DEMOGRAPHIA

5th Annual Demographia International Housing Affordability Survey: 2009

Ratings for Metropolitan Markets

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

(Data for 3rd Quarter 2008)

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Performance Urban Planning

5th Annual Demographia International Housing Affordability Survey

PREFACE

By Dr. Shlomo Angel

Cities grow and expand. As their population increases, their areas increase even faster. London, for example had a population of 845,000 in the year 1800 and occupied 40 square kilometers at a gross density of 211 persons per hectare. In the year 2000, it had a population of 10.3 million people and occupied 1,855 square kilometers at a gross density of 54 persons per hectare. The average density in London declined at an average rate of 0.67% per annum during this period. In a global sample of 120 cities, my colleagues and I found that the built-up area densities of cities decreased significantly between 1990 and 2000, at an average rate of 1.7% per annum [World Bank, *The Dynamics of Global Urban Expansion*, 2005]. Historical data on 30 cities that I am studying now suggest that the decline in average urban densities is almost a century old in many cities, not simply a passing phenomenon but a consequence of urban population growth in a period of rapid urbanization, improved living standards, and a host of technological innovations that have made urban transport cheap and efficient. In light of these findings, the current efforts to contain the pace of the outward expansion of cities for one reason or another are, at the very least, open to serious question.

Dr. Shlomo Angel

For cities to expand outward at their current pace — to accommodate their growing populations or the increased demand for space resulting from higher incomes — the supply of land must not be artificially constrained. Land supply bottlenecks lead to increases in land prices and, since land is a major housing input, to increases in house prices. The more stringent the restrictions, the less is the housing market able to respond to increased demand, and the more likely house prices are to increase. And when residential land is very difficult to come by, housing becomes unaffordable.

Wendell Cox and Hugh Pavletich repeatedly remind us of the causal connection between land supply restrictions and housing affordability in their annual surveys. Their *5th Annual Demographia International Housing Affordability Survey* brings together the growing body of empirical evidence that placing restrictions on urban land supplies leads to serious house price escalation. They also point out that land supply restrictions may have been at the root of the financial crisis of 2008, as financial analysts came to rely on land supply bottlenecks in their overoptimistic projections of house price inflation in all major markets. If that was indeed the case, and I, for one, suspect it was, then many

of us taxpayers will bear the burden of those restrictions by paying out our share of the massive financial bailout needed to repair the damage caused by the collapse of global financial markets.

Protecting adequate amounts of green areas surrounding our cities — be it for conserving fertile farm lands, creating public open spaces, or protecting sensitive natural habitats — is indeed a lofty and sensible goal, and environmentalists the world over should be commended for championing it. But the protection of open space is not without cost. If the selective protection of open spaces is translated into blanket *containment* policies that restrict the supply of urban land in one way or another, then land markets are affected. These effects need to become more transparent and we need to explore their impact on the efficiency, equity, and sustainability of urban development. Unfortunately, most of those chiming in on this debate reflect ideological positions of one kind or another rather than investigating the available data and exploring the causal connections in the data more rigorously.

The 5th *Annual Demographia International Housing Affordability Survey* is a major step in this direction. It provides critical and necessary evidence for a debate that is still quite resistant to rational discourse and sensible resolution despite appeals to 'smart growth' that suggest a serious application of enlightened minds to the issue of managing urban expansion. There are those who argue that high urban land prices, like high gasoline prices, are essential positive signals for the housing market to move towards higher-density living. They welcome both. The higher the cost of land and transport, they say, the more compact cities will become. Then more people will use public transport, there will be less congestion and less pollution, and cities will be more convivial places to live in. And if planning restrictions lead to higher land prices, then that is only for the common good.

There is broad political support for this agenda, at least in part because most sitting residents that already own homes welcome any planning restrictions that increase the value of their housing assets (and if that makes it impossible for their kids to live in the neighborhood, so be it…). In other words, as several authors have noted, homeowners may not care about affordable housing and may prefer housing to be unaffordable as long as they own a home that was bought *before* prices shot up. Unfortunately, those same homeowners are also resistant to densification, regardless of its trumpeted merits: more public transport use, less congestion, less pollution and all. They typically want their neighborhoods to remain exactly as they are, resisting any attempts to add rooms and extensions to existing dwellings let alone allowing the construction of multi-family dwellings in their midst. If there is to be densification, they claim, it should be elsewhere, "Not in My Back Yard". Needless to say, densification restricted to the urban fringe because of high land prices will not lead to any of the hoped for merits of a dense city. On the contrary, it is likely to increase commuting and pollution while adding nothing to making public transport more feasible.

And so, while cities need to expand to accommodate both population growth and a growing demand for larger homes and larger businesses that accompanies economic growth, there is serious resistance among policy makers *both* to their horizontal expansion — derided as sprawl — *and* to their vertical expansion through the densification of existing neighborhoods. This resistance inevitably creates the supply shortages that fuel house price inflation.

In the hundreds of cities with overpriced housing characterized in the *Survey*, first-time homeowners and renters will continue to confront exorbitant expenditures on shelter while the public debate continues on whether or not to relax the stranglehold on the supply of land for residential construction. We can only hope that by continuing to focus attention on this issue, one of the most critical issues now facing our cities, the authors of the *Survey* will continue, as they have before, to broaden the discussion and to improve the evidence necessary to arrive at the right political choices now confronting growing cities everywhere.

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EXECUTIVE SUMMARY

The *5th Annual Demographia International Housing Affordability Survey* expands coverage to 265 markets in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States. 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 Rating Categories

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

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

Over the past year, house prices have declined in most markets. This "bursting of the housing bubble" followed an unprecedented increase in housing prices in all markets except some in the United States and Canada. The result is that housing affordability has generally improved, though remains at Median Multiples well above the historic norm in many markets.

Affordability Improves: There are 87 "affordable" markets, all in the United States (77) and Canada (10). As in 2007, the "affordable markets" include the three markets above 5,000,000 population with the greatest demand, Atlanta, Dallas-Fort Worth and Houston. A number of additional major markets (markets with more than 1,000,000 residents) in the United States are "affordable," while Winnipeg is Canada's largest "affordable" market (Table ES-2).

"Severely Unaffordable" Markets Remain: The least affordable markets are generally in Australia, Canada's province of British Columbia, New Zealand, the United Kingdom and California

(Table ES-3). However, many of these severely unaffordable markets have experienced steep price declines in the last year. Among the major markets, Vancouver is the least affordable, with a Median Multiple of 8.3, followed by Sydney (8.3), San Francisco (8.0), San Jose (7.2), Adelaide (7.1), Melbourne (7.1) New York (7.0) and London (6.9).

Why the Housing Bubble Occurred

Various theories have been used to describe why the housing bubble occurred. In some markets, the Median Multiple doubled or even tripled. In other markets, the Median Multiple remained below the historic maximum norm. Any plausible theory must describe why house prices virtually "exploded" in some markets, while remaining at or near historic norms in other markets. Most factors, such as more liberal mortgage qualifications, and lower interest rates applied virtually equally throughout each nation and thus cannot explain the vastly different cost experiences that have occurred between markets. There is, however, one factor that varies substantially between markets, at least in the United States and Canada --- the nature of land use regulation. Some markets are more restrictively regulated (prescriptive markets) and some markets are lightly regulated (responsive markets). Substantial housing affordability differences are noted between these two market classifications. The house price increase differentials between markets are far smaller in nations that have virtually entirely converted to prescriptive land use regulation and where, as a consequence, price escalation has been unprecedented.

Economics, Land Use Regulation and Housing Affordability: Looser mortgage qualification standards over the past decade led to an increase in the demand for owned housing. Markets with prescriptive land use policies lacked the resilient and competitive land markets that would have allowed the greater demand to be accommodated without inordinate increases in house prices. Well before the house price "bubble" reached its peak, top economists were expressing concern about the price escalating impact of prescriptive land use regulation.

The fundamental problem with prescriptive land use regulation is that it prohibits urban land markets from functioning efficiently and creates artificial scarcity values. This is illustrated by comparing the operation of land markets on and beyond the urban fringe under prescriptive regulation and responsive regulation.

Responsive land use regulation was generally the norm in the surveyed nations for decades after World War II, with the exception of the United Kingdom. Home builders and land developers would purchase land from rural land owners (often agricultural). No particular land owner could be certain that their property would be purchased. As a result, there was robust competition and the value of property for housing development tended to sell for its agricultural value plus a premium.

Strangling Urban Land Markets

The most destructive strategies of prescriptive land use regulation involve the limiting or rationing the amount of land that is available for development. This is often accomplished by the imposition of urban growth boundaries or prohibiting development across wide swaths of land on the urban fringe. Mandatory infill requirements are used in an attempt to force more housing into the existing urban footprint, in an attempt to increase densities. Governments with

land use authority often point to having a certain "number of years" of supply for housing, failing to recognize that this very limitation tells owners whose land can be developed and whose cannot. The result is to increase the price of land and housing. It is inappropriate to use "years of supply" indicators to evaluate housing markets. Price is the only valid indicator and it should be contrasted with incomes, something that the Median Multiple accomplishes.

Even with their "years of supply" measures, governments often require "serial" development within the limited areas where building is permitted, skewing prices even higher and making the market far more uncertain for builders and developers. It is not surprising that buyers engage in "land banking" to ensure a sufficient supply of land to continue their businesses, or that such constrained market attract speculators whose activity only intensifies the price increases already set in motion by prescriptive land use regulation.

The problem is not limited to land regulation. There are mandatory master planning requirements and mandatory "new urbanism," which raise the price of housing and deter competition from smaller, more entrepreneurial builders and developers. Some areas now require community infrastructure to be paid for by new residents, rather than the community. These measures also increase the price of housing.

Land Use Regulation and House Price Volatility: Not only does prescriptive land use regulation artificially increase house prices, but it also makes prices more volatile. Prescriptive land use regulation brings more chaotic "boom and bust" cycles to housing markets. They convert what would have otherwise been modest price bubbles into extreme price bubbles.

Land Use Regulation and the International Financial Crisis

The higher house prices and volatility associated with prescriptive land use policies had a direct association to the present international financial crisis, which appears to be the worst since the Great Depression. Virtually all analysts agree that the US mortgage "meltdown" precipitated the crisis. Demand had been driven upward by more liberal mortgage qualification policies. In the prescriptive markets, the supply "vent" was not allowed to sufficiently respond, which forced housing prices up sharply. In contrast, in the responsive markets, house prices remained at or near their historic relationship to household incomes. When the foreclosures began, the losses were far greater in the prescriptive markets, which led to an intensity of losses the mortgage market could not sustain.

The Way Forward

Considerable intellectual progress has been made in Australia, New Zealand and the United Kingdom as an increasing number of analysts and public officials have recognized the nexus between prescriptive planning and higher house prices. At the same time, there is little recognition of the consequences of prescriptive land use regulation consequences among elected officials, planners and the media in the United States and Canada. In many areas, efforts continue to expand or implement prescriptive land use regulation, even as concerns are voiced about the loss of housing affordability, which, of course, is a principal result of such regulations.

It is not surprising that house construction has fallen to the lowest rate in decades and that house sales have fallen sharply, even where house price reductions have been modest or not occurred.

However, there is a growing realization of the problem in the US economics community. Harvard's Edward Glaeser has proposed that the federal government provide incentives to encourage state and local governments to loosen prescriptive land use regulation.[1]

> *Localities tend to put their own interests ahead of the national interest by restricting building in order to keep prices up and reduce congestion. The federal government should increase its efforts to counter this tendency. After all, stopping building in one area just leads to building and more congestion somewhere else.*

There is unlikely to be a sound recovery until governments at national and local level start allowing new housing to be built at costs within the historic Median Multiple norm, at or below three times annual household income.

[1] http://economix.blogs.nytimes.com/2008/12/16/two-ways-to-revamp-us-housing-policy/

Table ES-2 Affordable Housing Markets								
Rank	Nation	Metropolitan Market	Median Multiple		Rank	Nation	Metropolitan Market	Median Multiple
1	United States	Youngstown, OH-PA	1.8		39	Canada	Saguenay, QC	2.6
2	United States	Fort Wayne, IN	1.9		39	United States	St. Louis, MO-IL	2.6
3	United States	Evansville, IN-KY	2.0		39	United States	Wichita, KS	2.6
3	United States	South Bend, IN-MI	2.0		48	United States	Columbus, OH	2.7
5	United States	Canton, OH	2.1		48	United States	Dallas-Fort Worth, TX	2.7
5	Canada	Cape Breton, NS	2.1		48	United States	Des Moines, IA	2.7
5	United States	Davenport-Moline, IA-IL	2.1		48	United States	Hickory, NC	2.7
5	United States	Flint, MI	2.1		48	United States	Holland, MI	2.7
5	United States	Fort Smith, AR-OK	2.1		48	United States	Kansas City, MO-KS	2.7
5	United States	Lansing, MI	2.1		48	United States	Little Rock, AR	2.7
5	United States	Toledo, OH	2.1		48	United States	Memphis, TN-MS-AR	2.7
12	United States	Akron, OH	2.2		48	United States	Ogden, UT	2.7
12	United States	Clarksville, TN-KY	2.2		48	United States	Port St. Lucie, FL	2.7
12	United States	Grand Rapids, MI	2.2		48	Canada	Saint John, NB	2.7
12	United States	Indianapolis, IN	2.2		48	Canada	Trois-Rivieres, QC	2.7
12	Canada	Thunder Bay, ON	2.2		48	United States	Winston-Salem, NC	2.7
17	Canada	Chatham, ON	2.3		61	United States	Ann Arbor, MI	2.8
17	United States	Cleveland, OH	2.3		61	United States	Gainesville, GA	2.8
17	United States	Detroit, MI	2.3		61	United States	Green Bay, WI	2.8
17	United States	Erie, PA	2.3		61	United States	Harrisburg, PA	2.8
17	United States	Killeen, TX	2.3		61	United States	Lincoln, NE	2.8
17	United States	Rockford, IL	2.3		61	United States	Oklahoma City, OK	2.8
17	Canada	Windsor, ON	2.3		61	United States	Palm Bay-Melbourne, FL	2.8
24	United States	Columbus, GA-AL	2.4		61	United States	Springfield, MO	2.8
24	United States	Dayton, OH	2.4		61	Canada	St. John's, NL	2.8
24	United States	Fayetteville, NC	2.4		70	United States	Anchorage, AK	2.9
24	United States	Huntington, WV-KY-OH	2.4		70	United States	Brownsville, FL	2.9
24	Canada	Moncton, NB	2.4		70	United States	Houston, TX	2.9
24	United States	Peoria, IL	2.4		70	United States	Jackson, MS	2.9
24	United States	Rochester, NY	2.4		70	United States	Lafayette, LA	2.9
24	United States	Utica, NY	2.4		70	United States	Louisville, KY-IN	2.9
32	United States	Buffalo, NY	2.5		70	United States	Nashville, TN	2.9
32	United States	Cedar Rapids, IA	2.5		70	United States	Scranton-Wilkes-Barre, PA	2.9
32	United States	Cincinnati, OH-KY-IN	2.5		70	United States	Tulsa, OK	2.9
32	United States	Huntsville, AL	2.5		70	United States	York, PA	2.9
32	United States	Kalamazoo, MI	2.5		80	United States	Beaumont, TX	3.0
32	United States	Omaha, NE-IA	2.5		80	United States	Chattanooga, TN-GA	3.0
32	United States	Syracuse, NY	2.5		80	United States	Columbia, SC	3.0
39	United States	Atlanta, GA	2.6		80	United States	Kingsport, TN-VA	3.0
39	United States	Augusta (GA)	2.6		80	United States	Reading, PA	3.0
39	United States	Duluth, MN-WI	2.6		80	United States	Savannah, GA	3.0
39	United States	Fayetteville, AR-MO	2.6		80	United States	Spartanburg, SC	3.0
39	United States	Lubbock, TX	2.6		80	Canada	Winnipeg, MB	3.0
39	United States	Pittsburgh, PA	2.6					

