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Is US Housing Over- or Under-Priced?

Some Historical Perspective

by

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I. Introduction

The recent Housing “bubble” and its ensuing “bust” give rise continually to discussion over whether housing is currently a “buy” or whether housing prices have still further declines ahead. In this paper we examine the “trend” in housing prices over the last four decades, market by market, and ask if current (2010q3) house prices are above or below that trend. We undertake the analysis in real (constant 2010) dollars so our “trend” is on top of economy-wide inflation. We also explain why we think this “trend” approach has true economic meaning. Our results suggest that conclusions depend importantly on whether the recent “bubble” is or is not incorporated into the trend. If one believes that at least some of this bubble was rational market behavior, and deserves to be incorporated, then most US markets have now dropped clearly “below trend”. If the recent bubble is viewed as some kind of true aberration, and is not included in the trend,ⁱ then more than half of US markets are still above trend.

II. Why there are long run housing “trends”

Housing is primarily a physical asset, and only secondarily a financial asset. Particularly in growing economies (which the US has and continues to be) new housing must be built each year (albeit at variable rates) to accommodate demographic growth and economic advancement. Over the long run the true production cost of housing provides a base-line for housing asset prices. When prices exceed production costs, production picks up and vice versa.ⁱⁱ Thus it is perfectly within economic theory that housing asset prices gyrate to varying degrees around some trend that represents the cost of building (and replacing) housing units.ⁱⁱⁱ

The cost of building housing involves first material (wood, steel, copper...) which generally rise a little faster or slower than overall economy wide inflation. Then there is labor, whose cost rises (thankfully) somewhat faster than inflation. One of course has to factor in productivity improvements – although these have been rather small in the building trades relative to other sectors. Finally there is the cost of raw land, which tends to vary anywhere from a tiny amount at urban edges to 50% or more in major cities. The trend in land cost is the subject of some considerable study.^{iv}

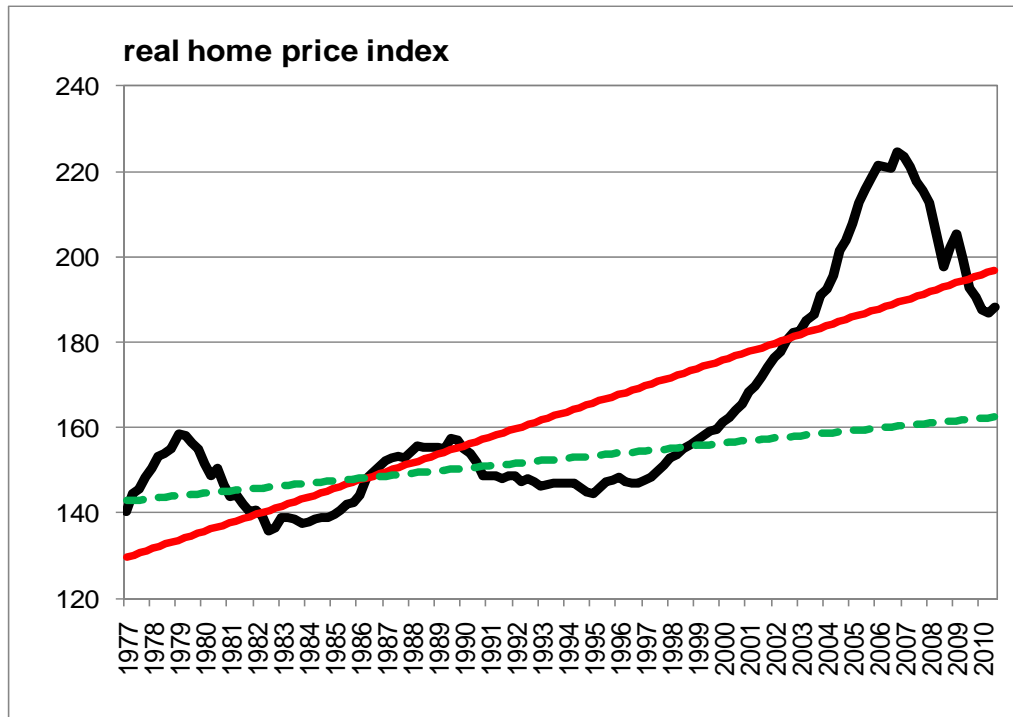
The literature in housing is filled with studies about long run housing trends – often called “supply schedules” – that emphasize the role of land markets. Why are trends more pronounced in some markets than in others? What role do land use and development regulations play in explaining different trends between markets? In addition some question if the housing industry is organized differently around the country, and does this explain different trends?^v The point is simply that the long-run price trend in a housing market is the product of the combined land market-regulatory-construction sector; that is, each markets housing “supply” schedule.^{vi}

