

DEMOGRAPHIA

How U. S. Land Use Restrictions Exacerbated the International Finance Crisis



AN ECONOMIC ANALYSIS BRIEF

Excess House Value Estimates

By Metropolitan Area

Table 3

28 April 2008

HOW U.S. LAND USE RESTRICTIONS EXACERBATED THE INTERNATIONAL FINANCIAL CRISIS

The U.S. mortgage meltdown has dominated business news for months. The crisis seems to deepen daily, and its impacts are felt throughout an increasingly interdependent financial world. Only recently, the Organization for Economic and Development (OECD) and the International Monetary Fund (IMF) have suggested that losses of an *additional* \$250 billion to \$1 trillion may yet be in the offing. In the ongoing debate over the causes and cures of the mortgage meltdown, one of the most important factors has been virtually absent: the role of excessive land use regulations in exacerbating the extent of losses.

What Is Excessive Land Use Regulation?

As we know from introductory courses in economics, scarcity raises prices. In a number of metropolitan markets across the country, excessive land use policies have been adopted, such as urban growth boundaries, huge areas recently declared off-limits to development, building moratoria, confiscatory and unprecedented impact fees, and excessively large minimum lot sizes.

These policies, often referred to as “smart growth,” create a scarcity of land, artificially raise the price of housing, and, again, have increased the exposure of the market to risky mortgage debt. When more liberal loan policies were implemented, metropolitan areas that had adopted these more restrictive policies lacked the resilient land markets that would have allowed the greater demand to be accommodated without inordinate increases in house prices.

A few voices in the wilderness on both sides of the political spectrum have pointed to the role of excessive land use policies in driving up housing costs. For example:

- Liberal economist Paul Krugman of *The New York Times* put most of his conservative colleagues to shame in noting that the house price bubble has been limited to metropolitan areas with strong land use regulation
- Conservative Thomas Sowell, no stranger to being a voice in the wilderness, has made similar points.
- More recently, Theo Eicher of the University of Washington produced a working paper placing much of the blame for house price escalation on land use regulation in cities around the nation.

Consequences of Excessive Land Use Regulation

How does all of this relate to the mortgage meltdown and the subprime crisis? It is very simple. There is no question that more liberal loan policies were the proximate cause. But the strict land use regulations forced prices up much more than would have been the case if the previous more traditional yet environmentally sound regulation had been retained.

Places like California, the Northeast, the Northwest, and Florida have implemented excessive land use controls. As a result, their land use planning systems have not been able to accommodate the stronger demand created in the more profligate lending environment. At the same time, as a result of its more relaxed land regulation, much of the rest of the nation was far better able to accommodate the higher demand. This includes the high-income world's three fastest-growing metropolitan areas with a population of more than 5,000,000: Atlanta, Georgia, and Houston and Dallas-Fort Worth, Texas.

This is illustrated by developments in the nation's 50 largest metropolitan markets. Between 2000 and 2007, house prices increased an average of more than \$275,000 compared to incomes (house price to household income ratio) in the 10 markets with the greatest price escalation or the greatest affordability loss. Among the second 10 markets with the greatest affordability loss, prices rose \$135,000 relative to incomes. By contrast, in the markets with the least affordability loss, house prices increased only \$5,000. (See Table)

Summary Table						
Excess Price of the Housing Stock and Excess Mortgage Exposure (From 2000)						
	Number of Excessive Land Use Planning (Smart Growth) Markets	Estimated Excess House Price over 2000 Average Price/Income Ratio	Rise in Aggregate House Value Relative to Average Income (Billions)	Rise in Mortgage Exposure Relative to Average Price/Income (Billions)	Share of Excess Mortgage Escalation	
By Average House Price Increase						
Highest 10	100%	\$277,400	\$3,400	\$3,060	64%	
Higher 10	100%	\$135,900	\$1,020	\$920	19%	
Middle 10	50%	\$76,500	\$520	\$470	10%	
Lower 10	10%	\$32,000	\$190	\$170	4%	
Lowest 10	0%	\$5,200	\$30	\$30	1%	
Total Major Metropolitan	52%	\$134,100	\$5,160	\$4,650	98%	
Other Areas			\$110	\$100	2%	
United States			\$5,270	\$4,750	100%	

Assumes excess mortgage exposure is at the same ratio as aggregate value increase.