Table ES-3 Severely Unaffordable Housing Markets								
Rank	Nation	Metropolitan Market	Median Multiple		Rank	Nation	Metropolitan Market	Median Multiple
1	Australia	Sunshine Coast, QLD	9.6		32	Australia	Geelong, VIC	6.0
2	United States	Honolulu, HI	9.1		34	United Kingdom	Aberdeen, Scotland	5.9
3	Australia	Gold Coast, QLD-NSW	8.7		34	Australia	Albury-Wodonga, NSW-VIC	5.9
4	Canada	Vancouver, BC	8.4		34	Australia	Darwin, NT	5.9
5	Australia	Sydney, NSW	8.3		34	Australia	Rockingham, QLD	5.9
6	United States	San Francisco-Oakland, CA	8.0		34	United States	San Diego, CA	5.9
7	United States	San Jose, CA	7.4		34	New Zealand	Wellington	5.9
7	Canada	Victoria, BC	7.4		40	Australia	Mackay, QLD	5.8
9	United States	San Luis Obispo, CA	7.3		41	Australia	Townsville, QLD	5.7
10	Australia	Bundaberg, QLD	7.2		42	United States	Bridgeport, CT	5.6
10	United States	Los Angeles, CA	7.2		42	Ireland	Galway	5.6
12	Australia	Adelaide, SA	7.1		42	Australia	Launceston, TAS	5.6
12	Australia	Melbourne, VIC	7.1		42	Australia	Maitland , NSW	5.6
14	Australia	Mandurah, WA	7.0		42	United States	Miami-West Palm Beach, FL	5.6
14	United States	New York, NY-NJ-PA	7.0		47	United States	Boulder, CO	5.5
16	United Kingdom	Belfast, Northern Ireland	6.9		47	New Zealand	Dunedin	5.5
16	United Kingdom	London, England	6.9		47	United Kingdom	Edinburgh, Scotland	5.5
16	United States	Santa Cruz, CA	6.9		47	United States	Santa Rosa, CA	5.5
19	Canada	Kelowna, BC	6.8		51	Ireland	Cork	5.4
19	United Kingdom	Southwest Region, England	6.8		51	United States	Oxnard, CA	5.4
19	Australia	Wollongong, NSW	6.8		51	United Kingdom	Wales	5.4
22	United Kingdom	London Exurbs, England	6.7		54	United States	Boston, MA-NH	5.3
23	Australia	Newcastle, NSW	6.6		55	Australia	Bunbury, WA	5.2
23	New Zealand	Taraunga-W. Bay of Plenty	6.6		55	New Zealand	Hamilton-Waikato	5.2
25	Canada	Abbotsford, BC	6.5		55	New Zealand	Napier-Hastings	5.2
26	New Zealand	Auckland	6.4		55	United States	Seattle-Tacoma, WA	5.2
26	Australia	Perth, WA	6.4		55	United Kingdom	W. Midlands Region, England	5.2
28	Australia	Brisbane, QLD	6.3		60	Australia	Canberra, ACT-NSW	5.1
29	Australia	Hobart, TAS	6.2		60	United Kingdom	East Midlands Region, England	5.1
30	Australia	Cairns, QLD	6.1		60	United States	Eugene, OR	5.1
30	New Zealand	Christchurch	6.1		60	United Kingdom	Perth, Scotland	5.1
32	Ireland	Dublin	6.0		60	Australia	Toowoomba, QLD	5.1

5th Annual Demographia International Housing Affordability Survey

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

INTRODUCTION

This is the fifth 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.[2] This edition is expanded from 227 to 265 metropolitan markets,[3] though coverage has been reduced in England and Wales due to slower government house price reporting.

The *Demographia International Housing Affordability Survey* is unique in providing standardized comparisons of housing affordability between international housing markets. The *5th Annual Demographia International Housing Affordability Survey* includes estimates from the September quarter (third quarter) of 2008.

Most examinations of housing affordability focus on national data, which can mask significant differences between markets. In contrast, the *Demographia International Housing Affordability Survey* assesses the international housing affordability at the 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.[4] 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.

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[2] 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.

[3] All of the markets reported upon are metropolitan areas, which include core municipalities (such as the city of Atlanta, the city council area of Sydney or the Greater London Authority). Metropolitan areas also include rural and exurban territory that has strong economic ties to the core municipalities. In one case, London, the exurban market is separated from core metropolitan market. The market selection criteria are described in Table 6 in the Methods and Sources section.

[4] *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.

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.[5] 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.

Indeed, this historical relationship should have provided a warning to the economics and policy community, much of which seems to have assumed prices would continue to escalate to previously unknown heights. The severe price declines that have occurred in some markets over the last year strongly attest to the significance of the historic Median Multiple norm.

Housing affordability ratings are assigned based upon the Median Multiple (Table 1). If the subject of the *Survey* were valuation, rather than housing affordability, the same Median Multiple categories could be used to evaluate markets as appropriately valued, moderately overvalued, seriously overvalued and severely overvalued.

Table 1
Demographia Housing Affordability Rating Categories

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

HOUSING AFFORDABILITY RATINGS

The *5th Annual Demographia International Housing Affordability Survey* uses existing house sales data to rate housing affordability in the 265 markets. There are 87 "affordable" markets, 74 "moderately unaffordable" markets, 49 markets "seriously unaffordable" markets and 64 "severely unaffordable: markets (Table 2). The affordability ratings for all markets are shown, by affordability rating category, in Schedule 1.[6]

Caution is urged in comparing the data between annual reports. Changes in data sources, base year income information, housing data sources and geographical definitions make precise year to year comparisons less reliable. Comparisons should be generally limited to ratings categories.[7]

This year's results are materially different than in the four previous editions, because of the generally declining house prices in many markets.

[5] http://www.jchs.harvard.edu/publications/markets/son2007/metro_affordability_index_2007.xls
[6] States are shown for US markets in Schedules 1 and 2 because many markets are located in more than one state.
[7] Demographia attempts to use the most reliable available data at the time of report preparation. This necessitates adopting more reflective sources when they become available, including updates of existing sources and adoption of new sources. Additional details on comparability are provided below.

Table 2 Distribution of Markets by Housing Affordability Rating Category		
Rating	Median Multiple	Number of Markets
Affordable	3.0 or Less	87
Moderately Unaffordable	3.1 to 4.0	74
Seriously Unaffordable	4.1 to 5.0	40
Severely Unaffordable	5.1 & Over	64
TOTAL		265

Much of the reduction in prices has occurred in markets that have experienced the greatest loss in housing affordability in the past. The largest house price decreases over the past year occurred in Ireland, New Zealand and the United Kingdom, where housing affordability in nearly all markets had reached "severely unaffordable" (Median Multiple over 5.0). In the United States, the house price declines have been far higher in those markets that had experienced the greatest housing price increases, while markets that experienced much smaller price increases experienced far more modest losses.[8]

Affordable Markets: All of the 87 affordable markets (having a Median Multiple of 3.0 or below) were in Canada and the United States (Table 3). There were 77 affordable markets in the United States and 10 affordable markets in Canada.

The most affordable market is Youngstown, with a Median Multiple of 1.8. Cape Breton is Canada's most affordable market with a Median Multiple of 2.1. Indianapolis is the most affordable major metropolitan market (markets with more than 1,000,000 population), with a Median Multiple of 2.2.[9] There are 16 additional affordable major markets, including Cleveland, Detroit, Rochester, Cincinnati, Atlanta, Pittsburgh, St. Louis, Memphis, Columbus, Kansas City, Dallas-Fort Worth, Oklahoma City, Louisville, Nashville and Houston.

The most affordable major market in Canada was Ottawa-Gatineau, with a Median Multiple of 3.4 (rated moderately unaffordable).

[8] http://www.demographia.com/db-usahs2008y.pdf

[9] Indianapolis is sometimes wrongly thought of as a "Rust Belt" metropolitan area. In fact, Indianapolis has grown at a greater rate than the historic fast growing metropolitan areas of Seattle, Los Angeles, San Diego and Washington (DC) since 2000. Moreover, its net domestic migration gains have ranked 18th out of the 51 metropolitan areas with more than 1,000,000 in the United States.

Table 3 Affordable Housing Markets							
Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	United States	Youngstown, OH-PA	1.8	39	Canada	Saguenay, QC	2.6
2	United States	Fort Wayne, IN	1.9	39	United States	St. Louis, MO-IL	2.6
3	United States	Evansville, IN-KY	2.0	39	United States	Wichita, KS	2.6
3	United States	South Bend, IN-MI	2.0	48	United States	Columbus, OH	2.7
5	United States	Canton, OH	2.1	48	United States	Dallas-Fort Worth, TX	2.7
5	Canada	Cape Breton, NS	2.1	48	United States	Des Moines, IA	2.7
5	United States	Davenport-Moline, IA-IL	2.1	48	United States	Hickory, NC	2.7
5	United States	Flint, MI	2.1	48	United States	Holland, MI	2.7
5	United States	Fort Smith, AR-OK	2.1	48	United States	Kansas City, MO-KS	2.7
5	United States	Lansing, MI	2.1	48	United States	Little Rock, AR	2.7
5	United States	Toledo, OH	2.1	48	United States	Memphis, TN-MS-AR	2.7
12	United States	Akron, OH	2.2	48	United States	Ogden, UT	2.7
12	United States	Clarksville, TN-KY	2.2	48	United States	Port St. Lucie, FL	2.7
12	United States	Grand Rapids, MI	2.2	48	Canada	Saint John, NB	2.7
12	United States	Indianapolis, IN	2.2	48	Canada	Trois-Rivieres, QC	2.7
12	Canada	Thunder Bay, ON	2.2	48	United States	Winston-Salem, NC	2.7
17	Canada	Chatham, ON	2.3	61	United States	Ann Arbor, MI	2.8
17	United States	Cleveland, OH	2.3	61	United States	Gainesville, GA	2.8
17	United States	Detroit, MI	2.3	61	United States	Green Bay, WI	2.8
17	United States	Erie, PA	2.3	61	United States	Harrisburg, PA	2.8
17	United States	Killeen, TX	2.3	61	United States	Lincoln, NE	2.8
17	United States	Rockford, IL	2.3	61	United States	Oklahoma City, OK	2.8
17	Canada	Windsor, ON	2.3	61	United States	Palm Bay-Melbourne, FL	2.8
24	United States	Columbus, GA-AL	2.4	61	United States	Springfield, MO	2.8
24	United States	Dayton, OH	2.4	61	Canada	St. John's, NL	2.8
24	United States	Fayetteville, NC	2.4	70	United States	Anchorage, AK	2.9
24	United States	Huntington, WV-KY-OH	2.4	70	United States	Brownsville, FL	2.9
24	Canada	Moncton, NB	2.4	70	United States	Houston, TX	2.9
24	United States	Peoria, IL	2.4	70	United States	Jackson, MS	2.9
24	United States	Rochester, NY	2.4	70	United States	Lafayette, LA	2.9
24	United States	Utica, NY	2.4	70	United States	Louisville, KY-IN	2.9
32	United States	Buffalo, NY	2.5	70	United States	Nashville, TN	2.9
32	United States	Cedar Rapids, IA	2.5	70	United States	Scranton-Wilkes-Barre, PA	2.9
32	United States	Cincinnati, OH-KY-IN	2.5	70	United States	Tulsa, OK	2.9
32	United States	Huntsville, AL	2.5	70	United States	York, PA	2.9
32	United States	Kalamazoo, MI	2.5	80	United States	Beaumont, TX	3.0
32	United States	Omaha, NE-IA	2.5	80	United States	Chattanooga, TN-GA	3.0
32	United States	Syracuse, NY	2.5	80	United States	Columbia, SC	3.0
39	United States	Atlanta, GA	2.6	80	United States	Kingsport, TN-VA	3.0
39	United States	Augusta (GA)	2.6	80	United States	Reading, PA	3.0
39	United States	Duluth, MN-WI	2.6	80	United States	Savannah, GA	3.0
39	United States	Fayetteville, AR-MO	2.6	80	United States	Spartanburg, SC	3.0
39	United States	Lubbock, TX	2.6	80	Canada	Winnipeg, MB	3.0
39	United States	Pittsburgh, PA	2.6				

Least Affordable Markets: In a major change from previous years, most of the least affordable markets are *outside* the United States. Last year, the 5 least affordable markets were in the United States. This year, 3 of the least affordable markets are in Australia and only one in the United States. This change is, of course, the result of the steep housing price declines that have been experienced in some markets in the United States, especially California.

The 64 severely unaffordable markets include 24 in Australia, 16 in the United States, 10 in the United Kingdom,[10] 7 in New Zealand, 4 in Canada and 3 in Ireland (Table 4).

The least affordable major market is Vancouver, with a Median Multiple of 8.4. Sydney was the second least affordable major market, with a Median Multiple of 8.3 followed by San Francisco, with a Median Multiple of 8.0.[11] Other major markets in the least affordable 20 are San Jose (7th), Los Angeles (10th and last year's least affordable), Adelaide and Melbourne (tied at 12th), New York (14th), London (16th) and England's Southwest Region (19th).

