordability is so immense that policies such as affordability quotas, first home buyer grants, workforce housing or tax relief programs cannot possibly make a material difference, despite their rhetorical attractiveness in some circles. Instead, governments should seek to emulate the conditions that have made housing affordability sustainable in so many markets and in most markets historically.

The rewards could be substantial. Already, economic research is showing that metropolitan areas with stronger land use regulation pay a price in diminished economic growth.



Introduction

This is the second annual *Demographia International Housing Affordability Survey*. This year, housing market areas² in the United Kingdom and the Republic of Ireland are also covered, along with Australia, Canada, New Zealand and the United States, which were included in the first edition. The expanded edition includes 100 housing markets. The *Demographia International Housing Affordability Survey* is unique in providing standardized comparisons of housing affordability between international housing markets.

The *Demographia International Housing Affordability Survey* employs the “Median House Price to Median Household Income Multiple,” (or “Median Multiple” for short) to rate housing affordability. The Median Multiple is a technically sound and easily understood indicator of housing affordability. It is to be contrasted with more elaborate affordability indexes. The elaborate indicators, which often include mortgage interest rates and other factors, are indispensable to the financial sector, but are not well understood outside of that industry. The Median Multiple facilitates meaningful housing affordability comparisons, both between national and international markets and over time.

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, where there is a balance of demand and supply. 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.

Democratizing Prosperity through Home Ownership

Home ownership has played an important role in democratizing prosperity throughout what has become the high-income world since World War II. In some nations home equity accounts for nearly one-half of household wealth. Thus, in addition to its quality of life, neighborhood, community and social cohesion benefits, home ownership represents an important "pillar" of a sustainable affluent economy.

2005 Housing Affordability Ratings

The *Demographia International Housing Affordability Survey* uses existing house sales data from September of 2005 for each of the markets. Forty-two (42) markets are rated as “severely unaffordable” and 11 as “seriously unaffordable.” Twenty-three (23) markets are rated as “moderately unaffordable.” Twenty-four markets (24) are rated as “affordable” (Table 4).

The ratings for all housing markets are shown, by affordability rating category, in Schedule 1, following this article.³



Rating	Median Multiple	Number of Markets
Severely Unaffordable	5.1 & Over	42
Seriously Unaffordable	4.1 to 5.0	11
Moderately Unaffordable	3.1 to 4.0	23
Affordable	3.0 or Less	24

20 Most Unaffordable Markets: The ten (10) least affordable markets are in California, Hawaii, the US east coast and Sydney, Australia. Four California markets have Median Multiples that are more than three times the maximum 3.0 “affordable” rating.

The second ten (10) least affordable markets include Vancouver, two markets in the United Kingdom (London and the West of England), two California markets (Sacramento and Fresno), Auckland, New Zealand, three Australian markets (Hobart, Adelaide and Melbourne) and Las Vegas.

Affordable Markets: At the same time, many markets remain “affordable,” all in Canada and the United States. The “affordable” Canadian markets are Winnipeg, Edmonton and Quebec. The “affordable” US markets are all in the South, the Midwest and the inland East. The most affordable markets are Buffalo, Rochester, Indianapolis and Winnipeg.

National Summary: There is a substantial variation in the affordability of housing markets (Figure 1).⁴ The most pervasive housing affordability crisis is in Australia, where all markets in metropolitan areas with more than 1,000,000 have Median Multiples of 6.0 or higher. Affordability is only marginally better in Ireland, New Zealand and the United Kingdom. There are no “affordable” markets in these four nations (Table 5). The ratings and data for all housing markets is shown by nation in Schedule 2.

- Australia: Six of the eight housing markets are rated as “severely affordable,” including Sydney. The other two markets are rated as “seriously unaffordable.”⁵
- Ireland: The one major market, Dublin, is rated as “severely unaffordable.”
- New Zealand: All three major markets are rated as “severely unaffordable.”
- United Kingdom: Eleven (11) of the 12 housing markets are rated as severely unaffordable, including all three in the London area. No markets are rated “affordable.”

In Canada and the United States, the share of “severely unaffordable” markets is more limited and a number of markets are “affordable.”



- Canada: One market (Vancouver) is rated “severely unaffordable.” Another market, Toronto, is rated as seriously unaffordable. Three markets are rated as “affordable” (Winnipeg, Edmonton and Quebec). Two other markets, Ottawa and Calgary, are in the lower range of the “moderately unaffordable” category.
- United States: Twenty (20) of the 67 housing markets are rated “severely unaffordable.” Eight markets are rated as “seriously unaffordable,” while 18 markets are rated as “moderately unaffordable.” Twenty-one (21) markets are rated as “affordable.” All of the affordable markets are located in the South, the Midwest and the inland East. Eighteen (18) markets are rated “moderately unaffordable.”

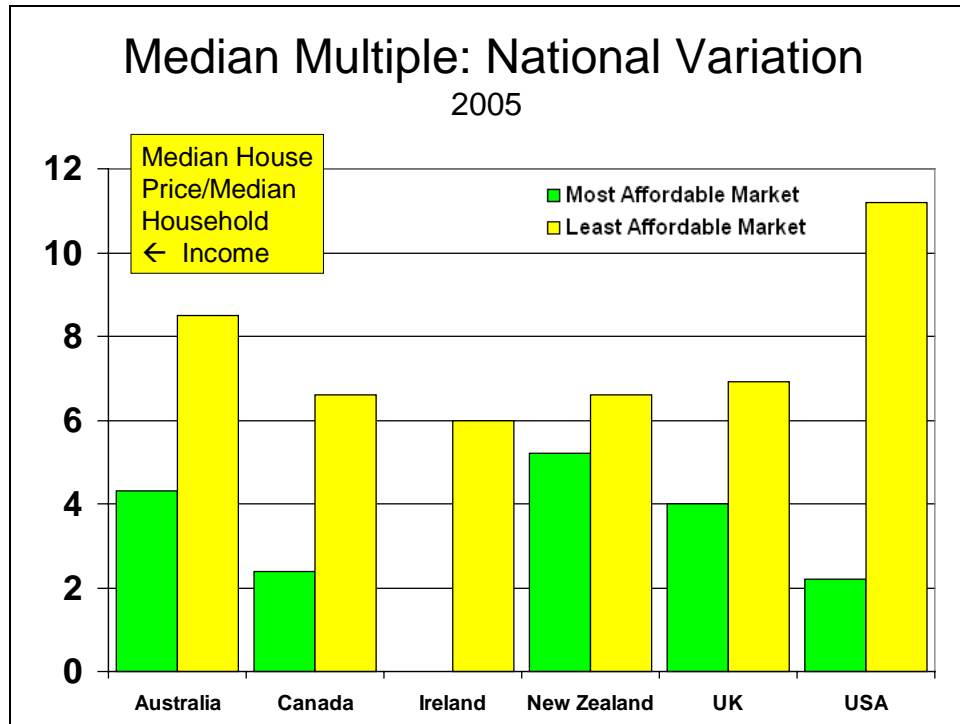


Figure 1

Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	(Average)
Australia	0	0	2	6	6.2
Canada	3	4	1	1	3.8
Ireland	0	0	0	1	6.0
New Zealand	0	0	0	3	5.9
United Kingdom	0	1	0	11	5.9
United States	21	18	8	20	4.6



Uncharted Territory: Decoupling House Prices from Incomes

In recent decades, the Median Multiple has been below 3.0 in most markets. However, this historic relationship has been broken in some markets, as unprecedented house price escalation has occurred relative to incomes.

A structural shift may be underway that would permanently increase the price of housing relative to incomes and other consumer goods and services. It seems likely that such a shift would lead to lower levels of economic growth at the regional, if not the national level. In the longer term, less housing affordability is likely to lead to less home ownership. This is already evident in New Zealand, where high housing prices are expected to reduce home ownership levels to 63 percent by 2011, down from a peak of 74 percent in 1991.⁶ More substantial declines in home ownership are likely in New Zealand and elsewhere if the present housing affordability crisis should persist. Such a trend would be counter to public policy objectives in virtually all of the surveyed nations.⁷

This would, in turn, reduce household wealth creating capacity and could undermine the community commitment that is engendered by home ownership and equity. A nation with more renters is likely to be less prosperous and less cohesive.

The present extent of housing unaffordability is unprecedented, both historically and across markets. Most housing markets have exhibited Median Multiples of near 3.0 or less in the past and many still do. For example:

- **Australia:** All of the largest markets in Australia except Sydney had Median Multiples of 3.0 and below at least during part of the 1980s. The Median Multiple rise has been steep. Since 1996, the median multiple has risen more than a full two points in each of the large capital city markets and more than three points in Sydney (Figure 2).
- **Canada:** As noted above, some markets remain “affordable,” with Median Multiples of 3.0 or below. All markets except Vancouver have been near or below a 3.0 Median Multiple during the last 10 years (Figure 3)
- **Ireland:** The Median Multiple was below 3.0 in Dublin in 1996. It has since more than doubled (Figure 4).
- **New Zealand:** In the early 1990s, the Median Multiple was 3.0 in Wellington and has since risen more than two points. The national median multiple was somewhat above that of Wellington in 1991 and has since increased nearly 2.5 points (Figure 5).
- **United Kingdom:** The Median Multiple was 3.3 in London (Greater London Authority) in 1996. By 2005, it had more than doubled to 6.9 (Figure 4).
- **United States:** As in Canada, a significant share of US markets remains affordable, with Median Multiples of 3.0 or below. In 1995, no US markets were rated “severely



unaffordable.” The least affordable market was Honolulu, with a Median Multiple of 4.3. In the last decade, 20 markets have become “severely unaffordable.” The average Median Multiple among these markets rose 4.3 points from 1995 to 2005, *14 times* the 0.3 point Median Multiple increase in markets rated affordable (Figure 6).⁸ In the last decade the number of affordable markets dropped from 56 to 20, while the number of markets rated seriously unaffordable or severely unaffordable rose from one (1) to 27. In 1995, nearly 90 percent of markets were affordable, a figure that dropped to less than one-third by 2005 (Figure 7).⁹

One consequence of the steep recent increases is that even in markets in which there has been a substantial loss of housing affordability, the seriousness can be masked. For example, the housing cost increases in Chicago have been characterized as modest, having risen from a Median Multiple of 3.1 in 2000 to 4.6 in 2005, or a 48 percent increase. While this increase was less than In Los Angeles, New York or Sydney, it represented a steep increase by historical standards. In 1995, a 4.6 Median Multiple would have made Chicago the least affordable market in the United States.