What the 20 markets that have lost the most affordability have in common is excessive land use regulation. Virtually everyone knows the distress that such cost increases mean for America's households.

But there are broader economic consequences that have expanded to the international market. From 2000 to 2007, the gross value of the U.S. housing stock rose \$5.3 trillion relative to household incomes. It is estimated that \$4.4 trillion of this increase occurred in the 20 most escalating markets, all of which are characterized by excessive land use planning. In each of four markets (Los Angeles, New York, San Francisco, Washington, and Miami), the aggregate escalation above incomes was a third of a trillion dollars or more.

While there have been modest house price reductions in the most expensive markets, far larger drops would be required to restore previous levels of housing affordability in the most expensive markets. Moreover, Bureau of the Census estimates indicate that many of the markets that have lost so much affordability are also losing large numbers of households to more affordable areas of the country, which could suggest that house prices may well drop even further.¹

Over the same period, the nation's gross residential mortgage exposure rose \$4.8 trillion relative to household incomes. If the distribution of mortgage exposure increase tracked with the increase in excess value noted above, then 83 percent is attributable to the 20 most escalating markets—again, all with restrictive land use planning or smart growth. Stated another way, if price-escalating smart growth policies had not been adopted in state capitals, county courthouses, and local planning commissions, the financial risk in the current crisis would be at least \$4 trillion less. This is a very high concentration of excess mortgage exposure, since these markets account for only 26 percent of the nation's owner-occupied housing stock.

The tragedy is that when most of these decisions were made, there was not the slightest consideration of economics—the upward pressure on house prices—or the number of households that would be denied home ownership in the years to come. Yet these local decisions played a major role in what *The Economist* magazine called a near global collapse.

Exacerbating the International Finance Crisis

Simply put, without smart growth, the international financial crisis that has raised so much appropriate concern would have been much less severe. Thus far, the policies of the Federal Reserve Board have failed to take notice of this important connection. Any serious effort to prevent a repeat of such destructive price volatility will require removing these destructive land use regulations that have done so much to destroy housing affordability in many markets while adding inordinately to the financial distress that is being felt around the world. Economics-challenged state and local politicians must not be permitted to steer the international economy into an iceberg.

Note:

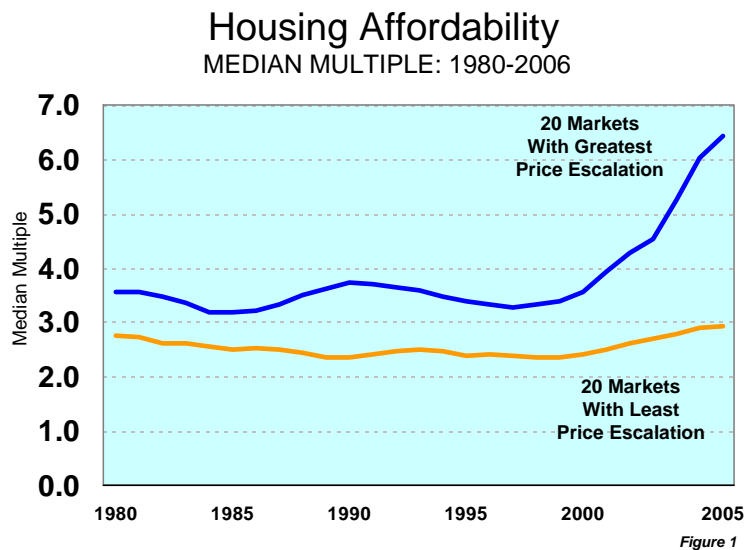
Detailed metropolitan area excess housing value estimates are available in Table 3

HOW U.S. LAND USE RESTRICTIONS EXACERBATED THE INTERNATIONAL FINANCIAL CRISIS

Unprecedented Housing Price Escalation

This report analyzes the house price changes in major United States market between 2000 and 2007 by metropolitan area. This period has seen an unprecedented increase in house prices relative to incomes. This is illustrated by trends in the Median Multiple --- the median house price divided by the median household income. Among the 105 metropolitan markets surveyed by Harvard University researchers,² the average Median Multiple among had remained at near the historic rate standard of 3.0 between 1980 and 2000.