Table 4
Severely Unaffordable Housing Markets

Rank	Nation	Metropolitan Market	Median Multiple	Rank	Nation	Metropolitan Market	Median Multiple
1	Australia	Sunshine Coast, QLD	9.6	32	Australia	Geelong, VIC	6.0
2	United States	Honolulu, HI	9.1	34	United Kingdom	Aberdeen, Scotland	5.9
3	Australia	Gold Coast, QLD-NSW	8.7	34	Australia	Albury-Wodonga, NSW-VIC	5.9
4	Canada	Vancouver, BC	8.4	34	Australia	Darwin, NT	5.9
5	Australia	Sydney, NSW	8.3	34	Australia	Rockingham, QLD	5.9
6	United States	San Francisco-Oakland, CA	8.0	34	United States	San Diego, CA	5.9
7	United States	San Jose, CA	7.4	34	New Zealand	Wellington	5.9
7	Canada	Victoria, BC	7.4	40	Australia	Mackay, QLD	5.8
9	United States	San Luis Obispo, CA	7.3	41	Australia	Townsville, QLD	5.7
10	Australia	Bundaberg, QLD	7.2	42	United States	Bridgeport, CT	5.6
10	United States	Los Angeles, CA	7.2	42	Ireland	Galway	5.6
12	Australia	Adelaide, SA	7.1	42	Australia	Launceston, TAS	5.6
12	Australia	Melbourne, VIC	7.1	42	Australia	Maitland , NSW	5.6
14	Australia	Mandurah, WA	7.0	42	United States	Miami-West Palm Beach, FL	5.6
14	United States	New York, NY-NJ-PA	7.0	47	United States	Boulder, CO	5.5
16	United Kingdom	Belfast, Northern Ireland	6.9	47	New Zealand	Dunedin	5.5
16	United Kingdom	London, England	6.9	47	United Kingdom	Edinburgh, Scotland	5.5
16	United States	Santa Cruz, CA	6.9	47	United States	Santa Rosa, CA	5.5
19	Canada	Kelowna, BC	6.8	51	Ireland	Cork	5.4
19	United Kingdom	Southwest Region, England	6.8	51	United States	Oxnard, CA	5.4
19	Australia	Wollongong, NSW	6.8	51	United Kingdom	Wales	5.4
22	United Kingdom	London Exurbs, England	6.7	54	United States	Boston, MA-NH	5.3
23	Australia	Newcastle, NSW	6.6	55	Australia	Bunbury, WA	5.2
23	New Zealand	Taraunga-W. Bay of Plenty	6.6	55	New Zealand	Hamilton-Waikato	5.2
25	Canada	Abbotsford, BC	6.5	55	New Zealand	Napier-Hastings	5.2
26	New Zealand	Auckland	6.4	55	United States	Seattle-Tacoma, WA	5.2
26	Australia	Perth, WA	6.4	55	United Kingdom	W. Midlands Region, England	5.2
28	Australia	Brisbane, QLD	6.3	60	Australia	Canberra, ACT-NSW	5.1
29	Australia	Hobart, TAS	6.2	60	United Kingdom	East Midlands Region, England	5.1
30	Australia	Cairns, QLD	6.1	60	United States	Eugene, OR	5.1
30	New Zealand	Christchurch	6.1	60	United Kingdom	Perth, Scotland	5.1
32	Ireland	Dublin	6.0	60	Australia	Toowoomba, QLD	5.1

[10] In 2007, there were 30 severely unaffordable markets in the United States. The smaller number of severely unaffordable markets compared to last year in the United Kingdom is due to data availability difficulties, which are described below.
[11] The *Demographia International Housing Affordability Survey* does not attempt to estimate the relative housing value in the surveyed nations. There is considerable variation in the size of houses and extent of building lot between the nations. The largest new houses are in Australia and the United States, with Canada and New Zealand having somewhat smaller houses. New houses in Ireland and the United Kingdom are one-half or less the size of new houses in the other four nations. See: http://www.demographia.com/db-hsize.pdf.

In 2008, Australia's Sunshine Coast is the least affordable market, with a Median Multiple of 9.8, closely by Honolulu, in the United States, with a Median Multiple of 9.1. Australia's Gold Coast is third least affordable with a Median Multiple of 8.7.

Summary by Nation

All of the affordable markets were located in Canada and the United States, while most markets in Australia, Ireland, New Zealand and the United Kingdom are rated "severely unaffordable" (Table 5). A summary of results by nation follows (Schedule 2).

Table 5
Housing Affordability Market Rating Categories 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	24	27	6.0
Canada	10	15	5	4	34	3.5
Ireland	0	0	2	3	5	5.4
New Zealand	0	0	1	7	8	5.7
United Kingdom	0	0	6	10	16	5.2
United States	77	59	23	16	175	3.2
TOTAL	87	74	40	64	265	

Australia: The Median Multiple in Australia is 6.0, double the 3.0 historic maximum norm and well above levels of just a decade ago (Figure 1).[12] Among the larger metropolitan markets, Sydney remained the worst, at 8.3 (down from 8.6). Median house prices dropped in Sydney and Perth. Perth's Median Multiple dropped from 7.6 to 6.4, reflecting not only the price decline, but strong income growth. At the same time, Adelaide's already serious housing unaffordability worsened, with its Median Multiple rising from 6.5 to 7.1.

The Sunshine Coast (Queensland) replaced Mandurah as the nation's most unaffordable surveyed market, with a Median Multiple of 9.3. All markets in Australia were rated as "severely unaffordable" except Wagga Wagga (New South Wales), Bendigo and Ballarat (Victoria), which were rated "seriously unaffordable" (Median Multiple between 4.1 and 5.0).

Unlike the other national markets in the *Survey*, Australia has thus far been able to avoid material house price declines. It seems likely that, sooner or later, the inherent instability and unsustainability that characterizes bubbles will lead to house price declines in Australia. However, were it possible for Australia to retain its highly over-valued house prices, there would still be a significant cost. Future generations would pay far more for housing than in the past, and Australia's relative standard of living would decline.

[12] Year to year data are comparable for the displayed markets in Australia.

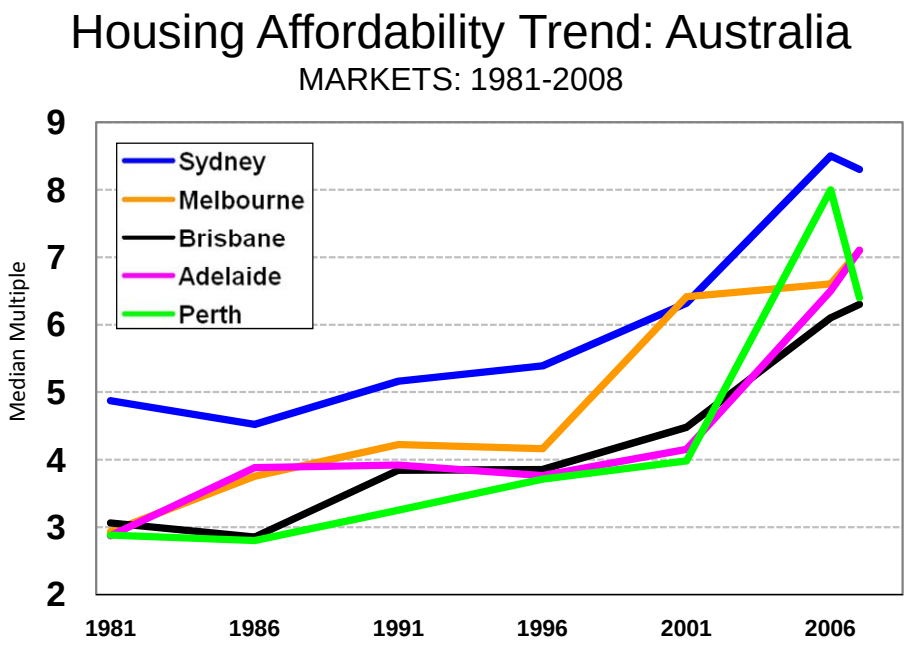

Figure 1

Canada: The Median Multiple in Canada was 3.5, which is close to the historic maximum norm. Vancouver remained the least affordable market, at 8.4. All of Canada's "severely unaffordable" markets were in British Columbia, including Vancouver, Victoria, Abbotsford and Kelowna. Canada had 10 affordable markets, the largest being Winnipeg (3.0). The most affordable markets were Cape Breton (2.1) and Thunder Bay (2.2). Other "affordable" markets included Chatham, Windsor, Moncton, Saguenay, Saint John (NB), Trois Rivieres and St. John's (NL).[13]

Ireland: In Ireland, the national Median Multiple was 5.4, well above the historic maximum norm. Dublin was the least affordable market with a Median Multiple of 6.0. Three of Ireland's five markets were rated "severely unaffordable," with the least unaffordable being Limerick (4.3) and Waterford (4.9).[14]

New Zealand: The New Zealand Median Multiple was 5.7, nearly double the historic maximum norm of 3.0. Auckland is the least affordable larger market, with a Median Multiple of 6.4, while Christchurch (6.1) and Wellington (5.9) are also "severely unaffordable." Tauranga-Bay of Plenty was the least affordable market, with a Median Multiple of 6.6. Out of the 8 New Zealand markets, only Palmerston North is not "severely unaffordable" (4.9).

[13] Household income data has been recalibrated in Canada, based upon 2006 data, which was not available last year. Year to year income data is thus not comparable.
[14] This year, the *Survey* estimates for Ireland are based upon data from the Department of the Environment, Heritage and Local Government. Year-to-year house price data is thus not comparable.

United Kingdom: Government reporting of house prices has slowed by more than six months over the past year in England and Wales, which has made it impossible to present sufficiently accurate estimates below the regional level. As a result, a number of metropolitan markets have been excluded from this report. Their corresponding regions, reported upon this year, are indicated in Table 7 in the Methods and Sources section.

The Median Multiple in the United Kingdom was 5.2, which is well above the historic maximum norm of 3.0. London (inside the Green Belt) and Belfast are the most unaffordable, with a Median Multiple of 6.9. The Southwest region of England had a Median Multiple of 6.8 and the London Exurbs ranked fourth most unaffordable, at 6.7. The London Exurbs had a Median Multiple of 6.8. Most markets were "severely unaffordable" (Median Multiple 5.1 or greater), though Yorkshire, the Northeast region of England, the Northwest region of England and Dundee in Scotland were "seriously unaffordable" (Median Multiple between 4.1 and 5.0) [15]

United States: As has been widely reported, the most significant developments in international housing markets have occurred in the United States over the last year. While house prices are down overall, metropolitan regions around the country have experienced radically different trends. Overall the average Median Multiple among US markets was 3.2, near the historic maximum norm of 3.0.[16] Price declines of 25 percent to more than 40 percent have been reported in metropolitan markets in California, Nevada, Arizona and Florida. The greatest price declines have been in markets that were "extremely unaffordable" last year and, not coincidentally, these declines occurred *only* in markets that have prescriptive land use regulation.

Among the major markets house price declines were far smaller, even in the hard hit industrial heartland (such as Detroit and Cleveland). , where prices have declined, but were affordable before the decline (Detroit and Cleveland are the best examples) and these declines occurred *within* the Median Multiple historic range of 2.0 to 3.0.

The Los Angeles metropolitan market, which had been the nation's least affordable, dropped to a Median Multiple of 7.2.[17] Honolulu emerged as the least affordable market, with a Median Multiple of 9.1. San Francisco fell to a Median Multiple of 8.0, while San Jose dropped to 7.4. One of the most substantial drops was in San Diego, which now has a Median Multiple of 5.9. Inland California metropolitan markets also dropped substantially, with Fresno, Sacramento and Riverside-San Bernardino dropping to "moderately unaffordable" from their previous ratings of "extremely unaffordable." The same is true of Las Vegas and Phoenix, where falling demand dropped the Median Multiple to "moderately unaffordable" from "severely unaffordable."

The price reductions are continuing. The California Association of Realtors reports substantial September to November 2008 price declines. Median house prices in the San Francisco and San Jose markets dropped more than 20 percent. Prices continued to decline in all major metropolitan

[15] The source for median house prices in England and Wales is six months behind its previous reporting schedule. As a result, there was insufficient data to provide estimates below the regional level.
[16] This year's US analysis uses income data reported by the United States Bureau of the Census American Community Survey for the first time. As a result of this change, the income data and Median Multiple data reported are not comparable.
[17] Orange County is in the Los Angeles metropolitan market. Geographical name changes from last year include Ventura County to Oxnard, Melbourne (Florida) to Palm Bay, Fort Myers to Cape Coral and Sarasota to Bradenton.

markets of California.[18] By December, a Median Multiple of 3.0 was reached in Sacramento, the first major market in California to return to the historic maximum norm.

WHY THE HOUSING BUBBLE OCCURED

Various theories have been used to describe why the housing bubble occurred. More often than not, the theories describe influences that occurred in all markets. In the metropolitan markets of the United States and Canada, general theories are simply inappropriate. This is because the house price escalation varied far more than can be explained by any factor operating at the national level. This is a serious error in light of the radically different house price increase experience between metropolitan markets in the United States and Canada. In some markets, the Median Multiple doubled or even tripled. In other markets, the Median Multiple remained below the historic maximum norm. Any plausible theory must describe why house prices virtually "exploded" in some markets, while remaining at or near historic norms in other markets.

The most frequently cited implausible theories include the following.

Demand: It has been suggested that the looser credit policies increased demand, which led to higher prices. Moreover, demand, however, cannot explain why some markets had such large price increases and others had such small increases. Overall, US responsive market prices relative to incomes increased only 0.6 times household incomes during the bubble. By contrast, prices increased more than four times as much (2.6 times incomes) in the United States in the prescriptive markets. Demand rose all over, because mortgage credit was equally easier to obtain in all markets. Yet, demand was at its greatest in some of the markets with the least price inflation (such as Atlanta, Dallas-Fort Worth and Houston).

Attractiveness: Some have suggested that the Median Multiple rose much more quickly in "desirable" markets such as Los Angeles, San Francisco and New York. Yet, prices in these markets have never diverged so much from historic norms or the prices in rest of the nation. There is nothing to suggest that the more expensive markets had become more attractive over the past decade of cost escalation. Indeed, domestic migration data shows a strong outflow of people from the so-called more attractive, but less affordable areas to more affordable areas.[19]

Construction Costs: The differences in housing costs and trends cannot be explained by construction costs. For example, in 2007, the cost to build an averaged sized house in San Diego was approximately $40,000 more than in Dallas-Fort Worth and $15,000 more than in Indianapolis. Yet the San Diego median house price was $440,000 higher than in Dallas-Fort Worth and $465,000 higher than in Indianapolis. Over the previous ten years, construction costs in San Diego rose 1 percent relative to costs in Dallas-Fort Worth *declined* relative to costs in Indianapolis. The comparisons are more stark in Canada. In 2007 the cost to build an averaged sized house in Vancouver was approximately $20,000 *less* than in Quebec (metropolitan area) and only $6,000 more than in Winnipeg. Yet the Vancouver median

[18] http://www.car.org/newsstand/newsreleases/novembersales/?view=Standard.
[19] See: http://www.demographia.com/db-metmic2004.pdf.

house price was more than $350,000 higher than in both Quebec and Winnipeg. Over the previous ten years, construction costs in the Vancouver area *declined* relative to costs in Quebec and Winnipeg.[20]

The Difference: There are substantial differences between metropolitan markets in one factor of market influence: land use regulation. Generally, land use regulation falls into the following two categories:

Responsive land use regulation: Liberal or traditional regulation is referred to as *responsive land use regulation* because it *responds* principally to the market as revealed by people's preferences. Under responsive land use regulation, there is a substantial interplay between buyers and sellers of land, resulting in generally lower land (and house) costs.

Prescriptive land use regulation: The newer regulatory systems are referred to as *prescriptive land use regulation* because they are based on "visions" or plans, which *prescribe* where development is to occur. Under prescriptive land use regulation, the interplay between buyers and sellers of land is substantially interfered with, resulting in generally higher land (and house) costs.