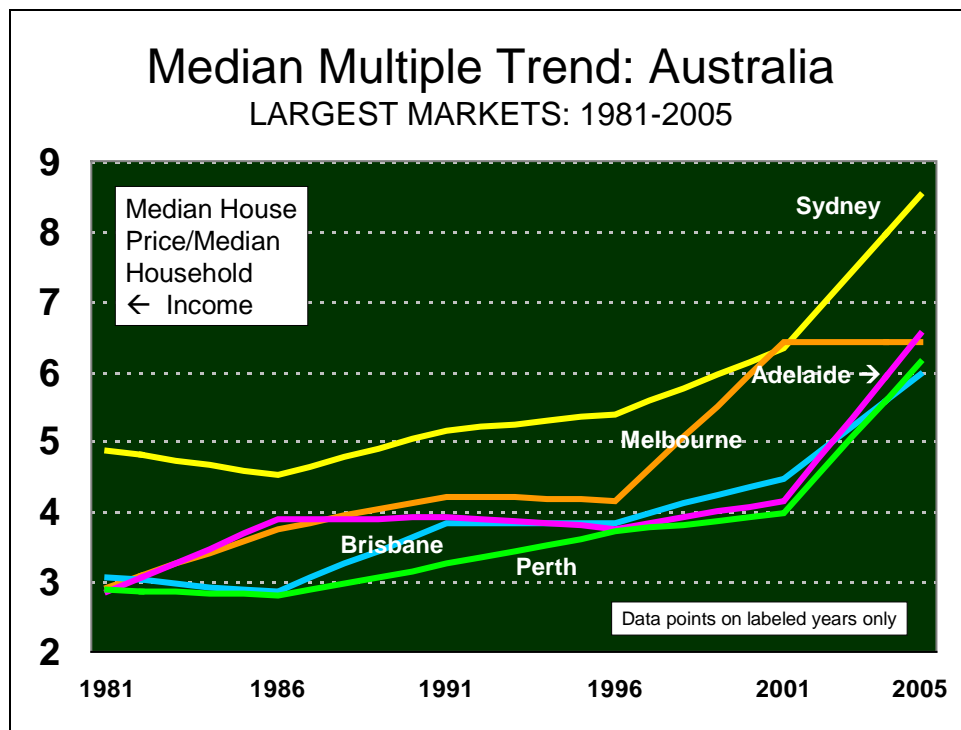


Figure 2



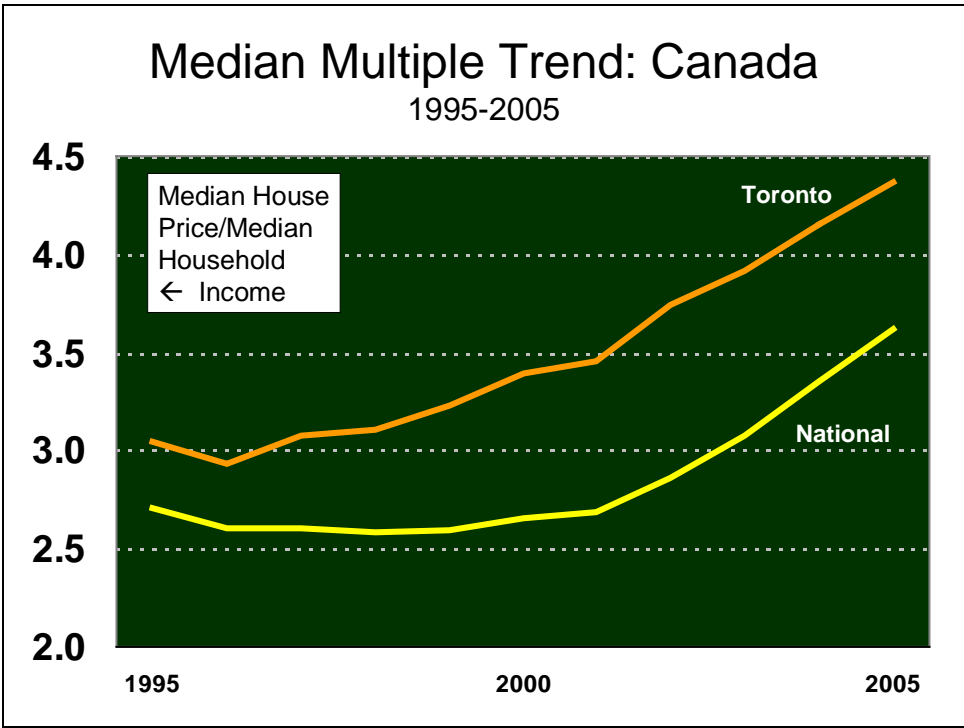


Figure 3

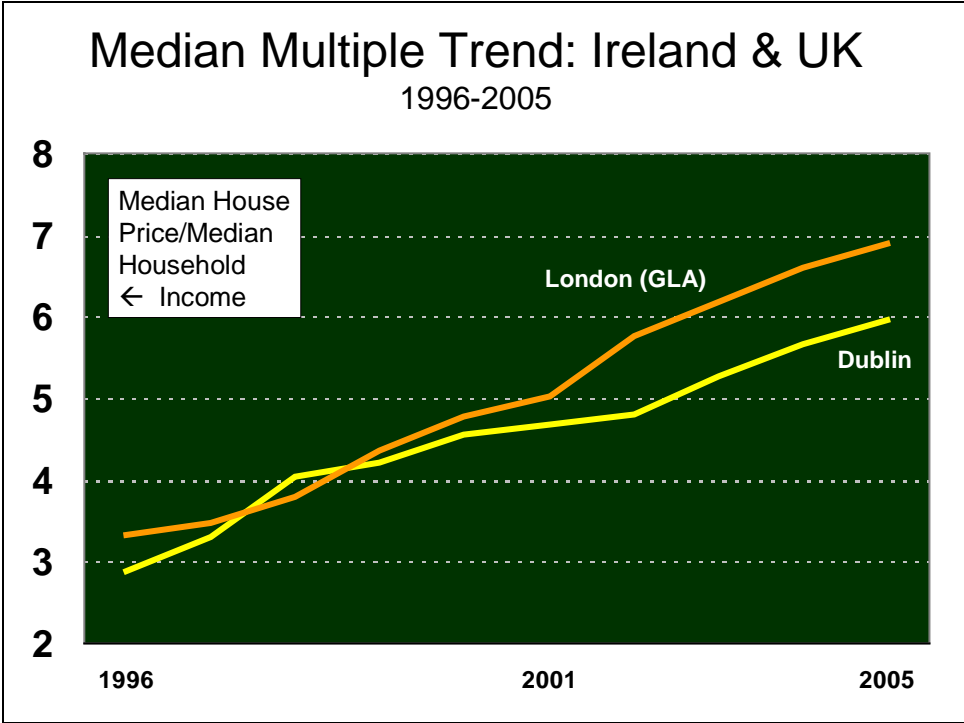


Figure 4



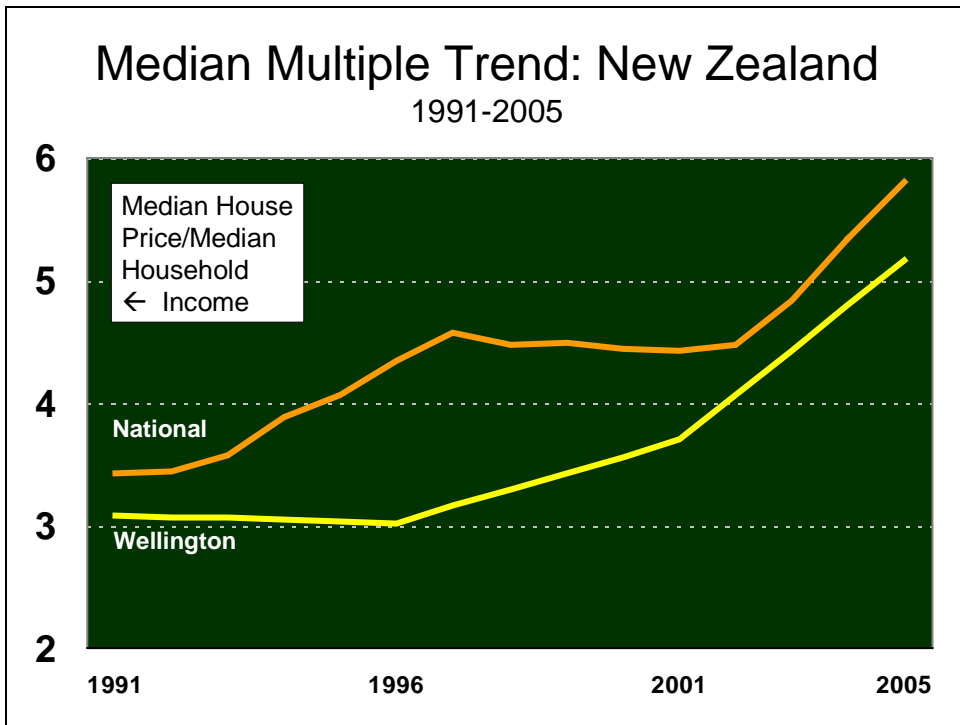


Figure 5

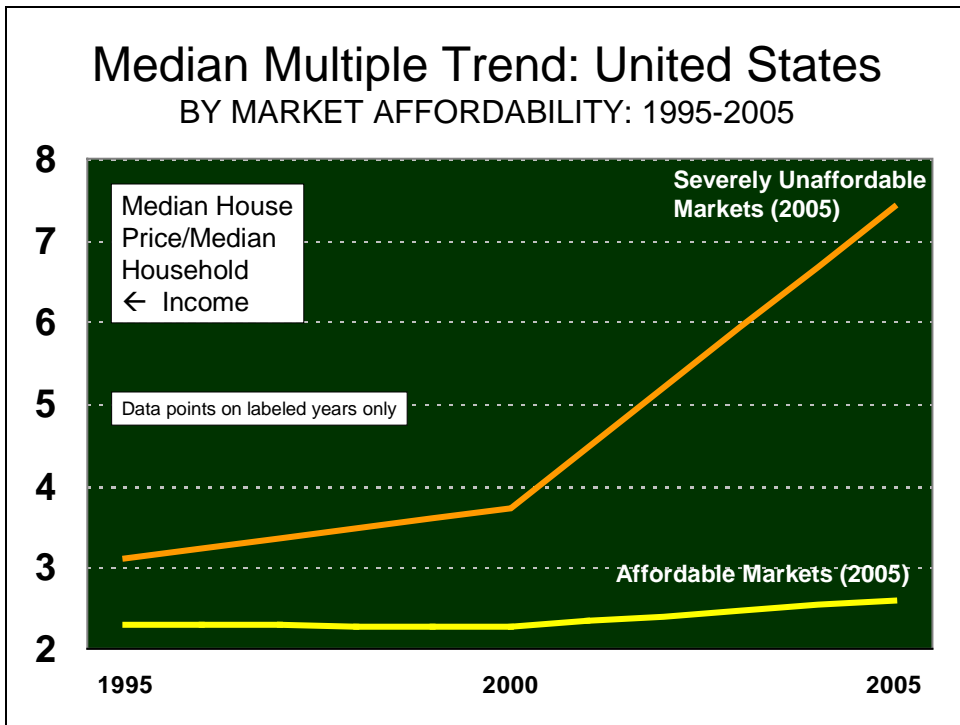


Figure 6



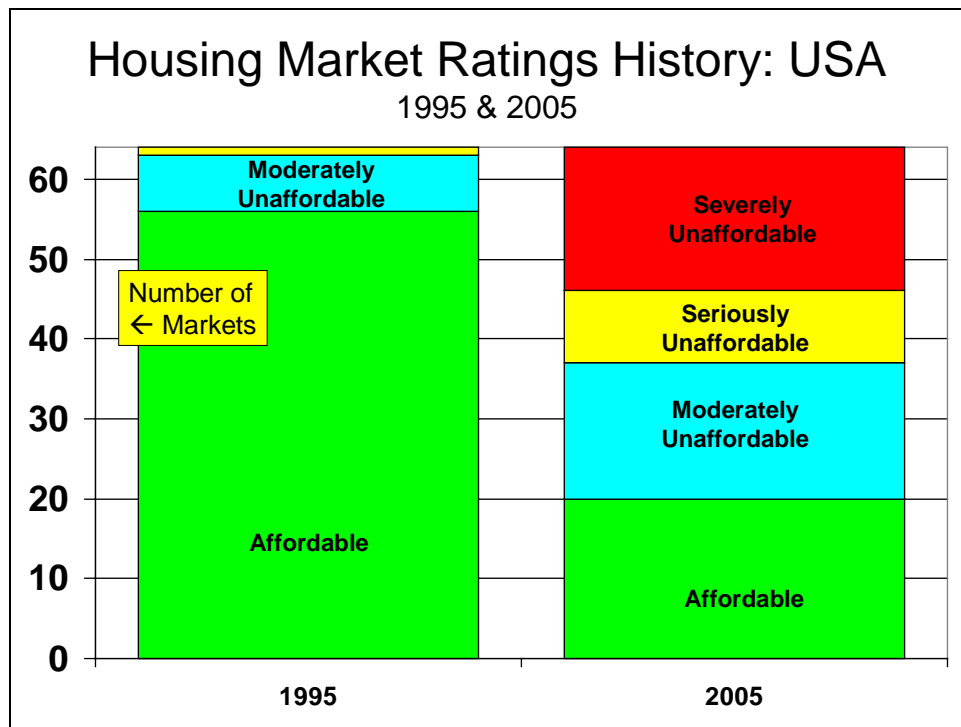


Figure 7

The “Housing Bubble”

Many analysts and much of the business press have followed the unprecedented housing cost price escalation with seeming glee, while ignoring the reality that household incomes have not been inflating at a corresponding rate. This superficial approach is both naïve and irresponsible. Any number of products might be imagined that might be converted into objects of financial speculation, at the same time as rendering a nation less prosperous. For example, massive and unprecedented price escalation, from speculation in food products or medical markets might serve the short-term interest of investors, while imposing broad detrimental effects. There is a public interest in maintaining house prices within the economic means of most households.

Oddly, the most affordable markets have sometimes been characterized as poor performers. There are many losers when home prices become decoupled from the underpinning income realities. Middle income and lower income households find it impossible to afford the higher prices and may be relegated to renting for many additional years, if not a lifetime. The equity that they would have built up instead goes to the pockets of landlords. Others fortunate enough to afford the higher prices must settle for more modest houses, which are likely of lower quality. Many of households will be able to afford their own houses only through financial assistance from their parents, while those with less affluent parents will remain in rental units. Already there is evidence that the average age of first homebuyers is rising.¹⁰



Some analysts have noted that, by mortgage qualification standards, housing affordability is no worse than in the early 1980s. However today's unaffordability is different. The unaffordability of the early 1980s was due to high interest rates. As interest rates declined, households refinanced the debt on their homes at lower rates, improving affordability. This made the 1980s unaffordability inherently temporary, even for those who purchased at the most unfavorable time.¹¹ Unaffordability, however, is not temporary for households who purchase homes at the excessively high prices typical of the highly regulated markets.

By reducing the share of households that can afford to buy homes, high Median Multiples inevitably lead to greater income disparity. Thus, to think of rising house prices as a good thing while ignoring the incomes that support them is to miss the point completely. Australian Reserve Bank Governor Ian MacFarlane emphasized this point in parliamentary testimony with reference to the unaffordable housing prices in Sydney.¹² The reality, of course, is that the more affordable markets are the better performers by virtue of the higher standard of living that they facilitate for more households.