- In 1980, the average Median Multiple was 3.1. There were 13 markets with Median Multiples above 4.0 and 2 markets above 5.0. The maximum Median Multiple was 5.7 (in Honolulu). The situation generally improved in the years that followed. After 1981, there were no years in which there were as many as 10 markets with Median Multiples above 4.0 until 2002.
- By 2000, housing affordability had generally improved, with the average Median Multiple dropping to 2.8. There were 8 markets with Median Multiples above 4.0 and 3 markets above 5.0. The maximum Median Multiple was 5.3 (in San Francisco), which was lower than Honolulu in 1980.



- The situation deteriorated materially from 2000 to 2006. The average Median Multiple had expanded by nearly one-half, to 4.1 in 2006. There were 44 markets with Median Multiples above 4.0 and 23 markets above 5.0. There were 13 markets with Median Multiples over 6.0. This compares with a maximum of two markets over 6.0 in all of the years from 1980 to 2000.

The 4th *Annual Demographia International Housing Affordability Survey* indicates that by 2007, the highest Median Multiples had expanded to more than 10 (Los Angeles, at 11.5, followed by San Francisco, Honolulu and San Diego).³

The Two-Speed House Price Market

With this diversity in housing affordability, it would be a mistake to conclude that extraordinary house price increases have been pervasive. Indeed, a two-speed house price market has developed in the United States. Approximately one-half of the major markets have experienced price increases, to unprecedented Median Multiples of 4.0 or above. The other one-half of metropolitan markets have experienced from modest to little price increase. This subtlety has been missed by most analysts, who have focused on national averages (Figure 1).

Geography of Mortgage Stress

This report estimates the financial impact of the house price increases relative to incomes by major metropolitan markets. The nation's 50 largest metropolitan markets (those with more than 1,000,000 population⁴) were ranked by the extent to which their average house prices increased relative to their 2000 house price to household income ratio, or price/income ratio⁵ (Table #1).

- The 10 metropolitan markets with the greatest housing price escalation account for an estimated 65 percent of the aggregate national excess price increase. Aggregate house prices in these markets were \$3.4 trillion higher in 2007 than if the price/income ratio of 2000 had been preserved. The average house is estimated to have experienced excess price escalation of \$277,400.
- The 10 metropolitan markets with the second greatest housing price escalation account for an estimated 19 percent of the aggregate national excess price increase. Aggregate house prices in these markets were \$1.0 trillion higher in 2007 than if the price/income ratio of 2000 had been preserved. The average house is estimated to have experienced excess price escalation of \$135,900.
- The 10 metropolitan markets in the middle account for an estimated 10 percent of the national excess price increase. Aggregate house prices in these markets were \$520 billion higher in 2007 than if the price/income ratio of 2000 had been preserved. The average house is estimated to have experienced excess price escalation of \$76,500.
- The 10 metropolitan markets with the second *lowest* housing price escalation account for an estimated 3 percent of the aggregate national excess price increase. Aggregate house prices in these markets were \$170 billion higher in 2007 than if the price/income ratio of 2000 had been preserved. The average house is estimated to have experienced excess price escalation of \$30,800.
- The 10 metropolitan markets with the *least* housing price escalation account for an estimated 1 percent of the aggregate national excess price increase. Aggregate house prices in these markets were \$30 billion higher in 2007 than if the price/income ratio of 2000 had been preserved. The average house is estimated to have experienced excess price escalation of \$5,200.

The other markets (outside of the 50 largest metropolitan areas, above), accounted for approximately 1 percent of the excess price escalation. The average house is estimated to have experienced excess price escalation of \$3,500.

