



BRIEFLY

Land-use policies that restrict the supply of building lots are the reason homes cost so much in Washington State

WHY HOMES IN WASHINGTON COST TOO MUCH

In nearly all parts of Washington State homes cost too much. Price escalation, which had been confined to the immediate Seattle area, has spread to all corners of the state, leaving few areas where households with modest incomes can easily afford homes. Nearly all homes in King County are well beyond the range of median incomes, and previously affordable areas like Mason, Kittitas and Spokane Counties have seen prices spike upward.

A common reaction to rising home prices is to throw up one's hands and bemoan forces beyond anyone's control. But it does not have to be this way. This brief explains the reasons behind home price escalation, which, while fairly intuitive, can also be demonstrated with economic rigor.

The story begins with a discussion of the question "how much is too much?" We follow with a review of some recent national research on the dynamics of housing markets that identifies factors that have caused some markets, such as the Puget Sound area, to experience massive price increases, while other markets have not. This research clearly demonstrates that those areas that have experienced major price increases have restricted the supply of new housing.

Because both the national research and our local data collection point to the critical factor of land price, the report moves to the specific issue of land prices and their impact on home prices in the Seattle area. Data on land costs, lot costs and home prices from several markets in Seattle's suburban crescent shows a clear picture of rapidly rising prices for raw land, rising prices for building lots and, consequently, rising prices for new homes.

HOW MUCH IS TOO MUCH?

There are several different ways to measure changes in affordability in order to answer the question, "how much is too much" to pay for housing. First, we can look at prices themselves and how they have escalated. Table 1 shows the increases in median prices for 34 of Washington's 39 counties over the past two five-year periods. (Median price data are not available for Columbia, Klickitat, Lincoln, Okanogan and Skamania Counties, which, together, house about 1.3 percent of the state's population.)



There are two important things to note about these price trends. First, most of the counties with the highest price increases in the 2001-2006 period are on the periphery of the Central Puget Sound area. Second, while in the

1996-2001 period only six counties saw price increases over 30 percent, all but four counties had price increases over 30 percent in the 2001-2006 period. Price escalation has become a statewide problem. Many formerly affordable areas are seeing new kinds of demand pressures that will be discussed below (WCRER 2006).

Although the housing stock does not change a great deal over a five- or ten-year period, it is still likely that some of the measured increase in prices can be attributed to increased size and quality of homes on the market. To control for this influence, the Office of Federal Housing Enterprise Oversight (OFHEO) maintains a price index based on repeat sales of homes. Charts 1, 2 and 3 show the repeat sales index for metropolitan areas of the Central Puget Sound region, Western Washington and Eastern Washington. These are also adjusted for inflation, and therefore show the real price increases in these markets (OFHEO 2006).

These indices show again that prices in peripheral areas, like Olympia and Bellingham, have risen sharply, after staying relatively flat during the later 1990s. Also of note is the fact that no market saw a drop in prices during the recession of 2001-2002, and the Puget Sound area saw not even a hiccup in the pattern of steadily rising housing prices.

Price increases would not be a problem if wages were keeping up. But from 2001-2006, while prices were increasing 61 percent statewide, wages in the state increased only about 14 percent. In some of the high cost areas, wage increases fell below the statewide average. For instance, in Kittitas and Lewis counties, from 2001 to 2006, median home prices increased 94 percent and 79 percent, respectively, while wages increased less than 12 percent. (ESD 2006).

Interest rates play a role in affordability, determining how much debt any given amount of household income can support. Mortgage rates fell to 40-year lows during this five-year period, increasing buying power and contributing to price increases. The Washington Center for Real Estate Research (WCRER) compiles a Housing Affordability Index that combines incomes, interest rates and prices to determine the affordability of housing on a county-by-county basis. An index score of 100 indicates that median incomes in the country can support a mortgage on the median priced home in that county.

Table 1: House Price Increases by County

	Median Price Increase 1996-2001	Median Price Increase 2001-2006
San Juan	24.3%	165.2%
Jefferson	22.0%	103.9%
Kittitas	51.9%	94.3%
Clallam	14.4%	86.9%
Whatcom	15.8%	83.0%
Island	26.8%	80.6%
Kitsap	21.4%	80.2%
Lewis	35.0%	79.0%
Clark	21.6%	77.9%
Mason	34.4%	77.5%
Thurston	20.5%	75.5%
Pacific	18.8%	73.2%
Grays Harbor	28.0%	71.2%
Pierce	26.3%	69.3%
Spokane	6.1%	67.7%
Wahkiakum	43.3%	66.3%
Skagit	18.5%	64.5%
Walla Walla	20.4%	62.3%
Snohomish	37.7%	60.9%
Statewide	26.5%	60.8%
King	50.3%	60.6%
Whitman	12.8%	56.3%
Stevens	19.7%	48.9%
Ferry	16.1%	48.9%
Pend Oreille	14.0%	48.9%
Asotin	8.7%	44.5%
Garfield	8.7%	44.5%
Cowlitz	28.6%	44.1%
Douglas	7.5%	40.4%
Grant	1.5%	36.5%
Chelan	7.5%	35.2%
Yakima	8.8%	27.7%
Benton	23.9%	25.5%
Franklin	23.9%	25.5%
Adams	3.7%	-13.5%
<i>Inflation for the period</i>	<i>9.2%</i>	<i>12.5%</i>