Economics, Land Use Regulation and Housing Affordability

Economics teaches that scarcity raises prices. In a number of metropolitan markets, land for development has become scarce due to prescriptive land use policies, such as urban growth boundaries, huge areas recently declared off-limits to development, building moratoria, confiscatory and unprecedented impact fees, minimum lot sizes and expensive amenities.

The advent of looser mortgage qualification standards over the past decade led to an increase in the demand for owned housing. Markets with prescriptive land use policies lacked the resilient and competitive land markets that would have allowed the greater demand to be accommodated without inordinate increases in house prices (see "Strangling Urban Land Markets," below).

Economists have long raised concerns about the price escalating impact of prescriptive land use regulation. For example:

- Nobel Laureate Paul Krugman of *The New York Times* noted that the house price bubble has been limited to markets with strong land use regulation.[21]

- A United Kingdom government report by Kate Barker, a member of the Monetary Policy Committee of the Bank of England, blamed that nation's loss of housing affordability on its prescriptive land use policies under the Town and Country Planning Act of 1947.[22]

[20] Based upon an analysis of industry standard data in *Contractor's Pricing Guide: Residential Square Foot Costs* (R. S. Means), 2007 and 1997 editions.
[21] http://www.nytimes.com/2005/08/08/opinion/08krugman.html.
[22] Kate Barker (2004 and 2006). *Review of Housing Supply: Delivering Stability: Securing Our Future Housing Needs: Final Report—Recommendations.* Norwich, England: Her Majesty's Stationery Office. www.hmtreasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm, and *Barker Review of Land Use*

- In last year's *Demographia International Housing Affordability Survey,* former Reserve Bank of New Zealand Governor Donald Brash wrote that *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.*[23]

- Theo Eicher of the University of Washington produced a working paper placing much of the blame for house price escalation on land use regulation United States municipalities. [24]

- A New Zealand government report by Arthur Grimes, Chairman of the Board of the Reserve Bank of New Zealand blamed the loss of housing affordability in the nation's largest metropolitan area, Auckland, on prescriptive land use policies.[25]

- 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.[26]

- An Organization for Economic Cooperation and Development (OECD) report noted an association between strongly regulated land markets and higher housing prices.[27]

- Research by Harvard University's Edward Glaeser the University of Pennsylvania's Joseph Gyourko others shows a strong relationship between prescriptive land use policies and higher housing prices.[28]

- William Fischel of Dartmouth University Fischel shows that the diversion of house prices between California and the rest of the nation from 1970 to 1990 was associated with stronger land use regulation[29]

- Glaeser et al at Harvard University further show that Boston's house prices had been inflated 60 percent by scarcity created by prescriptive planning that relies heavily on large lot zoning (rural zoning).[30]

Planning, http://www.hm-treasury.gov.uk/media/4EB/AF/barker_finalreport051206.pdf.
[23] Donald Brash, Introduction to the *4th Annual Demographia International Housing Affordability Survey*, http://www.demographia.com/dhi.pdf.
[24] http://depts.washington.edu/teclass/landuse/housing_020408.pdf,
[25] Arthur C. Grimes, *Housing Supply in the Auckland Region,* Center for Housing Research Oater New Zealand (2007). http://www.hnzc.co.nz/chr/pdfs/housing-supply-in-the-auckland-region-2000-2005.pdf.
[26] "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.
[27] "Recent House Price Developments: The Role of Fundamentals," *OECD Economic Outlook #78* (2005), http://www.oecd.org/dataoecd/41/56/35756053.pdf.
[28] Edward L. Glaeser and Joseph Gyourko, *The Impact of Zoning on Housing Affordability*, (Cambridge, MA: Harvard Institute of Economic Research, 2002).
[29] William Fischel, *Regulatory Takings, Law, Economics and Politics*, Cambridge, MA: Harvard University Press, 1995 (pp. 218-252).

Unprecedented House Price Inflation: The extent of the house price escalation during the bubble was unprecedented. This is illustrated by Median Multiple data across 51 major markets[31] in the United States since 1980 (Figure 2), based on data from the JFK School of Government at Harvard University. Between 1980 and 2000, an average of 1.2 markets were "severely unaffordable" (Median Multiple over 5.0) each year.[32] From 1980 to 2000, there were never more than 4 markets with Median Multiples over 5.0. In the peak "bubble" years of 2006 and 2007, the number of markets with Median Multiples exceeding 5.0 reached 15. In 2008, as prices declined in the overvalued markets, the figure dropped to 8. The highest Median Multiples through 2000 was 5.8 (San Diego). The highest Median Multiples achieved in 2006 and 2007 were over 11.

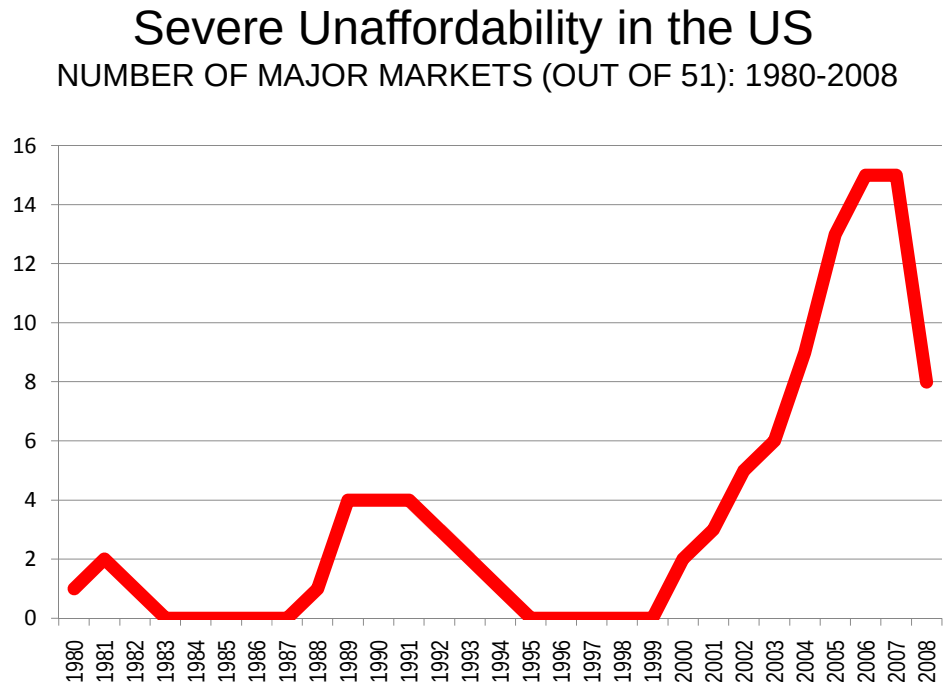

Figure 2

Generally, the metropolitan markets with prescriptive land use regulation have seen far greater house price escalation than those with responsive regulation. It is most in the United States, where many metropolitan markets fall into the responsive land use regulation category.

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[30] 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.

[31] All markets over 1,000,000 population.

[32] Derived from http://www.jchs.harvard.edu/publications/markets/son2007/metro_affordability_index_2007.xls. (John F. Kennedy School of Government, Harvard University) for 1980 to 2006; 2007 and 2008 data by Demographia.

The higher cost escalation in prescriptive land use markets was evident before the looser lending standards. This is indicated by Fischel's research, which showed that California house prices had escalated well ahead of the national average by the early 1990s (above).

Looser loan approval policies drove up demand, in *all* markets. In the prescriptive markets, house price escalation was unprecedented. In contrast, in the responsive markets, house price escalation was more modest and generally remained within historic norms (a maximum Median Multiple of 3.0). The more modest cost increase experience in responsive markets is attributed to less restrictive supply constraints.

STRANGLING URBAN MARKETS

The fundamental problem with prescriptive land use regulation is that it prohibits urban land markets from functioning efficiently and creates artificial scarcity values. This is illustrated by comparing the operation of land markets on and beyond the urban fringe under prescriptive regulation and responsive regulation. Responsive land use regulation was generally the norm in the surveyed nations for decades after World War II, with the exception of the United Kingdom. Home builders and land developers would purchase land from rural land owners (often agricultural). No particular land owner could be certain that their property would be purchased. As a result, the value of property that might be developed for housing tended to sell for its agricultural value plus a premium. As Anthony Richards, head of the Economic Analysis Department of the Reserve Bank of Australia put it:

> *…supply-side factors should have a much greater influence on prices towards the fringes of cities, where land is less scarce and accounts for a smaller proportion of the total dwelling price. In principle, the price of housing there should be close to its marginal cost, determined as the sum of the cost of new housing construction, land development costs, and the cost of raw land.*[33]

In this environment, it was typical for the development ratio --- the cost of land relative to the total cost of land and construction, to be under 20 percent, while construction would equal more than 80 percent of the combined cost. This resulting low overall cost permitted the market to supply new housing to millions of households that would otherwise not be able to afford it. In Australia, Canada and the United States, for example, home ownership rose from approximately 40 percent before World War II to 65 to 70 percent at its peak. It was this low cost housing, which had its start in William Levitt's Levittown[34] communities in the US Northeast and spread throughout the first world that created the "Great Australian Dream" and the "American Dream" of home ownership. New starter housing was routinely supplied at a Median Multiple of 2.5 or less, and continues to be so today in responsive land use markets. In many prescriptive land use regulation markets, housing of such affordability has long since been prohibited by policies that raise prices, principally through land rationing.

[33] http://www.rba.gov.au/Speeches/2008/sp_so_270308.html.
[34] For a description of Levittown, see Barbara Kelly, *Expanding the American Dream* (State University of New York Press, 1993).

Land Rationing: Government regulations, variously called "urban consolidation" (Australia), "smart growth" (the United States and Canada) and "compact city" policies placed serious restrictions on where new housing could be built. There were "urban growth boundaries" and "municipal service areas" beyond which governments would not allow new housing development. Other governments implemented virtually the same policies, but called the areas where housing could be built "growth areas." There were special cases, such as the Las Vegas area, where much of the land for future development was owned by government, which released it to market at a pace intended to obtain the most revenue. In this process, the price of land for developed escalated at least 10 times compared to the late 1990s, before the land shortage had developed. [35] There was also "large lot" or "rural" zoning, which placed minimum building lot sizes on suburban development, which made it impossible for areas to develop the higher population densities that would have been produced by people's preferences.[36] The relationship between land rationing and unaffordable housing is indicated in Figure 3.[37]

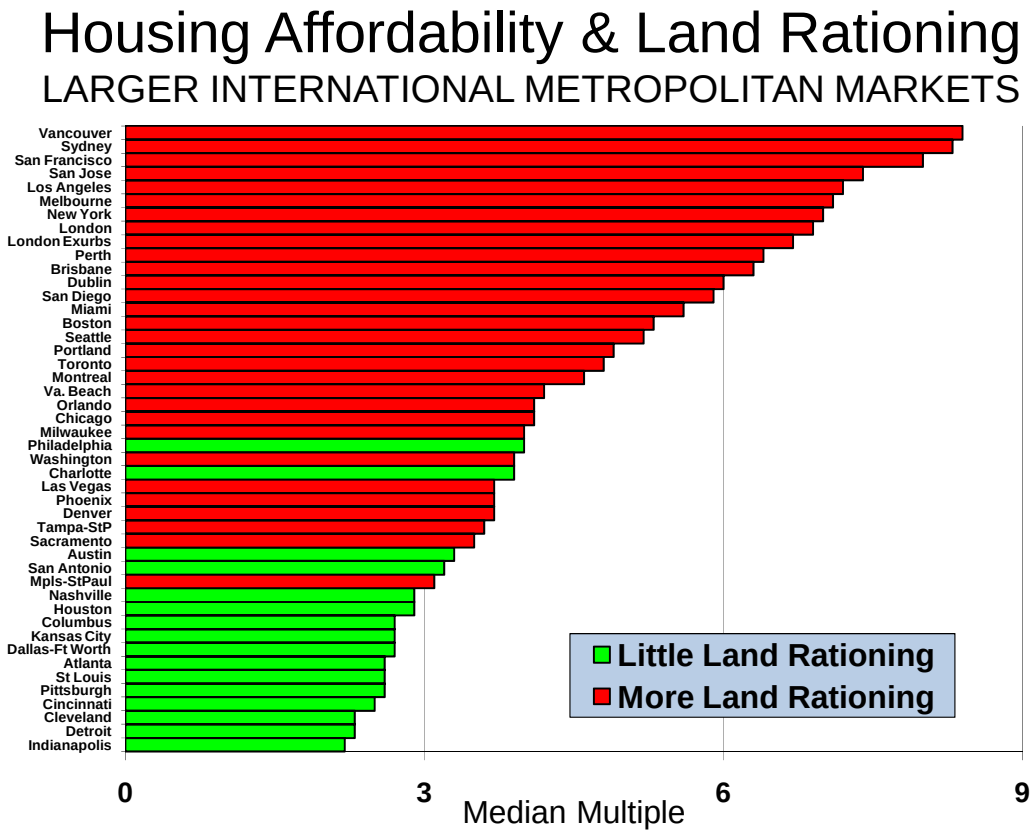

Figure 3

[35] http://www.demographia.com/db-lvland.pdf.

[36] These strategies is listed in the definitive United States volume on prescriptive land use regulation," by 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.

[37] For market classifications, see Methods and Sources section.

Infill Requirements: At the same time, governments made arbitrary decisions requiring that a certain percentage of new housing had to be built within the area of current urbanization. This occurred principally in the United Kingdom, Australia and New Zealand and represented a further constraint on supply. The result was that governments permitted even less land to be developed on the urban fringe, leading to even higher land prices. These policies have led to situations such as described by Dr. Tim Leunig of the London School of Economics, in which agricultural land reclassified for residential development in the London area can increase in value 500 times.[38]

To ensure an urban market remains in the "affordable" (below 3.0 times incomes) category, fringe house and land packages should be available at 2.5 times the median household income of a particular urban market. ***The fringes are the only supply or inflation "vent" of an urban market.***

Years of Supply: Often there was a plan to ensure that there was enough land to accommodate a certain number of years of housing growth, usually from 15 to 30 years. The result was that any land owner within these urban growth boundaries or growth areas knew that they could command a higher price, because home builders and developers could no longer purchase the more distant, but less expensive land for development. ***The "years of supply" measure is deceptive and misleading and should not be used.*** House prices are the only reliable measure of the adequacy of land supply, and those prices should be within historical norms.

"Serial" Development: Further, even within the artificially small "years of supply" areas, governments were slow to allow development.[39] Often they would require "serial development," such that the land to be built on had to be adjacent to the already developed areas. In other areas, land for development was "released" even within the "years of supply" areas, making the already rationed land even more scarce. This attempt to establish or preserve a "clear edge" of urban development raised land prices because virtually every urban fringe land owner knew whether or not their property was likely to be required in the short term for development.

All of these factors skewed the price of land for development even higher. In some Australian metropolitan markets, land represents more than 50 percent of the total cost of land and the constructed house.[40]

Land Banking, Windfall Profits and Speculation: These constricted or strangled markets attracted more capital than would have been the case if responsive markets had been permitted to operate. Home builders and developers purchased land and place it in "land banks," out of fear that the arbitrary rulings of land use authorities could make it impossible for them to have sufficient land on which to build.