Price Overhang by Metropolitan Area: Los Angeles is estimated to have developed the greatest aggregate excess cost escalation, or price overhang at \$840 million, followed by New York,⁶ at \$770 million. The five largest California metropolitan areas account for 34 percent of the aggregate national price overhang (Los Angeles, San Francisco, Riverside-San Bernardino, San Diego and San Jose). The East Coast markets of New York, Washington and Boston accounted for 28 percent of the national aggregate price overhang (Table 3).

By Highest Average House Price Increase Relative to Incomes (Groups of 10)	Aggregate Housing Price: 2007 (Billions)	Excess Price (Overhang) Compared to 2000 (Billions)	Increase in Price	Share of Price Overhang	Estimated Average House Price: 2007	Estimated Excess over 2000 Ratio
Largest Increase	\$7,000	\$3,400	94%	65%	\$571,000	\$277,400
Second Largest Increase	\$2,570	\$1,020	66%	19%	\$342,400	\$135,900
Middle Increase	\$1,990	\$520	35%	10%	\$292,900	\$76,500
Second Smallest Increase	\$1,120	\$190	20%	4%	\$188,500	\$32,000
Lowest Increase	\$1,020	\$30	3%	1%	\$175,200	\$5,200
Total Major Metropolitan	\$13,700	\$5,160	60%	98%	\$356,900	\$134,100
Other Areas	\$6,390	\$110	2%	2%	\$172,900	\$3,500
United States	\$20,090	\$5,270	36%	100%	\$267,500	\$69,900

Aggregate price (average sales price) estimated by regional average to median price ratio.
 Median Multiple=Median house price divided by median household income (from "4th Annual Demographia International Housing Affordability Survey."
 Detail by metropolitan area in Table 3

Excess Escalation Focused in Strong Land Use Regulation Areas

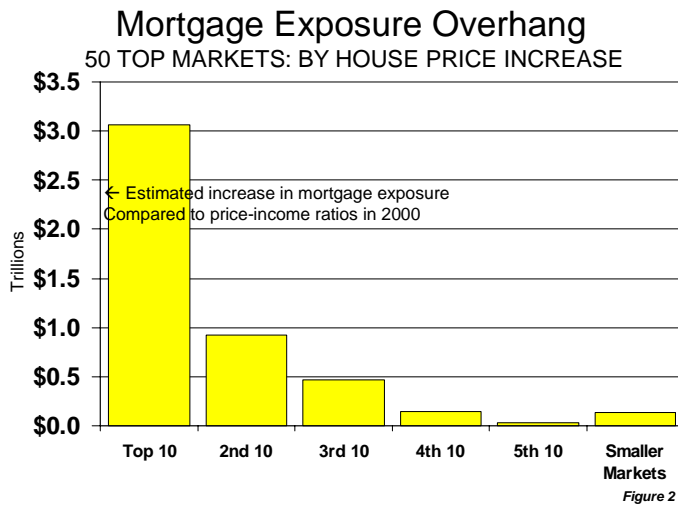
One common feature among the markets with the greatest price escalation is overly restrictive land use planning (also called “smart growth”), which increases the price of housing by strongly regulating land use. Examples of such strategies are urban growth boundaries, huge areas recently declared off-limits to development, building moratoria, expensive impact fees and excessively large minimum lot sizes. Economists on both sides of the political spectrum and in other nations with similar price escalation have made this connection (see Box).

This relationship between overly restrictive land use regulation and the house price overhang is evident in the metropolitan area groupings above.⁷ The 20 metropolitan markets with the highest price overhangs⁸ all have implemented strong land use planning, either at the metropolitan, county or municipal level. Among the 20 markets with the lowest price overhang, only one has implemented strong land use planning (Table 2)

Smart Growth: Intensifying the Mortgage Losses

The tendency of housing prices to rise far more rapidly in markets with the most intense land use restrictions has had a significant impact on the extent of the sub-prime financial crisis.

If it is assumed that the increase in gross mortgage exposures follow a pattern similar to the house price differentials, then gross owner-occupied mortgage debt rose \$4.75 trillion relative to the level that would have existed if the 2000 price/income ratio had been maintained (2000 to 2007).