III. Data sources and approach

There are several sources of data on house prices that go back in time several decades. The National Association of Realtors published the median existing home price sold each period, but only since 1980 (?). In addition this series is sometimes criticized for not controlling for yearly differences in the types of units sold. More recently, the CSW indices are widely watched, and highly respected for using a “repeat sale” methodology, but this series again is available only since 1987 for 14 markets, and shorter than this for the larger sample of 10 markets. Shiller^{vii} has attempted to splice the average of these 14 markets onto an older series to gain some measure of price changes since the beginning of the 20th century. This older data is not consistent with the newer, and so in this paper we opt to employ the Governments (OFHEO) HPI series. This uses the same methodology as the CSW series and has the benefit of greater geographic coverage (47 markets are used here) for a longer period (we start in 1977). With this data our “trends” will span 33 years.

In Figure 1 below we illustrate the HPI “national” series since 1977. The data is actually quarterly and with it we depict two estimated trends: The green (dashed) is from 1977:1 through 2002:1, while the red (solid) is from 1977:1 through 2010:3. In the case of the former (shorter sample) we have extended the estimated trend line up to the current period. Thus the dashed line omits the years associated with the housing “bubble”, while the latter (solid) includes them. It is quite apparent that this makes a big difference. With the recent years excluded the average US trend is 0.5% annual appreciation on top of inflation. With the recent years included it jumps up to 1.3%.

Figure 1: US HPI (constant \$2010) with alternative trends



IV. The results for 37 markets

From Figure 1, the “national” US housing market has already fallen almost 5% below its long run trend if that trend in turn is based on the full sample of house prices up through 2010:3. With the bubble and subsequent bust years excluded, however, US housing still is priced 15% above long run trend.

Table 1 repeats this trend estimation for each market (using the 2 sample periods). What is labeled as “trend1” includes the full sample while “trend2” covers only 1977:1 through 2002:1. We also include the difference between these two – which measures how much the last 8 years worth of price change adds to the full sample trending. There is a great deal to discuss with these results, but we shall highlight just a few observations.

Table 1: Difference between 2010:3 HPI values and two trends

MSA	Average annual % change		basis points difference	Percent difference between real price and trends in 2010q3	
	1977q1-2010q3*			trend1	trend2
	trend1	trend2			
Akron, OH	0.52	0.44	8	-11.65	-9.70
Atlanta-Sandy Springs-Marietta, GA	0.73	0.33	39	-11.67	-3.10
Baltimore-Towson, MD	2.10	0.65	145	-2.05	31.70
Bethesda-Rockville-Frederick, MD (MSAD)	2.37	0.87	150	-4.17	29.05
Bridgeport-Stamford-Norwalk, CT	2.02	1.21	81	-10.93	5.00
Chicago-Joliet-Naperville, IL (MSAD)	1.69	1.02	67	-12.79	0.47
Cincinnati-Middletown, OH-KY-IN	0.38	0.07	31	-5.79	1.57
Cleveland-Elyria-Mentor, OH	0.31	0.22	10	-12.58	-10.23
Columbus, OH	0.61	0.45	16	-7.87	-4.19
Dallas-Plano-Irving, TX (MSAD)	-0.71	-1.53	83	7.92	34.90
Denver-Aurora-Broomfield, CO	1.47	0.73	75	-5.92	10.91
Detroit-Livonia-Dearborn, MI (MSAD)	1.18	1.35	-17	-33.69	-35.23
Ft. Lauderdale-Pompano Bch.-Deerfield Bch., FL(M	1.64	-0.56	220	-17.20	37.23
Houston-Sugar Land-Baytown, TX	-0.95	-2.82	186	22.54	107.90
Indianapolis-Carmel, IN	0.27	0.21	5	-6.99	-5.56
Kansas City, MO-KS	0.13	-0.71	84	-0.61	22.98
Las Vegas-Paradise, NV	0.68	-0.70	138	-34.35	-7.55
Los Angeles-Long Beach-Glendale, CA (MSAD)	2.81	1.01	180	-9.90	27.17
Louisville-Jefferson County, KY-IN	0.96	0.61	36	-3.27	4.93
Miami-Miami Beach-Kendall, FL (MSAD)	2.49	0.16	232	-16.93	34.50
Minneapolis-St. Paul-Bloomington, MN-WI	1.54	0.36	118	-10.22	16.65
Nassau-Suffolk, NY (MSAD)	3.98	2.51	147	-8.70	14.66
New York-White Plains-Wayne, NY-NJ (MSAD)	3.32	2.15	117	-7.61	12.44
Newark-Union, NJ-PA (MSAD)	2.61	1.66	95	-7.56	10.19
Oakland-Fremont-Hayward, CA (MSAD)	3.27	1.87	140	-17.93	5.25
Oxnard-Thousand Oaks-Ventura, CA	2.72	1.16	157	-15.19	14.82
Philadelphia, PA (MSAD)	1.98	1.09	89	-1.20	18.09
Phoenix-Mesa-Glendale, AZ	1.16	-0.50	166	-19.91	17.96
Pittsburgh, PA	0.39	-0.14	53	3.85	18.06
Portland-Vancouver-Hillsboro, OR-WA	2.57	1.44	113	-5.89	16.10
Providence-New Bedford-Fall River, RI-MA	2.69	1.61	108	-12.49	7.26
Richmond, VA	1.10	-0.06	115	0.94	31.08
Riverside-San Bernardino-Ontario, CA	1.60	-0.19	179	-22.06	16.96
Sacramento-Arden-Arcade-Roseville, CA	2.11	0.75	136	-24.13	1.00
Salt Lake City, UT	1.75	0.98	77	-3.36	13.08
San Diego-Carlsbad-San Marcos, CA	2.89	1.04	185	-14.59	22.22
San Francisco-San Mateo-Redwood City, CA (MS	4.04	2.78	127	-12.15	6.49
San Jose-Sunnyvale-Santa Clara, CA	4.02	2.95	107	-14.00	1.21
Santa Ana-Anaheim-Irvine, CA (MSAD)	2.73	0.83	191	-9.41	31.60
Santa Rosa-Petaluma, CA	3.31	2.10	121	-22.74	-4.31
Seattle-Bellevue-Everett, WA (MSAD)	3.21	2.11	110	-8.17	10.40
St. Louis, MO-IL	0.61	-0.19	81	-0.68	20.40
Tampa-St. Petersburg-Clearwater, FL	1.40	-0.29	169	-14.96	25.20
Virginia Beach-Norfolk-Newport News, VA-NC	1.62	0.00	162	6.24	51.25
Washington-Arlington-Alexandria, DC-VA-MD-WV	2.44	0.84	160	-5.50	29.79
Wichita, KS	-0.76	-1.70	95	12.16	44.93
United States	1.25	0.38	86	-4.37	15.85