---

[38] Dr. 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.

[39] Such as Sydney and Portland.

[40] *HIA-APM Land Monitor*, May 2007.

Moreover, prescriptive land regulation policies created unprecedented windfall profits for land owners whose largely agricultural holdings were more advantageously located, while destroying value for land owners outside the growth areas.

The higher urban fringe prices drove prices even higher within the already developed areas. This drew a spate of "flippers" --- speculators who purchased houses simply for the purpose of selling them soon after as prices continued to escalate. Speculators were largely absent from responsive markets, simply because there is virtually no gain in speculating where prices are not rising strongly.

Mandatory Master Planning and New Urbanism: Some governments have required virtually all new fringe development to be "master planned," with lakes, entrance walls, or expensive New Urbanist designs. The minimum requirements imposed by planning regimes can package house sales in such a way as to include expensive features that are not required for households seeking starter homes or more modest dwellings. By their very nature, master planning and New Urbanism require emphasis on larger developments, far more detailed bureaucratic procedures. This makes it virtually impossible for the smaller, more entrepreneurial developers and builders to participate. Barring entry to the market by the entrepreneurial sector reduces competition and increases prices. Related regulations required other unnecessarily expensive amenities (such as brick facing) that are required only by more affluent buyers. All of these regulations add to the price of housing.

Infrastructure Fees: In many areas, high infrastructure fees were imposed on new housing as governments shifted the costs of new development from the populace in general. Fees are an inappropriate method of financing infrastructure – for reasons of efficiency and intergenerational equity. Because of the long life of the infrastructure, it should be appropriately financed by the entity that owns the infrastructure (by debt, if necessary). The "Municipal Utility District" (MUD) methods employed within a number of United States markets may be adapted to urban markets currently experiencing housing stress.

Land Use Regulation and House Price Volatility

Not only does prescriptive land use regulation artificially increase house prices, but it also makes prices more volatile. Prescriptive land use regulation brings more chaotic "boom and bust" cycles to housing markets. They convert what would have otherwise been modest price bubbles into extreme price bubbles.

This is noted by Glaeser and Gyourko, who summarize the findings of a number of studies:

> *Recent research also indicates that house prices are more volatile, not just higher, in tightly regulated markets.*
>
> *…price bubbles are more likely to form in tightly regulated places, because the inelastic supply conditions that are created in part from strict local land-use regulation are an important factor in supporting ever larger price increases whenever demand is increasing.*[41]

[41] Edward L. Glaeser and Joseph Gyourko, *Rethinking Federal Housing Policy: How to Make Housing Plentiful and Affordable* (American Enterprise Institute, 2008), p.78.

Finally, they note that housing bubbles generally do not occur in responsive markets.

> *It is more difficult for house prices to become too disconnected from their fundamental production costs in lightly regulated markets because significant new supply quickly dampens prices, thereby busting any illusions market participants might have about the potential for ever larger price increases.*[42]

As entrants to the market cannot develop illusions that "ever larger price increases" will occur, responsive land use regulation does not encourage speculation or land banking by home builders and developers.

The intensity of the bubbles in prescriptive United States markets is indicated in Figure 4. In the earlier bubble, which peaked in 1990, the average Median Multiple in prescriptive market rose 18 percent relative to responsive markets (from the 1986 trough). By 1994, the Median Multiple in the prescriptive markets had returned to the same 3.1 average as the 1986 trough.

In the later bubble, the average prescriptive market Median Multiple rose twice as much (37 percent) relative to responsive markets (from the 1998 trough). There may be considerable distance for the prescriptive market prices to fall. Returning to the late 1990s trough would require a nearly one-third reduction in house prices relative to incomes. As is indicated above, the decline in house prices appears to be continuing in the United States.

At the same time, over the period since 1980, the average Median Multiple in the responsive markets exceeded the historic norm of 3.0 only once and has fallen back to within the historic range of 2.0 to 3.0. Thus, even with the house price bubble, the house price increases in the responsive markets was within the historic Median Multiple norm.

Booms and busts are likely to continue where there is prescriptive land use regulation. This point was made by University of Reading Professor Andrew Evans in a recent letter to *The Guardian:*

> *In each case house prices rose afterwards. As they will this time, unless something is done about the supply of land.*[43]

Moreover, it is likely that the boom and bust swings will continue to intensify in such markets. The widespread destructiveness of prescriptive regulation induced housing bubbles is becoming increasingly obvious.

[42] Edward L. Glaeser and Joseph Gyourko, *Rethinking Federal Housing Policy: How to Make Housing Plentiful and Affordable* (American Enterprise Institute, 2008), p.78.
[43] http://www.guardian.co.uk/money/2008/dec/23/house-prices-market-business-society

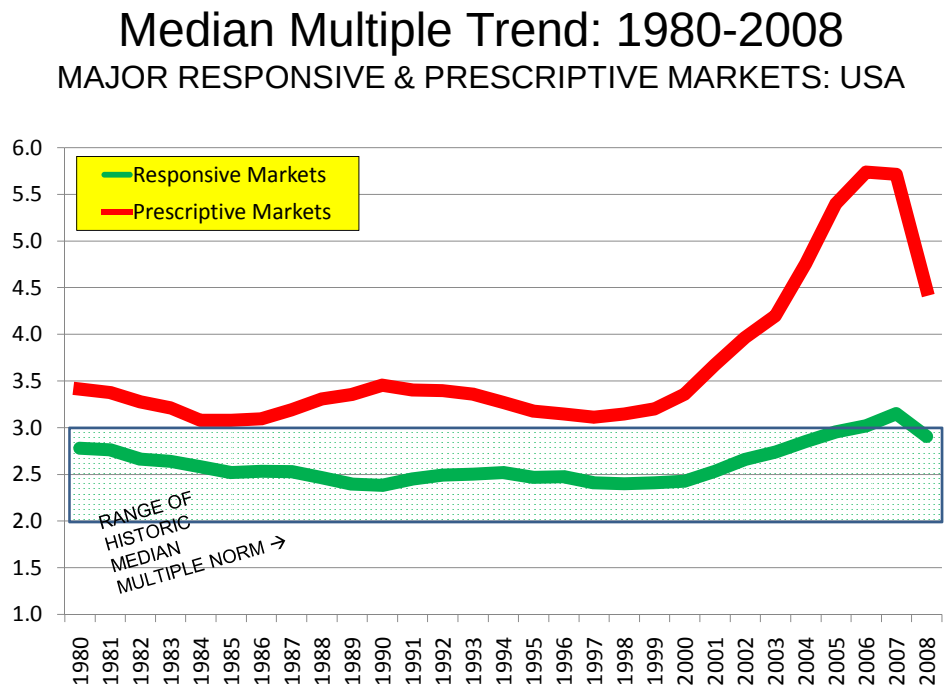

Figure 4

LAND USE REGULATION AND THE INTERNATIONAL FINANCIAL CRISIS

The higher house prices and volatility associated with prescriptive land use policies had a direct association to the present international financial crisis, which appears to be the worst since the Great Depression. Virtually all analysts agree that the US mortgage "meltdown" precipitated the crisis. The connection to prescriptive land use regulation is described below (Figure 5):

1. Looser mortgage lending policies were widely adopted in the United States.

2. This more ready availability of money for mortgages increased the demand for houses (home ownership).

3(a) Prescriptive markets were unable to supply housing at a rate to match the demand, which drove prices and mortgage exposures higher. Demographia has estimated that approximately 85 percent of the rise in mortgage exposures from 2000 was in prescriptive markets with more than 1,000,000 population.[44] These markets account for about 30 percent of the nation's owned housing

3(b). The mortgage losses were concentrated in the prescriptive markets. The average house price decline from the peak in the prescriptive markets of California, Florida, Arizona and Nevada averaged nearly $180,000. This is 15 times the average loss

[44] http://www.heritage.org/Research/Economy/wm1906.cfm.

per house in the major responsive markets.

4. The mortgage losses were far more modest in the responsive and smaller markets. The average loss from the peak was approximately $12,000 in the responsive markets.

5. The size of losses per house in the prescriptive market accounted for the overwhelming share of the mortgage losses. Without prescriptive land use regulation, the huge house price increases would not have occurred and the mortgage losses would have been far less. There might not have been a US mortgage meltdown or it might have been much less severe.

6. As noted above, the US mortgage meltdown, with its huge losses concentrated in prescriptive markets, precipitated the international financial crisis. Without prescriptive land use regulation, the international financial crisis might have been avoided. Surely, it would have been less severe.

None of this is to suggest that prescriptive land use planning led to the higher rate of foreclosures. The connection between the mortgage meltdown and the international financial crisis was not foreclosure rates; it was rather the intensity of mortgage losses in prescriptive land use regulation markets, which was precipitated by the unprecedented house price increases. Simply put, without the unprecedented house price increases associated with prescriptive land use regulation, the housing bubble in the United States would have been less severe; without a severe housing bubble, the US mortgage meltdown would not have occurred and, finally, without the US mortgage meltdown the international financial crisis might not have occurred. It will be important to reform land use policies to prevent them from doing similar economic and social damage in the future.

Of course, other factors might have precipitated the international financial crisis without the US mortgage meltdown. However, other bubbles (such as the "dot.com" bubble) did not precipitate such a depth of financial distress.

THE WAY FORWARD

Considerable intellectual progress has been made in Australia, New Zealand and the United Kingdom as an increasing number of analysts and public officials have recognized the nexus between prescriptive planning and higher house prices. In each of these nations, there is a growing consensus that more land must be made available on the urban fringe to accommodate new residences and that a competitive land market needs to be restored. The debate in these countries is increasingly about what to do to correct the problem. The government of the state of Victoria has taken the most important step, in opening sufficient Melbourne fringe land for 250,000 houses (and 650,000 people) and favorably revising some of the most destructive elements of that metropolitan area's long term plan.

The Brown government in the United Kingdom intends to substantially liberalize land use regulation in rural areas and on the fringe of smaller urban areas, which is likely to lead to the production of much more housing and at lower prices. This follows on government reports (by Kate Barker, noted

above, and Matthew Taylor,[45] a member of Parliament), both of which found that prescriptive land use regulation had led to a shortage of housing and higher prices.

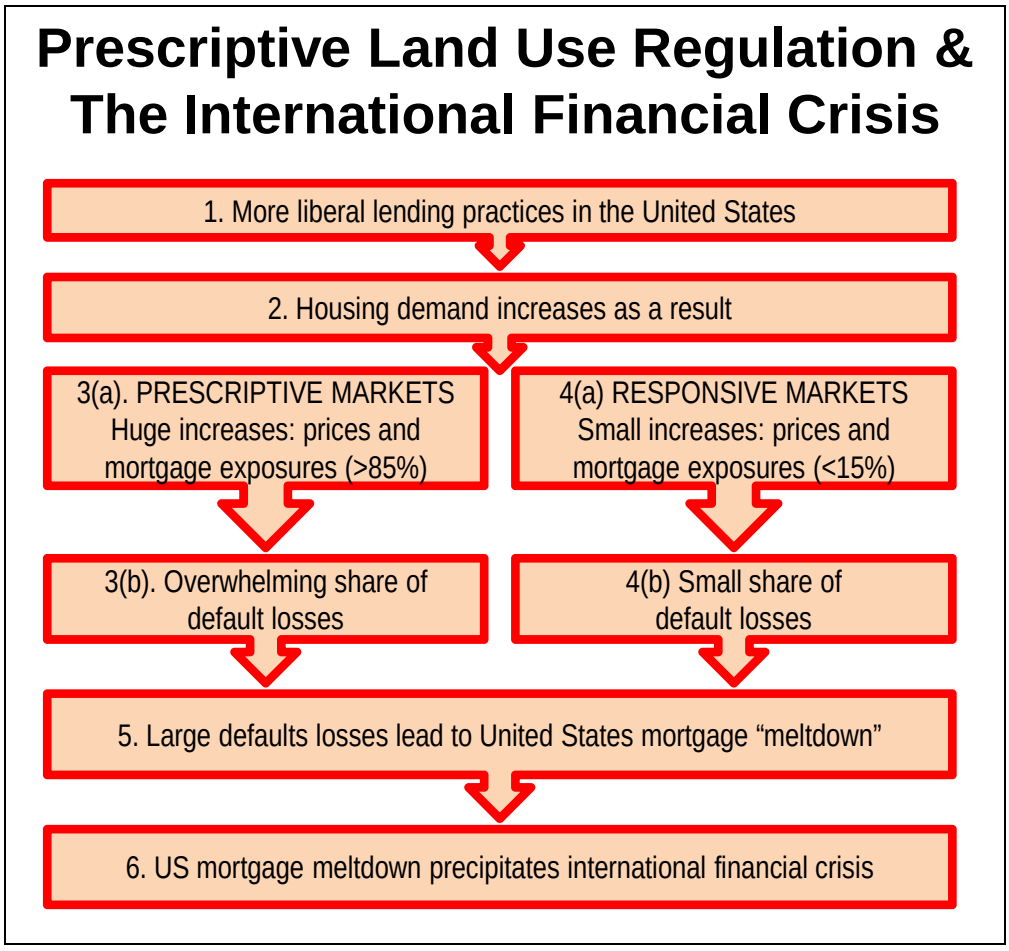

Figure 5

Finally, the recently elected New Zealand government has indicated its interest in easing the prescriptive land use barriers to housing affordability.

At the same time, there is little recognition of the consequences of prescriptive land use regulation consequences among elected officials, planners and the media in the United States and Canada. In many areas, efforts continue to expand or implement prescriptive land use regulation, at the same time that concerns are raised about the loss of housing affordability, which, of course, is a principal result of such regulations. More recent evidence of US failure to comprehend the consequences is provided by a recently reported proposal[46] by Portland's Metro encouraging the federal government to require urban growth boundaries and other prescriptive policies of the sort that have led to higher housing prices around the nation (including Portland, as is indicated in the report).

[45] http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyimplementation/reformplanningsystem/matthewtaylorreview/

[46] http://www.oregonlive.com/environment/index.ssf/2009/01/metro_sets_federal_funding_pri.html

In the meantime, house building rates have virtually collapsed. House building is at its lowest number since 1924 in Great Britain, despite the fact that the population has risen by nearly one-half and the number of households has risen even faster.[47] In the United States, housing starts are below the 1930's rate per household. Things are even worse in California, where housing starts are below the national rate of the depth of the Great Depression (1931-1936). In contrast, in Texas, with its responsive land use regulation, the rate of housing starts remains approximately at the national rate since 1980 and neither the bubble nor the bust occurred.[48] Sales of existing houses have fallen precipitously throughout the six surveyed nations, even where price declines have not occurred or been only modest.

There is a growing realization of the problem in the US economics community. Harvard's Edward Glaeser has proposed that the federal government provide incentives to encourage state and local governments to loosen prescriptive land use regulation.[49]

> *Localities tend to put their own interests ahead of the national interest by restricting building in order to keep prices up and reduce congestion. The federal government should increase its efforts to counter this tendency. After all, stopping building in one area just leads to building and more congestion somewhere else.*

Without evaluating this particular policy proposal, it is clear that prescriptive land use regulation has grossly inflated house prices, which has had reduced housing affordability and is likely to lead to a less prosperous future. The democratization of prosperity that has occurred since World War II must be restored. This requires the removal of prescriptive land use regulations that have retarded housing affordability in so many markets.