It is estimated that in 10 metropolitan markets with the most steeply rising prices, mortgage exposures rose by approximately \$3.1 trillion compared to the exposure that would have existed had the previous price to income ratios been maintained. These 10 markets have “rung up” 64 percent of the mortgage exposure overhang, yet account for only 16 percent of the nation’s owner occupied housing stock. Another 900 billion in excess mortgage

exposure is attributable to the 10 markets with the second most steeply rising prices. Thus, it is estimated that more than 83 percent of the excess increase in mortgage exposures occurred in these 20 metropolitan markets, all of which have serious land use restrictions. The other 17 percent of the mortgage exposure overhang occurred in markets that represent 74 percent of the owner occupied housing stock (Figure 2).

This is not to suggest that restrictive land use policies created the sub-prime crisis. It is, however, to suggest that prescriptive land use policies made the financial far more severe. To this extent, urban planning policy has “upstaged” economic policy and had a major role in facilitating what *The Economist* magazine indicated a near global market collapse.⁹ Monetary authorities will need to deal with this issue as a prerequisite to avoiding similar problems in the future.

If the more liberal land use regulations of the 20 least escalating markets had been in place in all markets, the mortgage overhang would have been much less --- perhaps \$1 trillion, rather than the actual \$4.8 trillion.¹⁰ Thus, without the severe land use restrictions, it is likely that house price escalation and mortgage exposure would have been far less and that the financial squeeze that banks, funds, stockholders and home owners around the world are feeling could have been largely avoided.

By Highest Average House Price Increase Relative to Incomes (Groups of 10)	Prescriptive Planning Markets in Group of 10	Estimated Excess over 2000 Average Price/Income Ratio	Excess Price (Overhang) Compared to 2000 (Billions)	Rise in Mortgage Exposure (Overhang) Relative to Income (Billions)	Share of Excess Mortgage Exposure (Overhang)
Largest Increase	100%	\$277,400	\$3,400	\$3,060	64%
Second Largest Increase	100%	\$135,900	\$1,020	\$920	19%
Middle Increase	50%	\$76,500	\$520	\$470	10%
Second Smallest Increase	10%	\$32,000	\$190	\$170	4%
Lowest Increase	0%	\$5,200	\$30	\$30	1%
Total Major Metropolitan	52%	\$134,100	\$5,160	\$4,650	98%
Other Areas			\$110	\$100	2%
United States			\$5,270	\$4,750	100%

Assumes excess mortgage exposure is at the same ratio as excess price.

The Limited Role of Demand

Some analysts have attributed the housing price escalation to more liberal mortgage policies to the more loan qualifications. Their claim is that the greater availability of mortgages fueled higher demand and higher prices. They are right on the first point, and wrong on the second.

The theory is that there was an increase in demand, which resulted in higher prices. However, demand alone does not raise prices. Yet, this explanation is insufficient in view of the fact that there has been such a disparity in house price trends between metropolitan areas. Demand raises prices in where there are supply constraints, such as the excessive land use regulations in the smart growth markets. Virtually the same liberal loan products have been available in every market in the United States. If these policies were at the heart of price trends, then it would be expected that the price escalation would have been general, rather than focused.

In fact, however, some of the smallest house price increases have come in metropolitan areas with the *highest* demand. For example, price escalation has been modest in Atlanta, Houston and Dallas-Fort Worth, which are the fastest growing metropolitan areas with more than 5,000,000 population in the high-income world.¹¹

Additional Consequences

Finally, the higher cost markets are experiencing a severe loss of residents to areas with greater housing affordability

- Between 2000 and 2007, there was a net domestic migration *loss* of 2,634,000 residents in the 26 smart growth markets (this does not include the impact of births, deaths and international migration).
- At the same time there was a net domestic migration *gain* of 1,084,000 in the 24 markets with less restrictive land use planning.