However, the reality is that declining housing affordability has reached crisis proportions in many markets.

Regulatory Roots of the Housing Affordability Crisis

The rapid increase in housing prices relative to household incomes has been attributed to various factors.

Macroeconomic Factors: Macroeconomic factors, such as lower interest rates or new, more liberal financing instruments are frequently mentioned. There seems little doubt that macroeconomic factors have played a part in the recent house price escalation across all markets. However, the broad nature of macroeconomic factors means that they could not have driven some markets into the “uncharted territory” of decoupled prices and incomes, while leaving others virtually unaffected.

Macroeconomics may explain much of the Median Multiple increase observed in affordable markets. However, much of this movement in the Median Multiples could be attributed to the normal “swing” through the building cycle and as activity moderates, it is likely the Median Multiple will as well.

As noted above, United States markets rated affordable in 2005 experienced an overall increase of 0.3 Median Multiple points between 1995 and 2005 (from 2.3 to 2.6). Some faster growing markets had slightly more rapid Median Multiple rises. For example, the Atlanta Median Multiple rose 0.4 points, while the Houston figure rose 0.7 points.



It seems implausible that macroeconomics can explain materially more of the larger Median Multiple swings occurred in the most unaffordable markets over the same period. Examples include slower growing San Diego, where the Median Multiple has risen 7.2 points, and Miami with an increase of 6.4 points or New York at 4.3 points. Nor can macroeconomic factors explain the more than 50 percent Median Multiple escalation (2.3 Median Multiple points, from 4.2 to 6.5) in Adelaide from 2001 to 2005 or the increases in a number of other markets.

Low interest rates have been available both in severely unaffordable markets such as Dublin, Melbourne, Manchester or San Francisco and in affordable markets such as Quebec, Edmonton, Cincinnati, Columbus or Kansas City.

Indeed, the inordinately escalating housing prices in some markets may be immune to monetary interventions by central banks. For example, the Reserve Bank of New Zealand has increased short-term interest rates to the highest level in the industrialized world, at least partially to restrain rising house prices.¹³ Yet, the interest rate hikes have proven to be impotent with respect to restraining house prices, which have continued to escalate well ahead of incomes¹⁴ (Figure 8). The causes appear to be beyond the reach of monetary policy. The research below suggests that a principal cause is market strangulation that has been caused by excessive land use regulation.