There is unlikely to be a sound recovery until governments at national and local level start allowing new housing to be built at costs within the historic Median Multiple norm, at or below three times annual household income.

[47] http://www.guardian.co.uk/business/2008/dec/15/housing-starts-construction-recession-crisis.
[48] http://www.demographia.com/db-hstarts.pdf
[49] http://economix.blogs.nytimes.com/2008/12/16/two-ways-to-revamp-us-housing-policy/

SCHEDULE 1

Housing Affordability Rankings

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple
1	1	United States	Youngstown, OH-PA	1.8
2	2	United States	Fort Wayne, IN	1.9
3	3	United States	Evansville, IN-KY	2.0
3	3	United States	South Bend, IN-MI	2.0
5	1	Canada	Cape Breton, NS	2.1
5	5	United States	Canton, OH	2.1
5	5	United States	Davenport-Moline, IA-IL	2.1
5	5	United States	Flint, MI	2.1
5	5	United States	Fort Smith, AR-OK	2.1
5	5	United States	Lansing, MI	2.1
5	5	United States	Toledo, OH	2.1
12	2	Canada	Thunder Bay, ON	2.2
12	11	United States	Akron, OH	2.2
12	11	United States	Clarksville, TN-KY	2.2
12	11	United States	Grand Rapids, MI	2.2
12	11	United States	Indianapolis, IN	2.2
17	3	Canada	Chatham, ON	2.3
17	3	Canada	Windsor, ON	2.3
17	15	United States	Cleveland, OH	2.3
17	15	United States	Detroit, MI	2.3
17	15	United States	Erie, PA	2.3
17	15	United States	Killeen, TX	2.3
17	15	United States	Rockford, IL	2.3
24	5	Canada	Moncton, NB	2.4
24	20	United States	Columbus, GA-AL	2.4
24	20	United States	Dayton, OH	2.4
24	20	United States	Fayetteville, NC	2.4
24	20	United States	Huntington, WV-KY-OH	2.4
24	20	United States	Peoria, IL	2.4
24	20	United States	Rochester, NY	2.4
24	20	United States	Utica, NY	2.4
32	27	United States	Buffalo, NY	2.5
32	27	United States	Cedar Rapids, IA	2.5
32	27	United States	Cincinnati, OH-KY-IN	2.5
32	27	United States	Huntsville, AL	2.5
32	27	United States	Kalamazoo, MI	2.5
32	27	United States	Omaha, NE-IA	2.5
32	27	United States	Syracuse, NY	2.5
39	6	Canada	Saguenay, QC	2.6
39	34	United States	Atlanta, GA	2.6
39	34	United States	Augusta (GA)	2.6

SCHEDULE 1

Housing Affordability Rankings

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple
39	34	United States	Duluth, MN-WI	2.6
39	34	United States	Fayetteville, AR-MO	2.6
39	34	United States	Lubbock, TX	2.6
39	34	United States	Pittsburgh, PA	2.6
39	34	United States	St. Louis, MO-IL	2.6
39	34	United States	Wichita, KS	2.6
48	7	Canada	Saint John, NB	2.7
48	7	Canada	Trois-Rivieres, QC	2.7
48	42	United States	Columbus, OH	2.7
48	42	United States	Dallas-Fort Worth, TX	2.7
48	42	United States	Des Moines, IA	2.7
48	42	United States	Hickory, NC	2.7
48	42	United States	Holland, MI	2.7
48	42	United States	Kansas City, MO-KS	2.7
48	42	United States	Little Rock, AR	2.7
48	42	United States	Memphis, TN-MS-AR	2.7
48	42	United States	Ogden, UT	2.7
48	42	United States	Port St. Lucie, FL	2.7
48	42	United States	Winston-Salem, NC	2.7
61	9	Canada	St. John's, NL	2.8
61	53	United States	Ann Arbor, MI	2.8
61	53	United States	Gainesville, GA	2.8
61	53	United States	Green Bay, WI	2.8
61	53	United States	Harrisburg, PA	2.8
61	53	United States	Lincoln, NE	2.8
61	53	United States	Oklahoma City, OK	2.8
61	53	United States	Palm Bay-Melbourne, FL	2.8
61	53	United States	Springfield, MO	2.8
70	61	United States	Anchorage, AK	2.9
70	61	United States	Brownsville, FL	2.9
70	61	United States	Houston, TX	2.9
70	61	United States	Jackson, MS	2.9
70	61	United States	Lafayette, LA	2.9
70	61	United States	Louisville, KY-IN	2.9
70	61	United States	Nashville, TN	2.9
70	61	United States	Scranton-Wilkes-Barre, PA	2.9
70	61	United States	Tulsa, OK	2.9
70	61	United States	York, PA	2.9
80	10	Canada	Winnipeg, MB	3.0
80	71	United States	Beaumont, TX	3.0
80	71	United States	Chattanooga, TN-GA	3.0
80	71	United States	Columbia, SC	3.0

SCHEDULE 1

Housing Affordability Rankings

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple
80	71	United States	Kingsport, TN-VA	3.0
80	71	United States	Reading, PA	3.0
80	71	United States	Savannah, GA	3.0
80	71	United States	Spartanburg, SC	3.0
88	78	United States	Charleston, WV	3.1
88	78	United States	Fresno, CA	3.1
88	78	United States	Lakeland, FL	3.1
88	78	United States	Lancaster, PA	3.1
88	78	United States	Lexington, KY	3.1
88	78	United States	Minneapolis-St. Paul, MN-WI	3.1
88	78	United States	Montgomery, AL	3.1
88	78	United States	New Orleans-Metairie-Kenner, LA	3.1
88	78	United States	Provo, UT	3.1
88	78	United States	Roanoke, VA	3.1
98	11	Canada	London, ON	3.2
98	88	United States	Birmingham, AL	3.2
98	88	United States	Cape Coral-Fort Myers, FL	3.2
98	88	United States	San Antonio, TX	3.2
102	12	Canada	Brantford, ON	3.3
102	12	Canada	Sudbury, ON	3.3
102	91	United States	Austin, TX	3.3
102	91	United States	Corpus Christi, TX	3.3
102	91	United States	Greensboro-High Point, NC	3.3
102	91	United States	Jacksonville, FL	3.3
102	91	United States	Knoxville, TN	3.3
102	91	United States	Manchester, NH	3.3
102	91	United States	Pensacola, FL	3.3
102	91	United States	Tallahassee, FL	3.3
112	14	Canada	Barrie, ON	3.4
112	14	Canada	Guelph, ON	3.4
112	14	Canada	Ottawa-Gatineau, ON-QC	3.4
112	14	Canada	Quebec,QC	3.4
112	99	United States	Bakersfield, CA	3.4
112	99	United States	Greenville, SC	3.4
112	99	United States	Modesto, CA	3.4
112	99	United States	Ocala, FL	3.4
112	99	United States	Phoenix, AZ	3.4
121	18	Canada	Kingston, ON	3.5
121	18	Canada	Kitchener, ON	3.5
121	18	Canada	Regina, SK	3.5
121	104	United States	Durham, NC	3.5
121	104	United States	Hagerstown, MD-WV	3.5

SCHEDULE 1

Housing Affordability Rankings

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple
121	104	United States	Sacramento, CA	3.5
121	104	United States	Shreveport, LA	3.5
121	104	United States	Stockton, CA	3.5
129	21	Canada	Halifax, NS	3.6
129	21	Canada	Peterborough, ON	3.6
129	21	Canada	St. Catherines-Niagara, ON	3.6
129	109	United States	Albany, NY	3.6
129	109	United States	Mobile, AL	3.6
129	109	United States	Tampa-St. Petersburg, FL	3.6
135	112	United States	Baton Rouge, LA	3.7
135	112	United States	Boise, ID	3.7
135	112	United States	Colorado Springs, CO	3.7
135	112	United States	Deltona-Daytona Beach, FL	3.7
135	112	United States	Denver, CO	3.7
135	112	United States	El Paso, TX	3.7
135	112	United States	Hartford, CT	3.7
135	112	United States	Las Vegas, NV	3.7
135	112	United States	McAllen, TX	3.7
135	112	United States	Norwich, CT	3.7
135	112	United States	Poughkeepsie, NY	3.7
135	112	United States	Raleigh, NC	3.7
135	112	United States	Richmond, VA	3.7
135	112	United States	Vallejo, CA	3.7
135	112	United States	Worcester, MA	3.7
150	24	Canada	Sherbrooke, QC	3.8
150	127	United States	Madison, WI	3.8
150	127	United States	Salt Lake City, UT	3.8
150	127	United States	Visalia, CA	3.8
154	130	United States	Charlotte, NC-SC	3.9
154	130	United States	Riverside-San Bernardino, CA	3.9
154	130	United States	Washington, DC-VA-MD-WV	3.9
157	25	Canada	Hamilton, ON	4.0
157	133	United States	Asheville. NC	4.0
157	133	United States	Milwaukee, WI	4.0
157	133	United States	Philadelphia, PA-NJ-DE-MD	4.0
157	133	United States	Spokane, WA	4.0
162	137	United States	Charleston, SC	4.1
162	137	United States	Chicago, IL-IN-WI	4.1
162	137	United States	Fort Collins, CO	4.1
162	137	United States	Orlando, FL	4.1
162	137	United States	Springfield, MA	4.1
167	26	Canada	Edmonton, AB	4.2

SCHEDULE 1

Housing Affordability Rankings

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple
167	142	United States	Albuquerque, NM	4.2
167	142	United States	Baltimore, MD	4.2
167	142	United States	Portland, ME	4.2
171	1	Ireland	Limerick	4.3
171	145	United States	Allentown, PA	4.3
171	145	United States	Virginia Beach-Norfolk, VA-NC	4.3
174	147	United States	Atlantic City, NJ	4.4
174	147	United States	Naples, FL	4.4
174	147	United States	Providence, RI-MA	4.4
174	147	United States	Tucson, AZ	4.4
178	151	United States	New Haven, CT	4.5
178	151	United States	Reno, NV	4.5
178	151	United States	Salem, OR	4.5
178	151	United States	Wilmington, NC	4.5
182	27	Canada	Montreal, QC	4.6
182	27	Canada	Saskatoon, SK	4.6
182	1	United Kingdom	Dundee, Scotland	4.6
182	1	United Kingdom	Northeast Region, England	4.6
182	1	United Kingdom	Northwest Region, England	4.6
182	155	United States	Salinas, CA	4.6
188	156	United States	Bradenton-Sarasota, FL	4.7
188	156	United States	Trenton, NJ	4.7
190	1	Australia	Bendigo, VIC	4.8
190	29	Canada	Calgary, AB	4.8
190	29	Canada	Toronto, ON	4.8
190	4	United Kingdom	Yorkshire Region, England	4.8
190	158	United States	Santa Barbara, CA	4.8
195	2	Australia	Wagga Wagga, NSW	4.9
195	2	Ireland	Waterford	4.9
195	1	New Zealand	Palmerston North-Manawatu	4.9
195	159	United States	Portland, OR-WA	4.9
199	3	Australia	Ballarat, VIC	5.0
199	5	United Kingdom	Falkirk, Scotland	5.0
199	5	United Kingdom	Glasgow, Scotland	5.0
202	4	Australia	Canberra, ACT-NSW	5.1
202	4	Australia	Toowoomba, QLD	5.1
202	7	United Kingdom	East Midlands Region, England	5.1
202	7	United Kingdom	Perth, Scotland	5.1
202	160	United States	Eugene, OR	5.1
207	6	Australia	Bunbury, WA	5.2
207	2	New Zealand	Hamilton-Waikato	5.2
207	2	New Zealand	Napier-Hastings	5.2

SCHEDULE 1

Housing Affordability Rankings

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple
207	9	United Kingdom	West Midlands Region, England	5.2
207	161	United States	Seattle-Tacoma, WA	5.2
212	162	United States	Boston, MA-NH	5.3
213	3	Ireland	Cork	5.4
213	10	United Kingdom	Wales	5.4
213	163	United States	Oxnard, CA	5.4
216	4	New Zealand	Dunedin	5.5
216	11	United Kingdom	Edinburgh, Scotland	5.5
216	164	United States	Boulder, CO	5.5
216	164	United States	Santa Rosa, CA	5.5
220	7	Australia	Launceston, TAS	5.6
220	7	Australia	Maitland , NSW	5.6
220	4	Ireland	Galway	5.6
220	166	United States	Bridgeport, CT	5.6
220	166	United States	Miami-West Palm Beach, FL	5.6
225	9	Australia	Townsville, QLD	5.7
226	10	Australia	Mackay, QLD	5.8
227	11	Australia	Albury-Wodonga, NSW-VIC	5.9
227	11	Australia	Darwin, NT	5.9
227	11	Australia	Rockingham, QLD	5.9
227	5	New Zealand	Wellington	5.9
227	12	United Kingdom	Aberdeen, Scotland	5.9
227	168	United States	San Diego, CA	5.9
233	14	Australia	Geelong, VIC	6.0
233	5	Ireland	Dublin	6.0
235	15	Australia	Cairns, QLD	6.1
235	6	New Zealand	Christchurch	6.1
237	16	Australia	Hobart, TAS	6.2
238	17	Australia	Brisbane, QLD	6.3
239	18	Australia	Perth, WA	6.4
239	7	New Zealand	Auckland	6.4
241	31	Canada	Abbotsford, BC	6.5
242	19	Australia	Newcastle, NSW	6.6
242	8	New Zealand	Taraunga-Western Bay of Plenty	6.6
244	13	United Kingdom	London Exurbs, England	6.7
245	20	Australia	Wollongong, NSW	6.8
245	32	Canada	Kelowna, BC	6.8
245	14	United Kingdom	Southwest Region, England	6.8
248	15	United Kingdom	Belfast, Northern Ireland	6.9
248	15	United Kingdom	London, England	6.9
248	169	United States	Santa Cruz, CA	6.9
251	21	Australia	Mandurah, WA	7.0

SCHEDULE 1

Housing Affordability Rankings

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple
251	170	United States	New York, NY-NJ-PA	7.0
253	22	Australia	Adelaide, SA	7.1
253	22	Australia	Melbourne, VIC	7.1
255	24	Australia	Bundaberg, QLD	7.2
255	171	United States	Los Angeles, CA	7.2
257	172	United States	San Luis Obispo, CA	7.3
258	33	Canada	Victoria, BC	7.4
258	173	United States	San Jose, CA	7.4
260	174	United States	San Francisco-Oakland, CA	8.0
261	25	Australia	Sydney, NSW	8.3
262	34	Canada	Vancouver, BC	8.4
263	26	Australia	Gold Coast, QLD-NSW	8.7
264	175	United States	Honolulu, HI	9.1
265	27	Australia	Sunshine Coast, QLD	9.6