Perhaps even more significantly, there was a 1,550,000 net domestic migration *gain* in net domestic migration to smaller areas, which are characterized principally by responsive planning.¹²

Perhaps even more ominously, a Federal Reserve Board study by Raven Saks concluded, “metropolitan areas with stringent development regulations generate less employment growth than expected given their industrial bases”¹³ A prerequisite to restoring sustained economic growth in the least affordable areas may be restoring the historic relationships between housing prices and incomes.

Box

Research: Prescriptive Planning Associated with House Price Escalation

There is general agreement top world economists that strong land use planning (smart growth) is associated with severe housing cost escalation. Liberal (leftist) economist Paul Krugman¹⁴ of *The New York Times* and conservative (rightist) economist Thomas Sowell¹⁵ of the Hoover Institution attribute prices in the higher cost markets to more restrictive land use regulation. Recent research by Theo Eicher at the University of Washington attributed much of the inflation adjusted increase in housing prices from 1989 to 2006 in US cities to land use regulation.¹⁶ Moreover, the causal relationship between smart growth policies and excessive house price escalation has been cited by some of the world’s top economists.

- 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 1947.¹⁷
- 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 urban area, Auckland, on prescriptive land use policies.¹⁸
- 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.¹⁹
- 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.*²⁰
- An Organization for Economic Cooperation and Development (OECD) report noted an association between strongly regulated land markets and higher housing prices.²¹
- Research by Harvard University’s Edward Glaeser the University of Pennsylvania Wharton School’s Joseph Gyourko others shows a strong relationship between prescriptive land use policies and higher housing prices.²²
- Glaeser et al 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).²³
- Anthony Richards, head of the Economic Analysis Department of the Reserve Bank of Australia recently said that: *...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.*²⁴ In fact, in prescriptive markets this is no longer the case.

Table 3

Aggregate Value of the Housing Stock in 2007: Change from 2000 Price/Income Ratio and Land Use Classification: Detail