- All markets have trend1 values higher than trend2 values. There is no market where during the last 8 years prices grew below the average rate in prior years.
- Many markets in Texas and oil patch states have negative trends (inflation adjusted). Here the last 8 years most often helped reverse this negative trend.
- Most Midwestern states have smaller trends and also a smaller impact from the last 8 years. Less of a “bubble” in these areas.

- All but 4 markets as of 2010:3 have prices *below* trend1 while all but 7 markets are *above* trend2.
- Major markets most below or near the two trends include Atlanta, Chicago, Denver, Detroit, Indianapolis, Oakland, Sacramento, San Jose.
- Major markets most near and above the two trends include: Baltimore, Dallas, Houston, Kansas City, Richmond, Anaheim, St. Louis, Washington D.C.
- The “bubble” markets in Florida, Arizona, Nevada and Southern California tend to be way below Trend1 while at the same time still way above Trend2.

VI. Conclusion

We find that the answer as to whether US housing is currently over- or under-priced varies enormously both by geography but also by how one defines the price benchmark. We have used the long run trend in each market as the benchmark, and such trend analysis has economic logic behind it, but whether the trend is calculated including or excluding the “bubble years” 2003-2010 makes a huge difference. At this point the best answer we can give is “it depends.”

ⁱ Wheaton, W, Gleb Nechayev, "The 1998-2005 Housing 'Bubble' and the current 'Correction', What's different this time", *Journal of Real Estate Research*, 30,1 (Jan. 2008), 1-28.

ⁱⁱ Joseph Gyrouko and Albert Saiz, "Reinvestment in the housing stock: the role of construction costs and the supply side", *Journal of Urban Economics*, 55,2, March 2004, pp 238-256.

ⁱⁱⁱ Capozza, Dennis, Hendershott, Patric, and Charlotte Mack. "An Anatomy of Price Dynamics in Illiquid Markets: Analysis and Evidence from Local Housing Markets," *Real Estate Economics*, 32 (2004) 1-21.

^{iv} Morris Davis, M. Palumbo, "The Price of Land in large US Cities", *Journal of Urban Economics*, 63,1 (2008) pp 352-384.

^v Somerville, C. T., "The Industrial Organization of Housing Supply:...", *Real Estate Economics*, 27, 4, (1999) pp 669-695.

^{vi} Mayer, Chris, and Tsur Somerville, "Residential Construction: using the Urban Growth Model to estimate Housing supply", *Journal of Urban Economics*, 48,1 (2000) pp 85-109.

^{vii} Robert Shiller. *Irrational Exuberance*, Princeton University Press (2000).