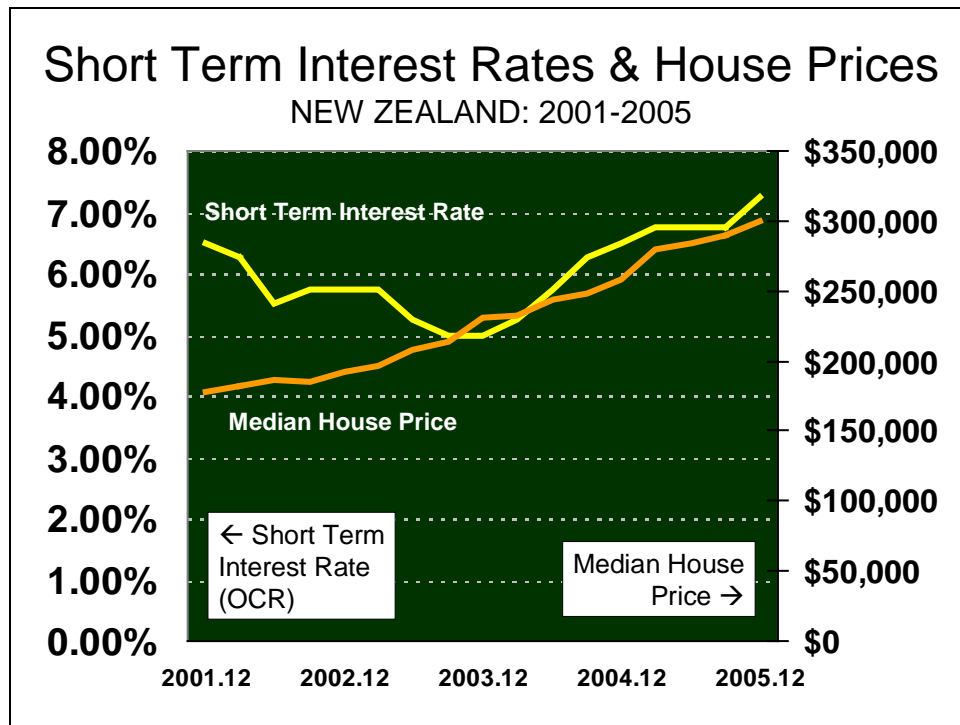


Figure 8



Demand: Similarly, differences in demand do not seem to be a factor. The affordable markets include slow growing areas, such as Buffalo and Winnipeg as well as fast growing areas, such as Edmonton. Indeed, Atlanta, Dallas-Fort Worth and Houston have remained affordable, despite having the highest growth rates among the largest markets surveyed. In these markets, demand and supply are in general balance, despite the fact that demand is exceedingly strong. At the same time, some severely unaffordable markets are also growing, such as Phoenix or Las Vegas. Other severely unaffordable markets are growing slowly, such as Boston, New York, San Francisco, and London.¹⁵ High demand, by itself, does not raise prices. Rather, higher prices occur when demand exceeds supply --- when there is scarcity.

Supply: *New York Times* columnist and economist Paul Krugman may have best characterized the situation when he coined the term “zoned zone” to denote the regions of the United States in which land use regulation has artificially driven prices up, while prices remain affordable elsewhere.¹⁶

Research is increasingly identifying insufficient supply as the main driver of excessive house price escalation. In particular, the supply has been seriously dampened by government land use regulatory policies that have the effect of rationing land. This raises the price of land and, in consequence, there are markedly higher housing prices where such policies have been implemented.

The land restrictions go by the monikers of “smart growth” or “urban consolidation” and they make large swaths of land off-limits to housing construction or impose excessive costs¹⁷ or costly delays.¹⁸

Scarcity is also created by policies not principally intended to regulate, such as government land sales that lag well behind the underlying demand for new housing development, such as in the Las Vegas and Phoenix areas.¹⁹ Administering agencies gloat about their rising revenues, apparently oblivious to the longer-term economic and social damage their home ownership reducing policies are creating.

Harvard University published research by Glaeser and Gyourko found that there was little difference in construction costs between US markets and characterized land use controls as playing the “dominant role” in the housing costs differences.²⁰ Stable construction costs have been observed even where there has been massive house price escalation. In Australia, construction costs (labor and materials) has declined in real terms over the past quarter century.²¹ A more recent report by Glaeser estimated that Boston area house prices had been inflated 60 percent by scarcity.²² This “land rationing premium” alone (\$156,000) is enough to buy a median priced home in Dallas-Fort Worth, Houston and 16 of the other 19 affordable markets in the United States. United Kingdom Deputy Prime Minister John Prescott’s *Barker Report* cited land regulation as a principal factor in the inordinate housing price increases and associated loss of affordability.²³

Moreover, a recent Organization for Economic Cooperation and Development (OECD) report noted an association between strongly regulated land markets and higher housing prices.²⁴ The Harvard University Joint Center for Housing Studies *State of the Nation’s Housing Report 2005* notes that “development constraints drive up land and construction costs as well as prevent new housing from keeping pace with rising demand.”²⁵ A report by the Royal Institution of Chartered Surveyors (RICS) in the United Kingdom attributed housing supply difficulties to land use regulation in some Western European nations, as well as the United Kingdom.²⁶



Rationing Land and Housing Affordability: In fact, the housing markets with the worst housing affordability (highest Median Multiples) tend to have more stringent land regulation. Highly regulated markets dominate Australia, Ireland, New Zealand and the United Kingdom. Further, Vancouver, in Canada is highly regulated, along with a number of markets in the West and Northeast of the United States. Toronto, with its newly enacted land restrictions seems likely to experience serious housing affordability deterioration in the years to come (Figure 9).²⁷

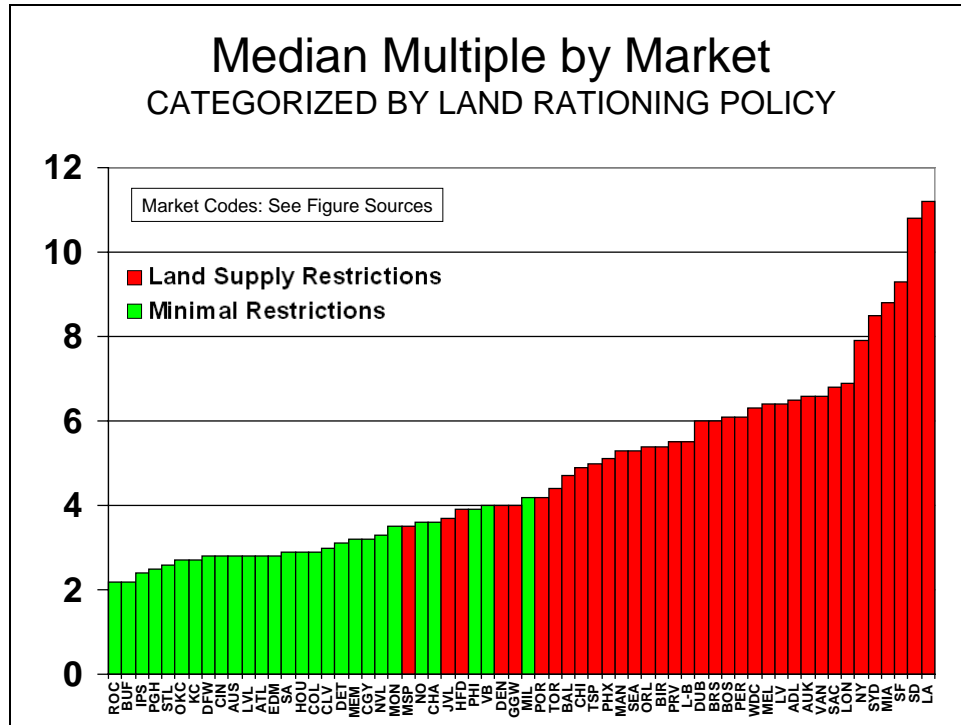


Figure 9

The problem is even becoming evident to urban planners who have initiated the excessive regulations. A recent report by the Planning Institute of Australia referred to *a destructive spiral caused by new planning schemes being made unnecessarily complex, containing too much padding and basically over regulating development unnecessarily*.²⁸ The “destructive spiral” is felt well outside the planning departments of land use regulating governments. Indeed, affordability losses are felt across the income spectrum, not just among households for whom the realistic hope of home ownership has been extinguished. The excessively high prices in highly regulated markets also raise the cost of low-income “affordable housing.” As land prices are driven higher, the public cost of providing housing assistance to low income households also increases.

On the other hand, regulation is considerably lighter in other markets. In affordable markets such as Winnipeg, Edmonton, Atlanta, Dallas-Fort Worth, Houston and a significant number of additional US markets, development is generally allowed so long as there is compliance with sensible environmental standards. Moreover, superior affordability is not limited to these North American



markets. Generally, urban housing markets have not experienced inordinate cost increases in Germany and Switzerland. In these countries, land use planning agencies have the responsibility to ensure that the supply of land is sufficient to avoid scarcity driven house price increases, though house sizes are significantly smaller than in Australia, Canada, New Zealand and the United States.²⁹

Caution: International House and Lot Size Differences

At the same time, caution should be employed in comparing Median Multiples between countries, due to substantial differences in average house and lot size. The *Demographia International Housing Affordability Survey* does not adjust the Median Multiples within its ratings to reflect these differences. The average size of housing, particularly new housing, is abnormally small in Ireland and the United Kingdom.

For example, according to national reporting agencies, the average new house constructed in Australia and the United States is approximately 2,200 square feet (over 200 square meters), including both detached houses and multiple units. New house sizes are nearly as large in New Zealand (1,900 square feet or 175 square meters), while new detached houses average 1,900 square feet (175 square meters) in Canada.³⁰ However, new average house sizes are less than one-half that size in United Kingdom, (815 square feet or 76 square meters). This is only 15 percent larger than the hundreds of thousands of standardized flats built in tower blocks before 1990 by the East German government (700 square feet or 65 square meters).³¹ Irish new house sizes are, like their UK counterparts, also comparatively small, at 945 square feet (88 square meters). Moreover, new UK houses are the smallest in the former EU-15, while new Irish houses rank ninth in size among the 15 nations (Figure 10).³²

Houses in Australia, Canada, New Zealand and the United States have increased substantially in size in recent decades.³³ In just the last 20 years, the average new detached house in Australia and New Zealand has *increased* by two-thirds the *total* size of a house in United Kingdom.³⁴ New house sizes have dropped more than 30 percent in the United Kingdom since 1920.³⁵ Ireland's smallish houses are built perplexingly small as the nation emerges as one of the most affluent in world, leading all European Union members except smaller Luxembourg.