Rank	Metropolitan Statistical Area	2007 Estimated Aggregate Value of Occupied Owner Housing Stock in Billions	Aggregate Value Increase in Relation to 2000 Average Price/Income Ratio in Billions	Percentage Change in Aggregate Value Relative to 2000 Average Price/Income Ratio	Percentage of National Change in Aggregate Value	2007 Average Value (Price) per House Estimated Actual	Change in Value per House Relative to 2000 Average Price/Income Ratio: Estimated Actual	2007 Median Multiple	Strong Land Use Regulation?
1	San Francisco, CA	\$840	\$420	100%	8.0%	\$925,500	\$473,200	10.8	YES
2	San Jose, CA	\$350	\$160	84%	3.0%	\$955,800	\$442,900	9.3	YES
3	Los Angeles-Orange County, CA	\$1,430	\$840	142%	16.0%	\$659,700	\$390,400	11.5	YES
4	San Diego, CA	\$400	\$190	90%	3.6%	\$660,700	\$317,900	10.0	YES
5	Washington, DC-VA-MD-WV	\$720	\$350	95%	6.7%	\$547,100	\$270,800	5.5	YES
6	Miami-West Palm Beach, FL	\$590	\$330	127%	6.2%	\$433,200	\$243,000	7.1	YES
7	Riverside-San Bernardino, CA	\$350	\$180	106%	3.5%	\$422,700	\$221,000	7.1	YES
8	New York, NY-NJ,-CT-PA	\$1,940	\$750	63%	14.2%	\$536,300	\$212,700	7.0	YES
9	Las Vegas, NV	\$130	\$70	117%	1.3%	\$331,300	\$168,700	5.9	YES
10	Baltimore.MD	\$250	\$110	79%	2.1%	\$364,000	\$166,900	4.6	YES
11	Orlando, FL	\$170	\$80	89%	1.5%	\$333,200	\$165,300	5.2	YES
12	Sacramento, CA	\$180	\$80	80%	1.4%	\$376,400	\$160,700	5.8	YES
13	Boston, MA-NH	\$510	\$170	50%	3.2%	\$467,200	\$159,800	6.1	YES
14	Virginia Beach-Norfolk, VA-NC	\$130	\$60	86%	1.1%	\$318,500	\$151,100	4.8	YES
15	Providence, RI-MA	\$130	\$50	63%	1.0%	\$327,800	\$135,600	5.6	YES
16	Phoenix, AZ	\$280	\$120	75%	2.4%	\$286,500	\$129,300	4.7	YES
17	Tampa-St. Petersburg, FL	\$210	\$100	91%	1.9%	\$272,700	\$129,000	4.7	YES
18	Portland, OR-WA	\$180	\$70	64%	1.3%	\$336,000	\$127,200	5.1	YES
19	Seattle-Tacoma, WA	\$360	\$100	38%	1.9%	\$442,500	\$124,800	6.0	YES
20	Philadelphia, PA-NJ-DE-MD	\$420	\$190	83%	3.6%	\$273,700	\$124,800	4.0	YES
21	Salt Lake City, UT	\$70	\$30	75%	0.5%	\$276,600	\$108,900	4.5	NO
22	Richmond, VA	\$100	\$30	43%	0.6%	\$298,300	\$100,000	4.1	NO
23	Jacksonville, FL	\$80	\$30	60%	0.6%	\$236,300	\$98,600	3.6	YES
24	Chicago, IL	\$800	\$210	36%	4.0%	\$343,600	\$93,400	4.5	YES
25	Minneapolis-St. Paul, MN-WI	\$260	\$80	44%	1.6%	\$275,500	\$91,100	3.4	YES
26	Hartford, CT	\$100	\$30	43%	0.5%	\$304,300	\$86,700	4.1	YES
27	Charlotte, NC-SC	\$120	\$30	33%	0.5%	\$274,900	\$68,800	4.0	NO
28	Milwaukee, WI	\$110	\$20	22%	0.4%	\$277,300	\$64,200	4.2	YES
29	Raleigh, NC	\$70	\$10	17%	0.3%	\$286,600	\$61,300	3.9	NO
30	Atlanta, GA	\$280	\$50	22%	0.9%	\$218,900	\$41,400	2.8	NO
31	San Antonio, TX	\$80	\$20	33%	0.3%	\$173,500	\$39,500	3.2	NO
32	St. Louis, MO-IL	\$140	\$30	27%	0.6%	\$180,600	\$38,700	2.7	NO
33	Pittsburgh, PA	\$100	\$30	43%	0.5%	\$143,900	\$38,200	2.7	NO
34	Columbus, OH	\$120	\$20	20%	0.4%	\$181,900	\$33,700	2.8	NO
35	Denver, CO	\$180	\$20	13%	0.3%	\$284,900	\$32,700	4.2	YES
36	Houston, TX	\$230	\$30	15%	0.7%	\$194,600	\$31,800	2.9	NO
37	Austin, TX	\$80	\$10	14%	0.2%	\$235,100	\$30,100	3.2	NO
38	Buffalo, NY	\$40	\$10	33%	0.2%	\$124,900	\$30,000	2.4	NO
39	Kansas City, MO-KS	\$100	\$10	11%	0.3%	\$188,400	\$27,500	2.7	NO
40	Oklahoma City, OK	\$50	\$10	25%	0.1%	\$162,400	\$26,600	2.9	NO
41	Cincinnati, OH-KY-IN	\$100	\$10	11%	0.2%	\$174,300	\$25,600	2.7	NO
42	Louisville, KY-IN	\$60	\$10	20%	0.1%	\$177,200	\$21,400	2.8	NO
43	Cleveland, OH	\$90	\$10	13%	0.2%	\$159,200	\$20,400	2.6	NO
44	Rochester, NY	\$40	\$0	0%	0.1%	\$138,600	\$18,200	2.3	NO
45	Birmingham, AL	\$60	\$0	0%	0.1%	\$207,200	\$13,200	3.3	NO
46	Indianapolis, IN	\$70	\$0	0%	0.1%	\$148,200	\$10,900	2.3	NO
47	Dallas-Fort Worth, TX	\$240	\$10	4%	0.2%	\$183,400	\$10,700	2.5	NO
48	Memphis, TN-AR-MS	\$60	\$-0	-0%	-0.0%	\$176,500	(\$2,600)	3.0	NO
49	Detroit, MI	\$220	(\$10)	-4%	-0.2%	\$171,500	(\$3,700)	2.4	NO
50	Nashville, TN	\$80	\$-0	-0%	-0.1%	\$199,800	(\$6,500)	3.0	NO
	Total	\$13,700	\$5,160	60%	97.9%	\$356,900	\$134,100	4.5	

New Orleans Excluded

Value (average sales price) estimated by regional average to median price ratio.