SCHEDULE 2

Housing Affordability by Nation

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple	Median House Price	Median Household Income
253	22	Australia	Adelaide, SA	7.1	$363,000	$50,900
227	11	Australia	Albury-Wodonga, NSW-VIC	5.9	$302,500	$51,600
199	3	Australia	Ballarat, VIC	5.0	$234,500	$47,200
190	1	Australia	Bendigo, VIC	4.8	$225,000	$46,700
238	17	Australia	Brisbane, QLD	6.3	$410,000	$65,100
207	6	Australia	Bunbury, WA	5.2	$354,000	$67,600
255	24	Australia	Bundaberg, QLD	7.2	$286,000	$39,500
235	15	Australia	Cairns, QLD	6.1	$371,700	$61,400
202	4	Australia	Canberra, ACT-NSW	5.1	$435,000	$85,700
227	11	Australia	Darwin, NT	5.9	$426,000	$71,900
233	14	Australia	Geelong, VIC	6.0	$298,700	$50,000
263	26	Australia	Gold Coast, QLD-NSW	8.7	$496,400	$56,800
237	16	Australia	Hobart, TAS	6.2	$320,900	$51,900
220	7	Australia	Launceston, TAS	5.6	$250,000	$44,600
226	10	Australia	Mackay, QLD	5.8	$384,300	$66,300
220	7	Australia	Maitland , NSW	5.6	$309,000	$55,600
251	21	Australia	Mandurah, WA	7.0	$375,000	$53,900
253	22	Australia	Melbourne, VIC	7.1	$435,000	$61,300
242	19	Australia	Newcastle, NSW	6.6	$329,600	$50,200
239	18	Australia	Perth, WA	6.4	$435,000	$67,800
227	11	Australia	Rockingham, QLD	5.9	$336,700	$57,000
265	27	Australia	Sunshine Coast, QLD	9.6	$496,800	$51,900
261	25	Australia	Sydney, NSW	8.3	$529,000	$64,000
202	4	Australia	Toowoomba, QLD	5.1	$268,800	$53,100
225	9	Australia	Townsville, QLD	5.7	$365,800	$64,300
195	2	Australia	Wagga Wagga, NSW	4.9	$252,500	$51,900
245	20	Australia	Wollongong, NSW	6.8	$358,800	$52,900
			National Median		6.0	
241	31	Canada	Abbotsford, BC	6.5	$375,300	$57,600
112	14	Canada	Barrie, ON	3.4	$233,000	$69,100
102	12	Canada	Brantford, ON	3.3	$196,000	$59,300
190	29	Canada	Calgary, AB	4.8	$366,200	$75,800
5	1	Canada	Cape Breton, NS	2.1	$90,800	$42,400
17	3	Canada	Chatham, ON	2.3	$122,600	$53,400
167	26	Canada	Edmonton, AB	4.2	$292,100	$69,700
112	14	Canada	Guelph, ON	3.4	$235,000	$69,100
129	21	Canada	Halifax, NS	3.6	$206,300	$56,700
157	25	Canada	Hamilton, ON	4.0	$250,500	$63,400
245	32	Canada	Kelowna, BC	6.8	$362,100	$53,200
121	18	Canada	Kingston, ON	3.5	$201,700	$58,100
121	18	Canada	Kitchener, ON	3.5	$237,600	$67,000
98	11	Canada	London, ON	3.2	$188,600	$58,500
24	5	Canada	Moncton, NB	2.4	$129,000	$53,900
182	27	Canada	Montreal, QC	4.6	$229,900	$49,800
112	14	Canada	Ottawa-Gatineau, ON-QC	3.4	$236,700	$69,500
129	21	Canada	Peterborough, ON	3.6	$199,500	$55,100

SCHEDULE 2

Housing Affordability by Nation

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple	Median House Price	Median Household Income
112	14	Canada	Quebec,QC	3.4	$173,800	$51,500
121	18	Canada	Regina, SK	3.5	$212,600	$60,800
39	6	Canada	Saguenay, QC	2.6	$124,600	$48,100
48	7	Canada	Saint John, NB	2.7	$139,700	$52,500
182	27	Canada	Saskatoon, SK	4.6	$256,800	$55,900
150	24	Canada	Sherbrooke, QC	3.8	$164,300	$43,800
129	21	Canada	St. Catherines-Niagara, ON	3.6	$197,800	$55,500
61	9	Canada	St. John's, NL	2.8	$158,400	$56,700
102	12	Canada	Sudbury, ON	3.3	$188,500	$57,600
12	2	Canada	Thunder Bay, ON	2.2	$121,100	$56,200
190	29	Canada	Toronto, ON	4.8	$324,700	$67,100
48	7	Canada	Trois-Rivieres, QC	2.7	$114,000	$42,100
262	34	Canada	Vancouver, BC	8.4	$492,600	$58,400
258	33	Canada	Victoria, BC	7.4	$418,600	$56,300
17	3	Canada	Windsor, ON	2.3	$143,600	$62,300
80	10	Canada	Winnipeg, MB	3.0	$167,100	$54,800
			National Median		3.5	
213	3	Ireland	Cork	5.4	€311,700	€57,200
233	5	Ireland	Dublin	6.0	€390,000	€64,600
220	4	Ireland	Galway	5.6	€305,000	€54,700
171	1	Ireland	Limerick	4.3	€251,700	€58,200
195	2	Ireland	Waterford	4.9	€272,700	€55,100
			National Median		5.4	
239	7	New Zealand	Auckland	6.4	$427,500	$67,300
235	6	New Zealand	Christchurch	6.1	$313,300	$51,100
216	4	New Zealand	Dunedin	5.5	$249,500	$45,500
207	2	New Zealand	Hamilton-Waikato	5.2	$301,000	$58,400
207	2	New Zealand	Napier-Hastings	5.2	$272,900	$52,700
195	1	New Zealand	Palmerston North-Manawatu	4.9	$250,000	$50,600
242	8	New Zealand	Taraunga-Western Bay of Plenty	6.6	$341,700	$52,100
227	5	New Zealand	Wellington	5.9	$373,000	$63,300
			National Median		5.7	
227	12	United Kingdom	Aberdeen, Scotland	5.9	£155,500	£26,400
248	15	United Kingdom	Belfast, Northern Ireland	6.9	£171,000	£24,900
182	1	United Kingdom	Dundee, Scotland	4.6	£115,300	£25,000
202	7	United Kingdom	East Midlands Region, England	5.1	£129,100	£25,300
216	11	United Kingdom	Edinburgh, Scotland	5.5	£148,700	£26,900
199	5	United Kingdom	Falkirk, Scotland	5.0	£113,900	£22,900
199	5	United Kingdom	Glasgow, Scotland	5.0	£121,400	£24,400
244	13	United Kingdom	London Exurbs, England	6.7	£191,100	£28,500
248	15	United Kingdom	London, England	6.9	£249,900	£36,300
182	1	United Kingdom	Northeast Region, England	4.6	£111,000	£24,200
182	1	United Kingdom	Northwest Region, England	4.6	£121,300	£26,200
202	7	United Kingdom	Perth, Scotland	5.1	£140,500	£27,700
245	14	United Kingdom	Southwest Region, England	6.8	£176,300	£25,800
213	10	United Kingdom	Wales	5.4	£125,800	£23,300

SCHEDULE 2

Housing Affordability by Nation

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple	Median House Price	Median Household Income
207	9	United Kingdom	West Midlands Region, England	5.2	£134,100	£25,700
190	4	United Kingdom	Yorkshire Region, England	4.8	£121,900	£25,400
			National Median		5.2	
12	11	United States	Akron, OH	2.2	$108,100	$49,400
129	109	United States	Albany, NY	3.6	$205,500	$56,900
167	142	United States	Albuquerque, NM	4.2	$193,400	$46,500
171	145	United States	Allentown, PA	4.3	$245,400	$56,800
70	61	United States	Anchorage, AK	2.9	$210,000	$71,200
61	53	United States	Ann Arbor, MI	2.8	$172,800	$62,300
157	133	United States	Asheville. NC	4.0	$180,100	$45,300
39	34	United States	Atlanta, GA	2.6	$151,300	$58,400
174	147	United States	Atlantic City, NJ	4.4	$249,100	$56,800
39	34	United States	Augusta (GA)	2.6	$116,000	$45,300
102	91	United States	Austin, TX	3.3	$190,900	$57,800
112	99	United States	Bakersfield, CA	3.4	$165,000	$48,400
167	142	United States	Baltimore, MD	4.2	$279,200	$65,800
135	112	United States	Baton Rouge, LA	3.7	$170,900	$46,500
80	71	United States	Beaumont, TX	3.0	$135,500	$45,400
98	88	United States	Birmingham, AL	3.2	$156,100	$48,800
135	112	United States	Boise, ID	3.7	$187,300	$50,600
212	162	United States	Boston, MA-NH	5.3	$373,400	$71,100
216	164	United States	Boulder, CO	5.5	$360,900	$65,700
188	156	United States	Bradenton-Sarasota, FL	4.7	$237,400	$50,700
220	166	United States	Bridgeport, CT	5.6	$470,800	$84,700
70	61	United States	Brownsville, FL	2.9	$87,900	$30,500
32	27	United States	Buffalo, NY	2.5	$114,200	$46,500
5	5	United States	Canton, OH	2.1	$98,500	$46,200
98	88	United States	Cape Coral-Fort Myers, FL	3.2	$163,500	$51,200
32	27	United States	Cedar Rapids, IA	2.5	$135,400	$54,300
162	137	United States	Charleston, SC	4.1	$210,900	$51,800
88	78	United States	Charleston, WV	3.1	$127,700	$41,200
154	130	United States	Charlotte, NC-SC	3.9	$210,900	$53,800
80	71	United States	Chattanooga, TN-GA	3.0	$132,700	$44,400
162	137	United States	Chicago, IL-IN-WI	4.1	$250,800	$61,300
32	27	United States	Cincinnati, OH-KY-IN	2.5	$136,000	$53,500
12	11	United States	Clarksville, TN-KY	2.2	$100,700	$45,200
17	15	United States	Cleveland, OH	2.3	$116,400	$49,800
135	112	United States	Colorado Springs, CO	3.7	$207,900	$56,600
80	71	United States	Columbia, SC	3.0	$147,500	$48,800
24	20	United States	Columbus, GA-AL	2.4	$108,300	$44,500
48	42	United States	Columbus, OH	2.7	$144,000	$53,100
102	91	United States	Corpus Christi, TX	3.3	$139,500	$42,600
48	42	United States	Dallas-Fort Worth, TX	2.7	$150,200	$56,400
5	5	United States	Davenport-Moline, IA-IL	2.1	$101,800	$47,700
24	20	United States	Dayton, OH	2.4	$114,100	$47,400
135	112	United States	Deltona-Daytona Beach, FL	3.7	$162,300	$43,500
135	112	United States	Denver, CO	3.7	$225,100	$60,300
48	42	United States	Des Moines, IA	2.7	$155,400	$57,400

SCHEDULE 2

Housing Affordability by Nation

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple	Median House Price	Median Household Income
17	15	United States	Detroit, MI	2.3	$123,600	$53,600
39	34	United States	Duluth, MN-WI	2.6	$113,400	$44,200
121	104	United States	Durham, NC	3.5	$177,900	$50,400
135	112	United States	El Paso, TX	3.7	$136,400	$36,500
17	15	United States	Erie, PA	2.3	$103,300	$44,100
202	160	United States	Eugene, OR	5.1	$224,700	$44,400
3	3	United States	Evansville, IN-KY	2.0	$95,600	$46,800
39	34	United States	Fayetteville, AR-MO	2.6	$117,400	$45,900
24	20	United States	Fayetteville, NC	2.4	$108,100	$45,100
5	5	United States	Flint, MI	2.1	$92,500	$43,500
162	137	United States	Fort Collins, CO	4.1	$217,500	$53,500
5	5	United States	Fort Smith, AR-OK	2.1	$79,600	$37,700
2	2	United States	Fort Wayne, IN	1.9	$95,900	$49,400
88	78	United States	Fresno, CA	3.1	$153,500	$48,800
61	53	United States	Gainesville, GA	2.8	$145,800	$52,400
12	11	United States	Grand Rapids, MI	2.2	$108,100	$49,700
61	53	United States	Green Bay, WI	2.8	$147,000	$53,000
102	91	United States	Greensboro-High Point, NC	3.3	$145,600	$43,500
112	99	United States	Greenville, SC	3.4	$156,700	$46,400
121	104	United States	Hagerstown, MD-WV	3.5	$181,500	$52,400
61	53	United States	Harrisburg, PA	2.8	$152,500	$54,700
135	112	United States	Hartford, CT	3.7	$249,300	$67,100
48	42	United States	Hickory, NC	2.7	$109,200	$40,300
48	42	United States	Holland, MI	2.7	$144,300	$54,400
264	175	United States	Honolulu, HI	9.1	$615,000	$67,900
70	61	United States	Houston, TX	2.9	$160,200	$55,600
24	20	United States	Huntington, WV-KY-OH	2.4	$87,900	$36,200
32	27	United States	Huntsville, AL	2.5	$127,800	$51,900
12	11	United States	Indianapolis, IN	2.2	$117,900	$54,100
70	61	United States	Jackson, MS	2.9	$135,000	$45,800
102	91	United States	Jacksonville, FL	3.3	$175,600	$53,100
32	27	United States	Kalamazoo, MI	2.5	$114,200	$45,200
48	42	United States	Kansas City, MO-KS	2.7	$147,300	$55,200
17	15	United States	Killeen, TX	2.3	$112,200	$49,500
80	71	United States	Kingsport, TN-VA	3.0	$111,200	$37,400
102	91	United States	Knoxville, TN	3.3	$152,000	$45,400
70	61	United States	Lafayette, LA	2.9	$130,200	$45,600
88	78	United States	Lakeland, FL	3.1	$137,300	$44,500
88	78	United States	Lancaster, PA	3.1	$170,100	$54,400
5	5	United States	Lansing, MI	2.1	$102,600	$48,900
135	112	United States	Las Vegas, NV	3.7	$211,600	$57,400
88	78	United States	Lexington, KY	3.1	$150,600	$48,600
61	53	United States	Lincoln, NE	2.8	$140,100	$50,700
48	42	United States	Little Rock, AR	2.7	$129,900	$48,300
255	171	United States	Los Angeles, CA	7.2	$429,900	$60,000
70	61	United States	Louisville, KY-IN	2.9	$135,400	$47,100
39	34	United States	Lubbock, TX	2.6	$113,200	$42,900
150	127	United States	Madison, WI	3.8	$230,800	$61,200
102	91	United States	Manchester, NH	3.3	$231,500	$70,000