There appears to be a general unawareness of these differences, at least in the United Kingdom. For example, Richard (Lord) Rogers, who chaired the UK Government Urban Task Force has written:

*The British are extravagant with land. We insist on building as if we lived in the American Midwest or the Australian outback. The US builds on average 40 dwellings for every hectare ... in Britain, we erect 23 new buildings for every hectare ...*³⁶

In fact, average house lots are much larger in the United States (and Australia, Canada and New Zealand) than in the United Kingdom. In the United States, new detached houses are built at 2.7 per acre (6.6 per hectare). In Australia, new detached houses are being built at 5.5 per acre (13.3 per hectare).³⁷ By comparison, in the United Kingdom, new houses were built at an average of 16 per acre (40 per hectare) in 2005.³⁸ Future lot sizes are likely to be even smaller in Dublin, where present zoning calls for 20 houses per acre (49 per hectare), which would require five (5) more houses to be



crowded onto an acre than just four years ago (13 more houses per hectare).³⁹ Seven Dublin houses or six United Kingdom houses could be built on the average new house lot in the United States or three to four compared to Australia.⁴⁰

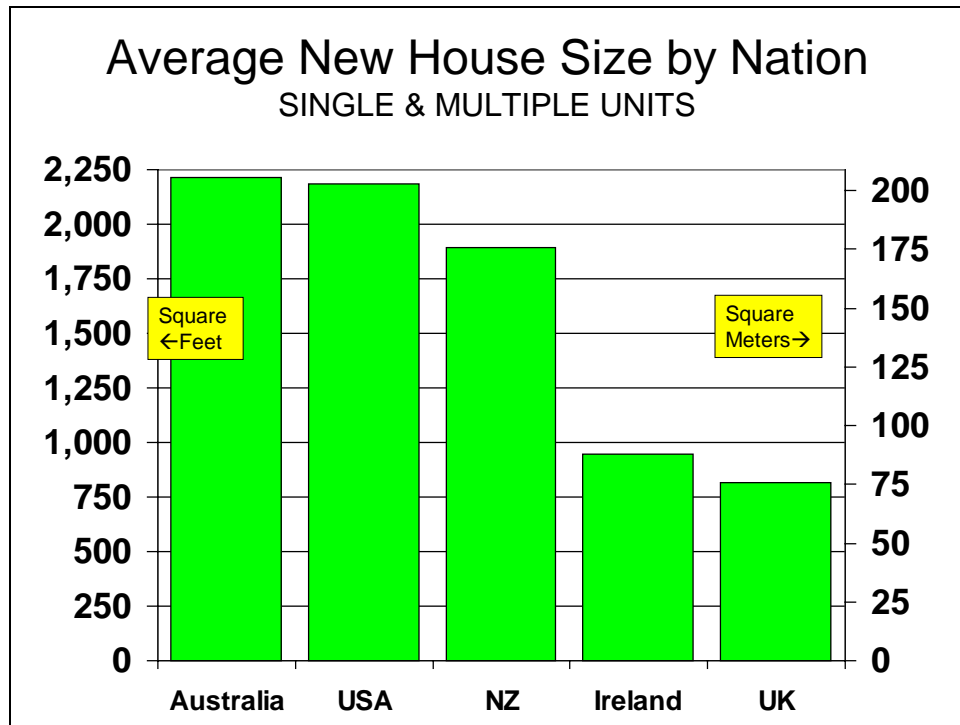


Figure 10

Indicating a similar misunderstanding, *The Sunday Times* of London wrote that an objective of an Essex County plan was:

*...to persuade builders to provide big family apartments on the continental model, rather than large numbers of small detached houses.*⁴¹

In fact, much of recently built housing stock in many continental (Western Europe) markets is detached. For example, single family houses comprise two-thirds of new house construction in France.⁴² The United Kingdom has some of the most tightly packed suburbs⁴³ in the high-income world, at densities nearly double that of Western Europe and 60 percent greater than in Japan.⁴⁴

Value for Money: New houses, adjusted for size differences, are more than twice as costly relative to incomes in Ireland and the United Kingdom as in Australia and New Zealand. Moreover, new houses in the UK and Ireland are approximately five to six times as costly, adjusted for size differences, as in affordable markets such as Indianapolis or Winnipeg. Figure 11 illustrates the scale of differences in housing affordability that would be evident if the Median Multiple were adjusted for house size.



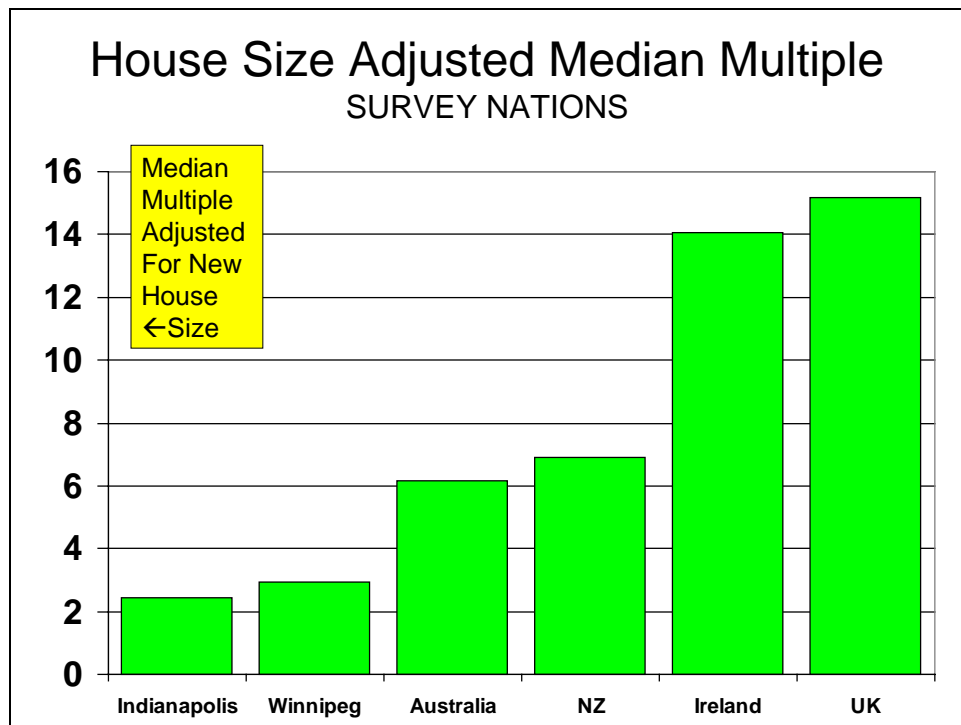


Figure 11

Housing Affordability: The Policy Imperative

In summary, the unprecedented housing affordability crisis could represent a threat to prosperous economies. Research indicates that the crisis may be, in large part, a consequence (negative externality) of the excessive land use regulation that has been adopted in many markets. Severe land use regulations have generally been adopted without any understanding of their ultimate impacts on housing affordability. Indeed, these effects have often not been considered at all. Where housing affordability concerns have been raised, the typical response has been denial rather than informed and objective analysis.

Nonetheless, a considerable body of evidence indicates that the housing affordability crisis is not result of natural market force. The principal cause seems to be excessive land use regulation that strangles housing markets and drives prices upward at rates far higher than can be attributed to economic trends. Economics teaches that scarcity tends to raise prices, a principle that applies to virtually all products and services, including houses and land.

The loss of affordability is so immense that policies such as affordability quotas, first home buyer grants, workforce housing or tax relief programs cannot possibly make a material difference, despite their rhetorical attractiveness in some circles.

The implications go far beyond the nations covered in the second Annual *Demographia International Housing Affordability Survey*. For example, the emerging economies of Eastern Europe and Asia have



the potential to speed their growth by policies that encourage household wealth creation through home ownership. In Eastern Europe, this could, in turn, improve longer economic term prospects by encouraging more young people to remain at home, rather than moving to the now richer Western Europe. There are early indications that some Eastern European nations are following this more promising path.⁴⁵

Housing markets where prices have risen far out of line with incomes are likely to suffer declining home ownership rates (as is happening in unaffordable New Zealand), with material economic and even social⁴⁶ difficulties. Public authorities in these markets should seek to resolve this problem by emulating the international best practices that have preserved housing affordability in many Canadian and US markets, and even in Germany and Switzerland.

Economist Raven Saks of the US Federal Reserve Board has published research indicating the potential for economic loss in excessively regulated markets.⁴⁷ The Joint Center for Housing Studies of Harvard University summarized the research as showing that metropolitan areas:

*... with stringent development regulations generate less employment growth than expected given their industrial bases.*⁴⁸



SCHEDULE 1

Housing Affordability Ratings

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

2005 - 3rd Quarter

Unaffordability Rank	Nation	Market	Median Multiple
SEVERELY UNAFFORDABLE			
1	United States	Los Angeles & Orange County, CA	11.2
2	United States	San Diego, CA	10.8
3	United States	Honolulu, HI	10.6
4	United States	Ventura County, CA (Los Angeles Area)	9.6
5	United States	San Francisco, CA	9.3
6	United States	Miami-West Palm Beach, FL	8.8
7	Australia	Sydney	8.5
8	United States	New York, NY-NJ-CT-PA	7.9
9	United States	Riverside-San Bernardino, CA (Los Angeles Area)	7.7
10	United States	San Jose, CA (San Francisco Area)	7.4
11	United Kingdom	London (Greater London Authority)	6.9
12	United Kingdom	Bristol	6.8
12	United States	Fresno, CA	6.8
12	United States	Sacramento, CA	6.8
15	New Zealand	Auckland	6.6
15	Australia	Hobart	6.6
15	Canada	Vancouver	6.6
18	Australia	Adelaide	6.5
19	United States	Las Vegas, NV	6.4
19	Australia	Melbourne	6.4
21	United States	Bridgeport, CT (New York Area)	6.3
21	United States	Washington, DC-VA-MD-WV	6.3
23	United States	Boston, MA-NH	6.1
23	United Kingdom	East of England (London Area)	6.1
23	Australia	Perth	6.1
26	Australia	Brisbane	6.0
26	Ireland	Dublin	6.0
26	United Kingdom	Southeast England (London Area)	6.0
29	New Zealand	Christchurch	5.9
30	United States	Tucson, AZ	5.7
31	United Kingdom	Tyne & Wear (Newcastle)	5.6
32	United States	Providence, RI-MA	5.5
32	United Kingdom	West Yorkshire (Leeds-Bradford)	5.5
34	United States	Orlando, FL	5.4
34	United Kingdom	West Midlands (Birmingham)	5.4
36	United Kingdom	Greater Manchester	5.3
36	United Kingdom	Merseyside (Liverpool)	5.3
36	United States	Seattle-Tacoma, WA	5.3
39	United Kingdom	Nottinghamshire	5.2
39	United Kingdom	South Yorkshire (Sheffield)	5.2
39	New Zealand	Wellington	5.2
42	United States	Phoenix, AZ	5.1