Median Multiple=Median house price divided by median household income (from "4th Annual Demographia International Housing Affordability Survey.")

END NOTES

- ¹ Data are available at <http://www.demographia.com/db-haffmigra.pdf>.
- ² Data from the Joint Center for Housing of the John F. Kennedy School of Government at Harvard University.
- ³ <http://www.demographia.com/dhi.pdf>.
- ⁴ New Orleans is excluded from the major metropolitan areas due to the impact of Hurricane Katrina.
- ⁵ The “price/income” ratio is the estimated ratio between average the house price and the average household income.
- ⁶ Each metropolitan market is the metropolitan statistical area as defined by the Bureau of the Census effective 2005. The New York metropolitan statistical area includes a large share of northern New Jersey, part of Pennsylvania, part of Connecticut, a number of suburban New York counties and the city of New York.
- ⁷ Strong land use planning markets 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) and markets with significant rural zoning (large lot zoning) and land preservation restrictions (New York, Chicago, Milwaukee, Minneapolis-St. Paul, Virginia Beach and Washington). Two metropolitan areas classified as “containment” by Brookings are considered to be responsive markets, Nashville, in which much of the area is exempt from the smart growth legislation and Memphis, where administration of the smart growth law has been sufficiently liberal to minimize interference with land (and housing) prices are classified as responsive markets. Philadelphia is considered a prescriptive planning market because of the impact of suburban New Jersey smart growth policies.
- ⁸ Based on price overhang per house.
- ⁹ http://www.economist.com/finance/displaystory.cfm?story_id=10926298.
- ¹⁰ Assumes the mortgage overhang rate of the 20 markets with the lowest housing cost escalation.
- ¹¹ <http://www.demographia.com/db-5metrogrowth.pdf>.
- ¹² Domestic migration data compiled from United States Bureau of the Census data.
- ¹³ Raven E. Saks, *Job Creation and Housing Construction: Constraints on Metropolitan Area Employment Growth*, <http://www.federalreserve.gov/pubs/feds/2005/200549/200549pap.pdf>.
- ¹⁴ <http://www.nytimes.com/2005/08/08/opinion/08krugman.html>.
- ¹⁵ <http://article.nationalreview.com/print/?q=YjgwYzI4Njg3OWMxOGUzYmY0ZDMwYzYwNzkzYjc1NDI>
- ¹⁶ http://depts.washington.edu/teclass/landuse/housing_020408.pdf.
- ¹⁷ Kate Barker (2004 and 2006). *Review of Housing Supply: Delivering Stability: Securing Our Future Housing Needs: Final Report—Recommendations*. Norwich, England: Her Majesty’s Stationery Office. www.hm-treasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm, and *Barker Review of Land Use Planning*, http://www.hm-treasury.gov.uk/media/4EB/AF/barker_finalreport051206.pdf.
- ¹⁸ 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>.
- ¹⁹ “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>.
- ²⁰ Donald Brash, Introduction to the 4th *Annual Demographia International Housing Affordability Survey*, <http://www.demographia.com/dhi.pdf>.
- ²¹ “Recent House Price Developments: The Role of Fundamentals,” *OECD Economic Outlook* #78 (2005), <http://www.oecd.org/dataoecd/41/56/35756053.pdf>.
- ²² Edward L. Glaeser and Joseph Gyourko, *The Impact of Zoning on Housing Affordability*, (Cambridge, MA: Harvard Institute of Economic Research, 2002).
- ²³ 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.
- ²⁴ http://www.rba.gov.au/Speeches/2008/sp_so_270308.html.