SCHEDULE 2

Housing Affordability by Nation

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple	Median House Price	Median Household Income
135	112	United States	McAllen, TX	3.7	$117,100	$31,300
48	42	United States	Memphis, TN-MS-AR	2.7	$126,500	$47,200
220	166	United States	Miami-West Palm Beach, FL	5.6	$287,800	$51,100
157	133	United States	Milwaukee, WI	4.0	$216,800	$53,600
88	78	United States	Minneapolis-St. Paul, MN-WI	3.1	$205,100	$66,000
129	109	United States	Mobile, AL	3.6	$138,700	$38,400
112	99	United States	Modesto, CA	3.4	$175,000	$52,200
88	78	United States	Montgomery, AL	3.1	$135,500	$44,100
174	147	United States	Naples, FL	4.4	$265,500	$60,700
70	61	United States	Nashville, TN	2.9	$152,500	$51,800
178	151	United States	New Haven, CT	4.5	$277,700	$62,200
88	78	United States	New Orleans-Metairie-Kenner, LA	3.1	$166,800	$53,400
251	170	United States	New York, NY-NJ-PA	7.0	$452,500	$64,700
135	112	United States	Norwich, CT	3.7	$235,400	$63,400
112	99	United States	Ocala, FL	3.4	$135,100	$39,500
48	42	United States	Ogden, UT	2.7	$165,700	$60,800
61	53	United States	Oklahoma City, OK	2.8	$132,100	$46,700
32	27	United States	Omaha, NE-IA	2.5	$137,500	$54,500
162	137	United States	Orlando, FL	4.1	$213,400	$52,000
213	163	United States	Oxnard, CA	5.4	$411,000	$75,700
61	53	United States	Palm Bay-Melbourne, FL	2.8	$145,300	$51,300
102	91	United States	Pensacola, FL	3.3	$152,400	$45,600
24	20	United States	Peoria, IL	2.4	$125,300	$52,400
157	133	United States	Philadelphia, PA-NJ-DE-MD	4.0	$241,100	$60,200
112	99	United States	Phoenix, AZ	3.4	$185,100	$54,900
39	34	United States	Pittsburgh, PA	2.6	$122,700	$47,600
48	42	United States	Port St. Lucie, FL	2.7	$140,000	$51,300
167	142	United States	Portland, ME	4.2	$233,500	$55,800
195	159	United States	Portland, OR-WA	4.9	$278,600	$57,000
135	112	United States	Poughkeepsie, NY	3.7	$249,500	$68,300
174	147	United States	Providence, RI-MA	4.4	$247,500	$55,800
88	78	United States	Provo, UT	3.1	$188,800	$60,000
135	112	United States	Raleigh, NC	3.7	$221,900	$59,500
80	71	United States	Reading, PA	3.0	$163,500	$54,600
178	151	United States	Reno, NV	4.5	$253,400	$56,300
135	112	United States	Richmond, VA	3.7	$217,900	$58,200
154	130	United States	Riverside-San Bernardino, CA	3.9	$227,200	$58,200
88	78	United States	Roanoke, VA	3.1	$146,500	$48,000
24	20	United States	Rochester, NY	2.4	$123,600	$52,200
17	15	United States	Rockford, IL	2.3	$118,200	$50,700
121	104	United States	Sacramento, CA	3.5	$212,000	$61,200
178	151	United States	Salem, OR	4.5	$200,000	$44,900
182	155	United States	Salinas, CA	4.6	$271,000	$59,300
150	127	United States	Salt Lake City, UT	3.8	$230,200	$60,100
98	88	United States	San Antonio, TX	3.2	$154,400	$47,700
227	168	United States	San Diego, CA	5.9	$377,300	$63,700
260	174	United States	San Francisco-Oakland, CA	8.0	$615,700	$76,700
258	173	United States	San Jose, CA	7.4	$650,000	$87,700
257	172	United States	San Luis Obispo, CA	7.3	$432,500	$59,100

SCHEDULE 2

Housing Affordability by Nation

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

2008 – 3rd Quarter (September Quarter)

International Rank	National Rank	Nation	Market	Median Multiple	Median House Price	Median Household Income
190	158	United States	Santa Barbara, CA	4.8	$290,000	$60,800
248	169	United States	Santa Cruz, CA	6.9	$460,000	$66,400
216	164	United States	Santa Rosa, CA	5.5	$355,500	$64,800
80	71	United States	Savannah, GA	3.0	$148,800	$49,200
70	61	United States	Scranton-Wilkes-Barre, PA	2.9	$127,700	$43,400
207	161	United States	Seattle-Tacoma, WA	5.2	$350,000	$66,900
121	104	United States	Shreveport, LA	3.5	$140,200	$40,200
3	3	United States	South Bend, IN-MI	2.0	$88,000	$44,700
80	71	United States	Spartanburg, SC	3.0	$127,700	$42,000
157	133	United States	Spokane, WA	4.0	$191,200	$47,800
162	137	United States	Springfield, MA	4.1	$206,500	$50,700
61	53	United States	Springfield, MO	2.8	$120,600	$42,400
39	34	United States	St. Louis, MO-IL	2.6	$142,700	$54,300
121	104	United States	Stockton, CA	3.5	$187,800	$54,400
32	27	United States	Syracuse, NY	2.5	$127,300	$50,600
102	91	United States	Tallahassee, FL	3.3	$158,600	$48,200
129	109	United States	Tampa-St. Petersburg, FL	3.6	$173,400	$47,700
5	5	United States	Toledo, OH	2.1	$100,400	$47,800
188	156	United States	Trenton, NJ	4.7	$342,500	$72,600
174	147	United States	Tucson, AZ	4.4	$199,300	$44,800
70	61	United States	Tulsa, OK	2.9	$139,400	$47,300
24	20	United States	Utica, NY	2.4	$105,500	$44,600
135	112	United States	Vallejo, CA	3.7	$260,000	$69,600
171	145	United States	Virginia Beach-Norfolk, VA-NC	4.3	$242,200	$56,700
150	127	United States	Visalia, CA	3.8	$158,800	$42,000
154	130	United States	Washington, DC-VA-MD-WV	3.9	$332,700	$85,600
39	34	United States	Wichita, KS	2.6	$125,300	$48,800
178	151	United States	Wilmington, NC	4.5	$205,600	$46,100
48	42	United States	Winston-Salem, NC	2.7	$124,800	$46,100
135	112	United States	Worcester, MA	3.7	$235,800	$64,500
70	61	United States	York, PA	2.9	$166,300	$56,400
1	1	United States	Youngstown, OH-PA	1.8	$74,300	$41,400
			National Median		3.2	

METHODS AND SOURCES

Median house price information is generally obtained from leading national industry reporting agencies. 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. Some median income data is estimated based upon historical conversion factors. Because of data variations and alternative estimation methods, caution should be employed in making definitive time-series income. 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
Calgary Real Estate Board
California Association of Realtors
Canada Mortgage and Housing Corporation
Canadian Home Builders Association
Canadian Real Estate Association
Central Statistics Office Ireland
Chambre Immobilière de Québec
Communities and Local Government (Ministry), United Kingdom
Department of the Environment, Heritage and Local Government (Ireland)
Greater Montreal Real Estate Board
HBOS (Halifax)
Housing Industry Association (Australia)
Ireland Environment, Heritage and Local Government
John Burns Real Estate Consulting
Land Registry of England and Wales
National Association of Home Builders (USA)
National Association of Realtors (USA)
National Statistics (United Kingdom)
Nationwide Building Society (UK)
Office of Federal Housing Enterprise Oversight (USA)
Property Council of Australia
Permanent TSB (Ireland)
Real Estate Board of Winnipeg
Real Estate Institute of Australia
Real Estate Institute of New South Wales
Real Estate Institute of New Zealand
Real Estate Institute of Queensland
Real Estate Institute of Tasmania

Real Estate Institute of Victoria
Real Estate Institute of Western Australia
Registers of Scotland
Reserve Bank of Australia
Reserve Bank of New Zealand
Residential Property Council, Division of the Property Council of Australia
RP Data (realestate.com.au)
Statistics Canada
Statistics New Zealand
Toronto Real Estate Board
United 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

The median house price estimates for all markets are for the 3rd quarter of 2008 (September quarter), except for Cape Breton and Chatham-Kent, in Canada, which are estimated for the month of September.

Notes on Figures:

Figure 1: Estimated using Real Estate Institute of Australia median house prices and Australian Bureau of Statistics data.
Figure 2: John F. Kennedy School of Government (Harvard University) data to 2008 and Demographia data 2006-2008.
Figure 3: Schedule 1: All markets with a population of 1,500,000 or more. Excludes non-core markets in combined metropolitan areas (such as London Exurbs, San Jose, Providence and Riverside-San Bernardino and the non-metropolitan regional markets of England and Wales). In the United States, prescriptive land use regulation markets ("more land rationing") include those classified as "growth management," "growth control," "containment" and "contain-lite" in *From Traditional to Reformed A Review of the Land Use Regulations in the Nation's 50 largest Metropolitan Areas* (Brookings Institution, 2006) as well as markets Demographia has determined to have significant rural zoning (large lot zoning) and land preservation restrictions (New York, Chicago, Milwaukee, Minneapolis-St. Paul, Virginia Beach and Washington). Outside the United States, prescriptive land use metropolitan markets are identified based upon their widespread use of land rationing strategies, such as the pervasive urban consolidation or smart growth policies in all major United Kingdom (the national Town and Country Planning Act), Australia, Ireland (the National Spatial Strategy) and New Zealand, markets. Vancouver and Toronto (like the markets in the UK, Australia and New Zealand) have formal metropolitan or land rationing programs and are also considered to be prescriptive markets. Montreal has been reclassified as a land rationing urban area because its agricultural preservation zone is now reported as development on the urban fringe. Under each of these prescriptive land use regulation regimes, land prices for development on the urban fringe, if allowed at all, have been driven well above the "agricultural value plus premium" levels that have generally characterized markets since World War II and continue to operate in responsive markets.

Other markets are considered "responsive," by virtue of the fact that they have little or no broad land rationing policies.

Figure 4: Based on John F. Kennedy School of Government (Harvard University) data to 2006 and Demographia data 2007-2008.

Table 6
Criteria for Metropolitan Markets Included in the
5th Annual Demographia International Housing Affordability Survey

Nation	Markets Included (Where Complete Data is Available)
Australia	Metropolitan markets over 50,000 population
Canada	Metropolitan markets (CMAs) over 100,000 population
Ireland	Metropolitan markets over 50,000 population
New Zealand	Markets corresponding to urban areas over 75,000 population
United Kingdom	London, London Exurbs, markets in Scotland and Northern Ireland corresponding to urban areas over 150,000 population, Non-metropolitan markets: Wales and regions of England.
United States	Metropolitan markets (MSAs) over 400,000 population

Table 7
Changes in Metropolitan Markets from 2007

Market Last Year	This Year Included in
AUSTRALIA	
Rockhampton, WA	Perth, WA
CANADA	
Oshawa, ON	Toronto, ON
UNITED KINGDOM	
Birmingham & West Midlands	West Midlands
Blackpool & Lancashire	Northwest
Bournemouth & Dorsett	Southwest
Bristol-Bath	Southwest
Cardiff	Wales
Exeter & Devon	Southwest
Hull & Humber	Yorkshire
Leeds-Bradford	Yorkshire
Leicester	East Midlands
Liverpool	Northwest
Manchester (Greater)	Northwest
Middlesborough & Durham	Northeast
Newcastle	Northeast
Newport	Wales
Northampton	East Midlands
Nottingham	East Midlands
Sheffield & South Yorkshire	Yorkshire
Stoke on Trent	West Midlands
Swansea	Wales

Footer Illustrations: New Houses (Left to Right):
Suburban Kansas City, United States
Suburban Montréal, Canada
East of England (London Exurbs), United Kingdom
Suburban Dublin, Ireland
Suburban Auckland, New Zealand
Suburban Adelaide, Australia

BIOGRAPHIES

(Alphabetical)

Dr. Shlomo Angel

Dr. Shlomo (Solly) Angel authors the preface to this edition. Dr. Angel earned a Bachelor's degree in Architecture (summa cum laude) and a Ph.D. in City and Regional Planning from the University of California, Berkeley. He has served as Professor of Human Settlements Planning at the Asian Institute of Technology in Bangkok and now serves as Adjunct Professor of Urban Planning at the Robert F. Wagner Graduate School of Public Service at New York University and as a Lecturer in Public and International Affairs at the Woodrow Wilson School of Public and International Affairs at Princeton University (USA). Since 1990, Dr. Angel has been a housing policy advisor to international organizations, such as the World Bank and the Inter-American Development Bank. He is author of many books and articles, such as *Housing Policy Matters* and *Housing: Enabling Markets to Work* (the latter co-authored with Stephen K. Mayo). He is currently principal investigator of a Habitat for Humanity project to design, develop and test a housing policy index. Dr. Angel is considered one of the world's foremost authorities on housing policy and housing affordability.

Wendell Cox

Wendell Cox is co-author of the *Demographia International Housing Affordability Survey*. He is principal of Demographia, an international public policy firm. He also has served as a visiting professor at the Conservatoire National des Arts et Metiers in Paris (a national university) since 2002. He is vice-president of CODATU, a Lyon based international research organization dedicated to improving transport in developing world urban areas. He is also associated with various public policy organizations, such as the Heritage Foundation (Washington), the Heartland Institute (Chicago), the Cato Institute (Washington), Frontier Centre (Winnipeg), Texas Public Policy Foundation, Independence Institute (Denver), Institut économique de Montréal, National Center for Policy Analysis (Dallas), Georgia Public Policy Foundation, Virginia Institute for Public Policy and Maryland Public Policy Institute. He has lectured widely, including a month long tour to all Australian state and territorial capitals in 2006. Wendell Cox has completed projects in the United States, Western Europe, Canada, Australia and New Zealand in urban policy, demographics and transport. He was appointed to three terms on the Los Angeles County Transportation Commission by Mayor Tom Bradley and to the Amtrak Reform Council by Speaker of the U. S. House of Representatives Newt Gingrich. Demographia sponsors three internet web sites, including www.demographia.com, www.rentalcartours.net and www.publicpurpose.com. The latter has been twice honored by the *National Journal* as one of the nation's top internet transport sites. In 2004 he teamed with Hugh Pavletich of Performance Urban Planning to develop the *Demographia International Housing Affordability Survey*.

Hugh Pavletich

Hugh Pavletich co-author of the *Demographia International Housing Affordability Survey*. He operates the website Performance Urban Planning and is the Managing Director of Pavletich Properties Ltd, a

commercial property development and investment company, based at Christchurch, South Island, New Zealand. He commenced his working life as a farm worker and wool classer (wool classifier) in 1967 and moved to Christchurch in 1980 where he started developing small factory units and has developed commercial and industrial property on freehold and Maori leasehold land in other centers of the South Island as well. His industry involvement commenced when elected President of the South Island Division of the Property Council of New Zealand (then the Building Owners & Managers Association – BOMA) soon after its inception in 1991, which he led for four years. He has had extensive involvement with public policy issues of local authority financial management, land use regulation and heritage. In 2004, he was elected a fellow of the Urban Development Institute of Australia (UDIA) for services to the industry. During that year, he felt there was a need for an international measure of housing affordability and teamed up with Wendell Cox, to develop the annual *Demographia International Housing Affordability Survey*. Hugh's articles and submissions with a focus on exploring solutions are at www.PerformanceUrbanPlanning.org.

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