Unaffordability Rank	Nation	Market	Median Multiple
SERIOUSLY UNAFFORDABLE			
43	United States	Tampa-St. Petersburg, FL	5.0
44	United States	Chicago, IL	4.9
45	Australia	Canberra	4.8
45	United States	New Haven (New York Area)	4.8
47	United States	Baltimore, MD	4.7
48	United States	Allentown, PA-NJ	4.6
48	United States	Worcester (Boston Area)	4.6
50	Canada	Toronto	4.4
51	Australia	Darwin	4.3
52	United States	Milwaukee, WI	4.2
52	United States	Portland, OR-WA	4.2
MODERATELY UNAFFORDABLE			
54	United States	Denver, CO	4.0
54	United Kingdom	Strathclyde (Glasgow)	4.0
54	United States	Virginia Beach-Norfolk, VA-NC	4.0
57	United States	Hartford, CT	3.9
57	United States	Philadelphia, PA-NJ-DE-MD	3.9
57	United States	Richmond, VA	3.9
60	Canada	Hamilton	3.8
61	United States	Albuquerque, NM	3.7
61	United States	Jacksonville, FL	3.7
63	United States	Birmingham, AL	3.6
63	United States	Charlotte, NC-SC	3.6
63	United States	New Orleans, LA	3.6
66	United States	Albany, NY	3.5
66	United States	Minneapolis-St. Paul, MN-WI	3.5
66	Canada	Montreal	3.5
69	United States	Baton Rouge, LA	3.3
69	United States	Nashville, TN	3.3
71	Canada	Calgary	3.2
71	United States	Memphis, TN-AR-MS	3.2
73	United States	Detroit, MI	3.1
73	Canada	Ottawa, ON	3.1
73	United States	Raleigh, NC	3.1
73	United States	Salt Lake City, UT	3.1

Unaffordability Rank	Nation	Market	Median Multiple
AFFORDABLE			
77	United States	Cleveland, OH	3.0
78	United States	Columbus, OH	2.9
78	United States	Houston, TX	2.9
78	United States	San Antonio, TX	2.9
81	United States	Atlanta, GA	2.8
81	United States	Austin, TX	2.8
81	United States	Cincinnati, OH-KY-IN	2.8
81	United States	Dallas-Fort Worth, TX	2.8
81	Canada	Edmonton	2.8
81	United States	Louisville, KY-IN	2.8
81	Canada	Quebec	2.8
88	United States	Dayton, OH	2.7
88	United States	Kansas City, MO-KS	2.7
88	United States	Oklahoma City, OK	2.7
91	United States	Grand Rapids, MI	2.6
91	United States	St. Louis, MO-IL	2.6
91	United States	Tulsa OK	2.6
94	United States	Akron, OH	2.5
94	United States	Omaha, NE-IA	2.5
94	United States	Pittsburgh, PA	2.5
97	United States	Indianapolis, IN	2.4
97	Canada	Winnipeg	2.4
99	United States	Buffalo, NY	2.2
99	United States	Rochester, NY	2.2

SCHEDULE 2

Housing Affordability by Nation

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

2005 - 3rd Quarter

Market	Median Multiple	Affordability Rating	Median House Price	Median Household Income
AUSTRALIA				
Adelaide	6.5	Severely Unaffordable	\$272,000	\$41,700
Brisbane	6.0	Severely Unaffordable	\$310,000	\$52,000
Canberra	4.8	Seriously Unaffordable	\$350,000	\$72,600
Darwin	4.3	Seriously Unaffordable	\$300,000	\$69,400
Hobart	6.6	Severely Unaffordable	\$266,500	\$40,100
Melbourne	6.4	Severely Unaffordable	\$360,000	\$56,000
Perth	6.1	Severely Unaffordable	\$308,000	\$50,200
Sydney	8.5	Severely Unaffordable	\$520,000	\$61,000
Average of Markets	6.2			
CANADA				
Calgary	3.2	Moderately Unaffordable	\$219,000	\$67,900
Edmonton	2.8	Affordable	\$164,900	\$59,600
Hamilton	3.8	Moderately Unaffordable	\$224,900	\$59,000
Montreal	3.5	Moderately Unaffordable	\$169,400	\$48,400
Ottawa, ON	3.1	Moderately Unaffordable	\$214,900	\$69,600
Quebec	2.8	Affordable	\$135,300	\$48,100
Toronto	4.4	Seriously Unaffordable	\$290,400	\$66,500
Vancouver	6.6	Severely Unaffordable	\$373,000	\$56,500
Winnipeg	2.4	Affordable	\$118,000	\$49,400
Average of Markets	3.6			
IRELAND				
Dublin	6.0	Severely Unaffordable	€304,700	€51,000
NEW ZEALAND				
Auckland	6.6	Severely Unaffordable	\$383,300	\$57,800
Wellington	5.2	Severely Unaffordable	\$296,500	\$57,400
Christchurch	5.9	Severely Unaffordable	\$275,000	\$46,500
Average of Markets	5.9			

Market	Median Multiple	Affordability Rating	Median House Price	Median Household Income
UNITED KINGDOM				
Bristol	6.8	Severely Unaffordable	£166,800	£24,600
East of England (London Area)	6.1	Severely Unaffordable	£171,000	£28,000
Greater Manchester	5.3	Severely Unaffordable	£117,000	£22,200
London (Greater London Authority)	6.9	Severely Unaffordable	£235,000	£34,100
Merseyside (Liverpool)	5.3	Severely Unaffordable	£117,000	£21,900
Nottinghamshire	5.2	Severely Unaffordable	£127,000	£24,300
South Yorkshire (Sheffield)	5.2	Severely Unaffordable	£109,500	£21,100
Southeast (London Area)	6.0	Severely Unaffordable	£195,000	£32,300
Strathclyde (Glasgow)	4.0	Moderately Unaffordable	£89,400	£22,400
Tyne & Wear (Newcastle)	5.6	Severely Unaffordable	£115,000	£20,700
West Midlands (Birmingham)	5.4	Severely Unaffordable	£125,000	£23,100
West Yorkshire (Leeds-Bradford)	5.5	Severely Unaffordable	£120,000	£21,800
Average of Markets	5.5			
UNITED STATES				
Akron, OH	2.5	Affordable	\$129,100	\$51,900
Albany, NY	3.5	Moderately Unaffordable	\$192,800	\$55,200
Albuquerque, NM	3.7	Moderately Unaffordable	\$170,800	\$46,000
Allentown, PA-NJ	4.6	Seriously Unaffordable	\$242,700	\$52,900
Atlanta, GA	2.8	Affordable	\$171,200	\$60,900
Austin, TX	2.8	Affordable	\$167,100	\$59,500
Baltimore, MD	4.7	Seriously Unaffordable	\$282,100	\$59,500
Baton Rouge, LA	3.3	Moderately Unaffordable	\$156,300	\$46,900
Birmingham, AL	3.6	Moderately Unaffordable	\$158,400	\$44,400
Boston, MA-NH	6.1	Severely Unaffordable	\$430,900	\$70,700
Bridgeport, CT (New York Area)	6.3	Severely Unaffordable	\$476,900	\$76,300
Buffalo, NY	2.2	Affordable	\$103,700	\$47,900
Charlotte, NC-SC	3.6	Moderately Unaffordable	\$189,800	\$52,300
Chicago, IL	4.9	Seriously Unaffordable	\$274,700	\$56,500
Cincinnati, OH-KY-IN	2.8	Affordable	\$148,700	\$52,800
Cleveland, OH	3.0	Affordable	\$147,000	\$48,200
Columbus, OH	2.9	Affordable	\$156,600	\$53,300
Dallas-Fort Worth, TX	2.8	Affordable	\$147,200	\$53,400
Dayton, OH	2.7	Affordable	\$123,600	\$46,600
Denver, CO	4.0	Moderately Unaffordable	\$253,500	\$62,600
Detroit, MI	3.1	Moderately Unaffordable	\$172,100	\$55,100
Fresno, CA	6.8	Severely Unaffordable	\$290,000	\$42,800
Grand Rapids, MI	2.6	Affordable	\$140,700	\$53,200
Hartford, CT	3.9	Moderately Unaffordable	\$259,500	\$66,000
Honolulu, HI	10.6	Severely Unaffordable	\$615,000	\$58,200
Houston, TX	2.9	Affordable	\$145,100	\$50,400
Indianapolis, IN	2.4	Affordable	\$128,900	\$53,200
Jacksonville, FL	3.7	Moderately Unaffordable	\$187,000	\$50,300
Kansas City, MO-KS	2.7	Affordable	\$159,000	\$58,300
Las Vegas, NV	6.4	Severely Unaffordable	\$313,000	\$49,100
Los Angeles & Orange County, CA	11.2	Severely Unaffordable	\$553,200	\$49,500

UNITED STATES (Continued)

Louisville, KY-IN	2.8	Affordable	\$137,700	\$49,100
Memphis, TN-AR-MS	3.2	Moderately Unaffordable	\$145,500	\$45,100
Miami-West Palm Beach, FL	8.8	Severely Unaffordable	\$386,600	\$43,900
Milwaukee, WI	4.2	Seriously Unaffordable	\$219,700	\$52,200
Minneapolis-St. Paul, MN-WI	3.5	Moderately Unaffordable	\$233,000	\$65,700
Nashville, TN	3.3	Moderately Unaffordable	\$164,300	\$50,200
New Haven, CT (New York Area)	4.8	Seriously Unaffordable	\$291,900	\$60,400
New Orleans, LA	3.6	Moderately Unaffordable	\$162,100	\$44,600
New York, NY-NJ,-CT-PA	7.9	Severely Unaffordable	\$461,100	\$58,400
Oklahoma City, OK	2.7	Affordable	\$121,000	\$44,700
Omaha, NE-IA	2.5	Affordable	\$138,000	\$54,800
Orlando, FL	5.4	Severely Unaffordable	\$261,300	\$48,000
Philadelphia, PA-NJ-DE-MD	3.9	Moderately Unaffordable	\$230,600	\$58,800
Phoenix, AZ	5.1	Severely Unaffordable	\$268,000	\$52,300
Pittsburgh, PA	2.5	Affordable	\$122,600	\$48,600
Portland, OR-WA	4.2	Seriously Unaffordable	\$253,700	\$61,000
Providence, RI-MA	5.5	Severely Unaffordable	\$305,100	\$55,400
Raleigh, NC	3.1	Moderately Unaffordable	\$175,300	\$57,300
Richmond, VA	3.9	Moderately Unaffordable	\$214,500	\$55,100
Riverside-San Bernardino, CA (Los Angeles Area)	7.7	Severely Unaffordable	\$387,300	\$50,000
Rochester, NY	2.2	Affordable	\$120,000	\$54,300
Sacramento, CA	6.8	Severely Unaffordable	\$388,900	\$57,600
Salt Lake City, UT	3.1	Moderately Unaffordable	\$181,400	\$59,300
San Antonio, TX	2.9	Affordable	\$137,600	\$48,100
San Diego, CA	10.8	Severely Unaffordable	\$615,000	\$56,800
San Francisco, CA	9.3	Severely Unaffordable	\$721,900	\$78,000
San Jose, CA	7.4	Severely Unaffordable	\$705,000	\$94,900
Seattle-Tacoma, WA	5.3	Severely Unaffordable	\$325,000	\$60,900
St. Louis, MO-IL	2.6	Affordable	\$148,000	\$56,300
Tampa-St. Petersburg, FL	5.0	Seriously Unaffordable	\$213,500	\$42,800
Tucson, AZ	5.7	Severely Unaffordable	\$242,300	\$42,500
Tulsa OK	2.6	Affordable	\$123,100	\$47,700
Ventura County, CA (Los Angeles Area)	9.6	Severely Unaffordable	\$678,400	\$70,700
Virginia Beach-Norfolk, VA-NC	4.0	Moderately Unaffordable	\$208,600	\$52,300
Washington, DC-VA-MD-WV	6.3	Severely Unaffordable	\$441,400	\$70,400
Worcester, MA-CT (Boston Area)	4.6	Seriously Unaffordable	\$296,600	\$64,500
Average of Markets	4.6			

Financial information in national currency at current prices

METHODS

Median house price information is obtained from national reporting agencies. Median household income data is generally estimated using a national statistics bureau generated based adjusted to a 2005 estimate by the best available indicator of median income growth. More reliable data sources, adjustment factors and geographical definitions have been used where identified, which can make year-to-year income comparisons invalid. In the United States, a re-estimation of annual data by the Department of Housing and Urban Development since the last Survey makes comparison of US income data non-comparable with the previous edition. Because of data variations, caution should be employed in making definitive comparisons between markets with similar Median Multiples.

The following data sources were principally relied upon:

AMP Banking (Australia)
Australian Bureau of Statistics
California Association of Realtors
Canada Mortgage and Housing Corporation
Canadian Home Builders Association
Canadian Real Estate Association
Central Statistics Office Ireland
Central Valley Association of Realtors (United States)
Chambre Immobilière de Québec
Department of the Environment, Heritage and Local Government (Ireland)
Florida Association of Realtors
Fresno Association of Realtors (United States)
Housing Industry Association (Australia)
National Association of Home Builders (USA)
National Association of Realtors (USA)
National Statistics (United Kingdom)
Office of the Deputy Prime Minister (United Kingdom)
Permanent TSB (Ireland)
Real Estate Board of Edmonton
Real Estate Board of Winnipeg
Real Estate Institute of Australia
Real Estate Institute of New Zealand
Reserve Bank 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



The table below describes the housing markets included in the Survey.

Markets Included in the Demographia International Housing Affordability Survey	
Nation	Markets Included
Australia	Markets corresponding to capital city statistical areas
Canada	Markets corresponding to all metropolitan areas over 500,000
Ireland	Dublin Region (former Dublin County)
New Zealand	Markets corresponding to all metropolitan areas over 300,000
United Kingdom	Markets corresponding to all metropolitan areas over 500,000
United States	Markets corresponding to all metropolitan areas (MSAs) over 700,000

Illustrations: New Houses (Left to Right):
 Suburban Indianapolis, United States
 Suburban Montréal, Canada
 East of England (Exurban London), United Kingdom
 Suburban Dublin, Ireland
 Suburban Christchurch, New Zealand
 Suburban Adelaide, Australia

Comments and enquiries are welcome.



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Hugh Pavletich

Hugh Pavletich 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*.



SOURCES FOR FIGURES

1. Schedule 2
2. Estimated from Australian Bureau of Statistics and Real Estate Institute of New Zealand data.
3. Estimated from Statistics Canada data.
4. Estimated from Central Statistics Office (Ireland), Department of the Environment, Heritage and Local Government (Ireland), National Statistics (UK) and Office of the Deputy Prime Minister (UK) data
5. Estimated from Statistics New Zealand and Real Estate Institute of New Zealand data.
6. Estimated from US Bureau of the Census National Association of Realtors and National Association of Home Builders data.
7. Data from Figure 6.
8. Data from New Zealand Reserve Bank and Real Estate Institute of New Zealand.
9. Schedule 1, using primary markets over 1,000,000 (excluding markets in larger metropolitan areas, such as Ventura County in the Los Angeles area). Market codes shown in the table below.

Code	Market	Code	Market	Code	Market
ADL	Adelaide	HFD	Hartford	ORL	Orlando
ATL	Atlanta	HOU	Houston	PER	Perth
AUK	Auckland	IPS	Indianapolis	PGH	Pittsburgh
AUS	Austin	JVL	Jacksonville	PHI	Philadelphia
BAL	Baltimore	KC	Kansas City	PHX	Phoenix
BIR	Birmingham	L-B	Leeds-Bradford	POR	Portland
BOS	Boston	LA	Los Angeles-Orange Co.	PRV	Providence
BRS	Brisbane	LON	London	ROC	Rochester
BUF	Buffalo	LV	Las Vegas	SA	San Antonio
CGY	Calgary	LVL	Louisville	SAC	Sacramento
CHA	Charlotte	MAN	Manchester	SD	San Diego
CHI	Chicago, IL	MEL	Melbourne	SEA	Seattle
CIN	Cincinnati	MEM	Memphis	SF	San Francisco
CLV	Cleveland	MIA	Miami	STL	St. Louis
COL	Columbus	MIL	Milwaukee	SYD	Sydney
DEN	Denver	MON	Montreal	TOR	Toronto
DET	Detroit	MSP	Minneapolis-St. Paul	TSP	Tampa-St. Petersburg
DFW	Dallas-Fort Worth	NO	New Orleans	VAN	Vancouver
DUB	Dublin	NVL	Nashville	VB	Virginia Beach
EDM	Edmonton	NY	New York	WDC	Washington
GGW	Glasgow	OKC	Oklahoma City		

10. Data from Australian Bureau of Statistics, US Bureau of the Census, Infometrics Consulting Ltd. (NZ) and *European Housing Statistics 2002*.
11. House size adjustment using a Median Multiple of 2.4 (Indianapolis) and the average new US house size.



ENDNOTES

¹ “Median” should not be confused with “average.” A “median” is the midpoint of a statistical distribution, whereas the average is the sum of the values divided by the number of values. An “average” is less reliable for analyzing housing affordability because it is skewed upward by the highest housing prices and therefore yields a number that is not reflective of what the average household could expect to afford in an undistorted (unstrangled) market.

² Housing markets are based upon definitions used by national, regional and local reporters of existing home prices. In some cases, they correspond to metropolitan areas or urban areas, but in other cases, they do not.

³ States are shown for US markets in Schedules 1 and 2 because many markets are located in more than one state. Similarly, the province (Ontario) is shown for Ottawa, since the market does not include the Quebec portion of the Ottawa-Gatineau metropolitan area.

⁴ Figure sources are cited at the end of this article.

⁵ There has been a slight improvement in some Australian markets in the last year, however it would be inappropriate to consider it more than token. For example, the Median Multiple in Sydney declined from 8.8 to 8.5. The latter figure is far higher than at any except for the recent period of unprecedented escalation and housing affordability remains far below any level than can be considered healthy.

⁶ Housing New Zealand, *Local Measures of the Ability of Working Households to Become Home Owners in New Zealand* (2005) <http://www.hnzc.co.nz/housingresearch/housing%20affordability%20-%20final%20report.pdf>.

⁷ For example, minority (such as Hispanic and African-American) home ownership rates are a full one-third below white-non-Hispanic homes ownership rates in the United States. Various programs have sought to raise home ownership rates, especially among minorities. The most recent is the *President's Home Ownership Initiative*, announced by President Bush in 2004. See <http://www.whitehouse.gov/news/releases/2004/03/20040326-5.html>.

⁸ Demographia, *Major Market Housing Affordability: United States: 1995-2005* (2005). <http://www.demographia.com/db-haff19952005us.htm>.

⁹ Among the 64 markets for which data is available for both years.

¹⁰ For example, this is illustrated by the declining home ownership share of household reference persons (heads of households) under 35 years old in Australia. In the decade ending in 1988, the home ownership share in this age category dropped from 47 percent to 39 percent. This reduction occurred during a period of rising house prices relative to incomes (Median Multiple), but before the much stronger Median Multiple increases that were to follow from 2001 to 2005. See: “2000 Housing Special Article: First Home Buyers,” *Year Book Australia*, <http://http://www.abs.gov.au/Ausstats/abs@.nsf/Lookup/26D3CE89DDFEBC4ECA2569DE0024577E>.

¹¹ For example, in the United States, 78 percent of the existing mortgage portfolio had interest rates of 8.0 percent or above in 1991. By 2003, only 15 percent of mortgages had interest rates that high (data from United States Bureau of the Census, American Housing Survey).

¹² *Official Committee Hansard, House of Representatives*, Standing Committee on Economics, Finance and Public Administration, 12 August 2005, <http://www.aph.gov.au/hansard/reps/commtee/R8516.pdf>

¹³ Sundeep Tucker (*Financial Times*) “Rising Interest Rates Crimp New Zealand's Reputation,” *Los Angeles Times* (26 December 2005).

¹⁴ From 2003 to 2005, while the Reserve Bank increased the short-term interest rate nine times, the median house price in New Zealand rose at approximately the same rate as in the previous two years, when short-term interest rates were reduced.

¹⁵ US Census data indicates that in severely unaffordable metropolitan areas with more than 2.5 million population in 2000, there has been a net loss of 1.8 million “internal migrants” (people moving to an area from another area within the United States) between 2000 and 2004. Among affordable metropolitan areas in the same size classification, there has been a net gain of nearly 200,000. See: Demographia, *US Census Domestic Migration Data Reveals Heavy Core Losses* (2005); <http://www.demographia.com/db-metmigra20002004.pdf>. A particularly graphic example is the Portland (Oregon) area, where more than 98 percent of domestic migrants have moved to portions of the metropolitan area that are *outside* the urban growth boundary (Demographia, *Portland Urban Growth Boundary Keeps Out Growth*, 2005; <http://www.demographia.com/db-porugbmigr.pdf>).

¹⁶ Paul Krugman, “About that Hissing Sound in the Zoned Zone,” *The New York Times*, 8 August 2005.

¹⁷ Excessive infrastructure impact fees are discussed in Patrick N. Troy, *The Perils of Urban Consolidation*, Annandale, NSW, Australia: The Federation Press, 1996 and Wendell Cox and Joshua Utt (2004), *The Costs of Sprawl Reconsidered*:



What Does the Actual Data Show? Washington, DC: Heritage Foundation
(<http://www.heritage.org/Research/SmartGrowth/bg1770.cfm>).

¹⁸ Examples of such policies include urban growth boundaries, restraints on government land sales and releases, building moratoria, excessive development impact or infrastructure fees, excessive delays in project approvals, and minimum density requirements (large lot zoning).

¹⁹ In Las Vegas and Phoenix, governments seem to be seeking to maximize their financial return by sales at well below the rate of demand. No indication was found to indicate that the housing affordability consequences have been seriously considered.

²⁰ Edward L. Glaeser and Joseph Gyourko (2002). *The Impact of Zoning on Housing Affordability*, Cambridge, MA: Harvard Institute of Economic Research.

²¹ Ian W. Evans and Oliver Mark Hartwich, *Bigger, Better, Faster, More: Why Some Countries Plan Better than Others*, Policy Exchange (2005), http://www.policyexchange.org.uk/uploads/media/Bigger_Better_Faster_More_-_final.pdf.

²² 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).

http://www.ksg.harvard.edu/rappaport/downloads/housing_regulations/regulation_housingprices.pdf.

²³ Kate Barker (2004). *Review of Housing Supply: Delivering Stability: Securing Our Future Housing Needs: Final Report—Recommendations*. Norwich, England: Her Majesty's Stationery Office.

http://www.hm-treasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm.

²⁴ "Recent House Price Developments: The Role of Fundamentals," *OECD Economic Outlook* #78 (2005), <http://www.oecd.org/dataoecd/41/56/35756053.pdf>.

²⁵ *State of the Nation's Housing Report 2005*, Harvard University Joint Center for Housing (2005), <http://www.jchs.harvard.edu/publications/markets/son2004.pdf>.

²⁶ Michael Ball, *RICS European Housing Review 2005*, Royal Institution of Chartered Surveyors, (2005), http://www.rics.org/NR/rdonlyres/FE69252B-B62E-47BD-820E-471AA2072C65/0/chr_2005_full_report.pdf.

²⁷ See: Wendell Cox, *Myths About Urban Growth and the Toronto Greenbelt*, Fraser Institute (2004), <http://www.fraserinstitute.ca/admin/books/files/UrbanGrowth&TorontoGreenbelt.pdf>.

²⁸ Planning Institute of Australia, *Findings and Recommendations of the National Inquiry into Planning Education and Employment*, http://www.planning.org.au/index.php?option=com_docman&task=docclick&Itemid=62&bid=232&limitstart=0&limit=10, (p. 29). The report went on to characterize the process to express concern that governments are having difficulty obtaining sufficient staff to administer these planning requirements.

²⁹ Alan W. Evans and Oliver Mark Hartwich, *Bigger, Better, Faster, More: Why Some Countries Plan Better than Others*, Policy Exchange (2005), http://www.policyexchange.org.uk/uploads/media/Bigger_Better_Faster_More_-_final.pdf.

³⁰ U.S. Census Bureau, Australian Bureau of Statistics and Canadian Home Builders Association and Infometrics Consulting, Ltd (NZ), (<http://www.infometrics.co.nz/top10/art1719.htm>). The latter source indicates that from 1985 to 2003, the average size of all new houses increased more than 50 square meters in Australia and New Zealand, compared to the total average new house size of 76 square meters in the United Kingdom.

³¹ Christine Hanneman, *Architecture as Ideology*, Humboldt Universität zu Berlin (1995),

www2.hu-berlin.de/stadtsoz/mitin/ch/slab_of_gdr_eng.pdf cited in Randal O'Toole, *Smart Growth and the Ideal City* (2005), <http://www.ti.org/vaupdate53.html>. According to the Royal Institution of Surveyors, in East Germany "around a million" tower block apartments have been abandoned by residents reunification re-unification of Germany (Michael Ball, *RICS European Housing Review 2005*, Royal Institution of Chartered Surveyors, (2005), http://www.rics.org/NR/rdonlyres/FE69252B-B62E-47BD-820E-471AA2072C65/0/chr_2005_full_report.pdf, p. 17).

³² Department of Housing of the Direction General of Planning, Housing and Heritage, Walloon Region of Belgium, *Housing Statistics in the European Union 2002*, <http://www.international.vrom.nl/Docs/internationaal/housingStats2002.pdf>.

³³ For an account of US housing sizes from 1950 to 2000, see Barbara T. Alexander, *The U.S. Homebuilding Industry: A Half-Century of Building the American Dream*, John T. Dunlop Lecture, Harvard University (2000). http://www.jchs.harvard.edu/publications/markets/balexander_M00-1.pdf.

³⁴ Calculated from U.S. Census Bureau, Australian Bureau of Statistics and Canadian Home Builders Association, and Infometrics Consulting, Ltd (NZ) data.

³⁵ Focus DIY, *Houses Get that Shrinking Feeling* (2003), <http://www.focusdiy.co.uk/stry/corporate20031015>.



³⁶ Richard (Lord) Rogers, "Save Our Cities," *The Observer*, 13 February 2000,

<http://www.geog.le.ac.uk/ajs/gy342/rogers.htm>.

³⁷ United States data from Bureau of the Census http://www.census.gov/const/C25Ann/medavgdplotsize_cust.xls).

Australia data from Australian Bureau of Statistics

(<http://www.abs.gov.au/ausstats/abs@.nsf/0/15cdfb6cdb264658ca256f02007967be?OpenDocument>). The average lot or block size for both nations excludes multiple units. However, most new housing in both nations is single rather than multiple unit. Data on space requirements was not found for multiple units. However, at the US construction mix, only 3.2 houses per acre (8 houses per hectare) --- single family and multiple unit --- would be constructed even if no land were added to account for the multiple units.

³⁸ Office of the Deputy Prime Minister.

³⁹ Department of the Environment, Heritage and Local Government (Ireland), *Housing Statistics*, 24 November 2005.

⁴⁰ The smaller space allocations for new houses in Ireland and the UK do not appear to be justified by a shortage of developable land. In Ireland, approximately 4 percent of land is covered by urban development, while 8 percent is developed in England and Wales (approximately 6 percent in Great Britain). This compares to 12 percent in France and 28 percent in the Netherlands. Urban development the New World countries covers less land, from approximately 0.3 percent in Australia to 2.6 percent in the United States. Smaller urban areas generally take up considerably more space in proportion to their populations than the larger urban centers (see <http://www.demographia.com/db-intlualand.htm>).

⁴¹ Hugh Pearlman, "The Greening of 10 MPH Suburbia," *The Sunday Times*, (November 20, 2005),

<http://www.timesonline.co.uk/article/0,,2087-1879922,00.html>

⁴² Michael Ball, *RICS European Housing Review 2005*, Royal Institution of Chartered Surveyors, (2005),

http://www.rics.org/NR/rdonlyres/FE69252B-B62E-47BD-820E-471AA2072C65/0/chr_2005_full_report.pdf

⁴³ Nearly all urban population growth in Western Europe, Japan, Australia, Canada, New Zealand and the United States has been suburban for decades (Demographia, *High-Income World Metropolitan Areas: Core City and Suburban Population Trends*, <http://www.demographia.com/db-highmetro.htm>).

⁴⁴ Demographia, *Suburban, Core & Urban Densities by Area: Western Europe, Japan, United States,*

Canada, Australia & New Zealand (2005) <http://www.demographia.com/db-intlsub.htm>.

⁴⁵ http://www.rics.org/NR/rdonlyres/FE69252B-B62E-47BD-820E-471AA2072C65/0/chr_2005_full_report.pdf.

⁴⁶ For example, see Benjamin M. Friedman, *The Moral Consequences of Economic Growth*, New York: Alfred A. Knopf, 2005.

⁴⁷ Raven E. Saks, *Job Creation and Housing Construction: Constraints on Employment and Growth in Metropolitan Areas*, Harvard University Joint Center for Housing (2004), http://www.jchs.harvard.edu/publications/markets/w04-10_saks.pdf.

⁴⁸ *State of the Nation's Housing Report 2005*, Harvard University Joint Center for Housing (2005). p. 6.,

<http://www.jchs.harvard.edu/publications/markets/son2004.pdf>.