Source: Washington Center for Real Estate Research



Chart 1: Central Puget Sound Metro Areas' House Prices

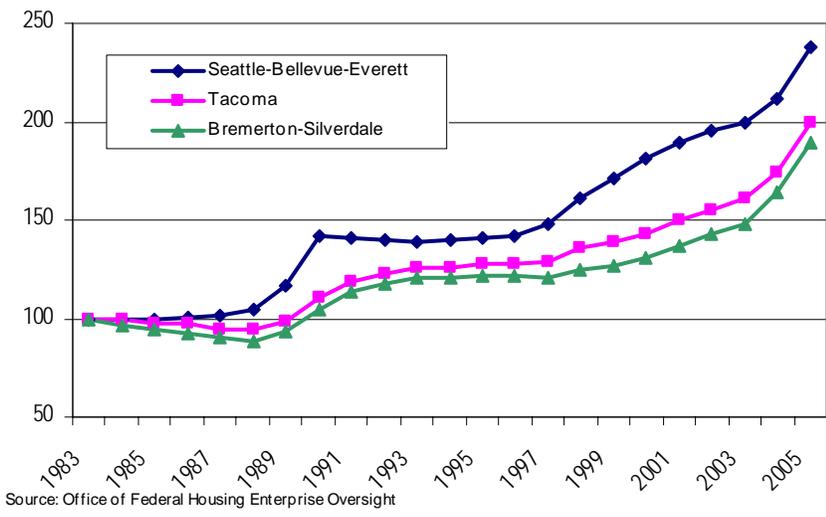


Chart 2: Other Westside Metro Areas' House Prices

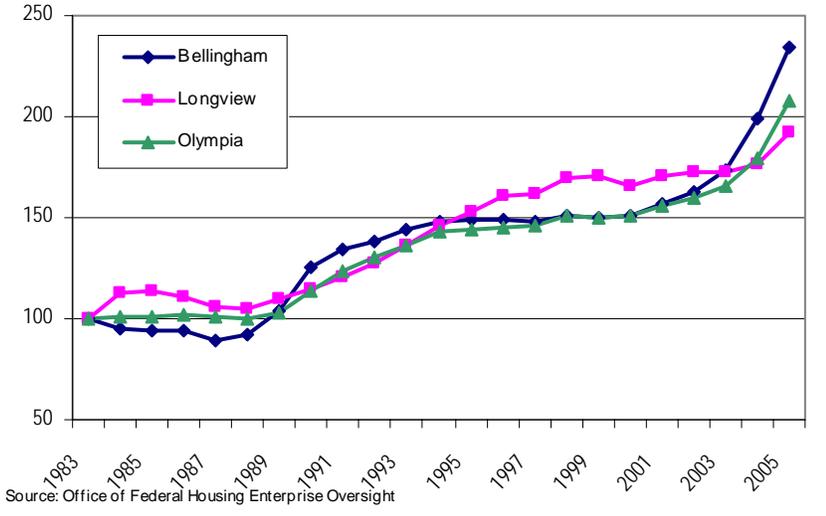
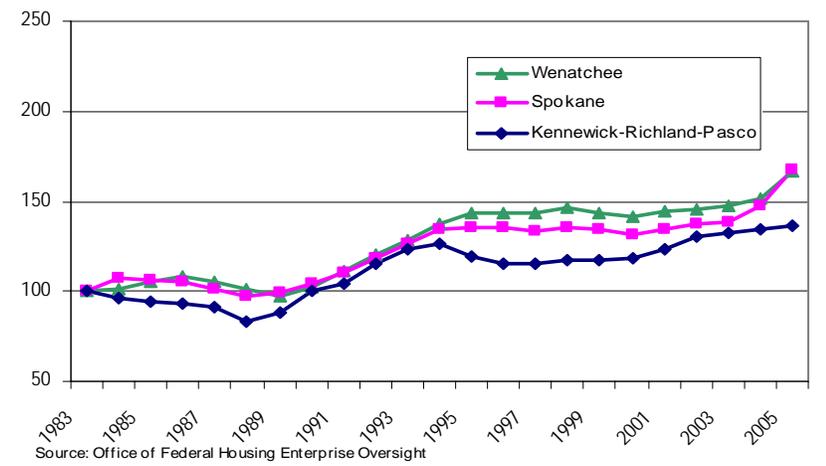


Chart 3: Eastside Metro Areas' House Prices



Scores above 100 indicate greater affordability, and scores below indicate less. WCRER also compiles an affordability index for first time buyers that factors in both the lower incomes of first-time buyers and the lower expectations of home quality (WCRER 2006).

Table 2 shows the housing affordability indexes for all buyers and for first time buyers for counties in Washington in the first quarter of 2001 and in the first quarter of 2006, ranked by affordability for all buyers in 2006.

In 2001, only one county fell below a score of 100 in the index for all buyers, and that was the anomalous case of San Juan County, where the vacation homes of affluent non-residents factor into the affordability index, but their incomes do not. By 2006, 13 counties had fallen below 100. About 70 percent of the residents of the state now live in counties that fall below 100 on the affordability index, indicating that few refuges of affordability remain.

As seen in the right-most two columns, the picture has become especially bleak for first-time buyers. In 2001, seven counties had first time buyer index scores above 100, and another ten had scores above 90. By 2006, only three counties scored above 100 and only two more scored above 90. Eighty-four percent of the state's population now lives in counties with first time buyer index scores below 70. Mason County, with a first time buyer index of 70, is the most affordable area within striking distance of the job centers of the Puget Sound region.

So, how much is too much? Perhaps a specific example will help answer that question. In Clallam County, about 40 percent of households have incomes less than \$35,000 per year. During the week of November 6, 2006, exactly



two homes were for sale in the entire Sequim/Port Angeles area that would be affordable at that income.

And conditions do not appear to be easing, despite the national slowdown in housing. According to the Northwest Multiple Listing Service (NWMLS), only San Juan County saw a year-over-year drop in prices in

the September/October, 2006 timeframe. The rest of the 15 counties that NWMLS tracks in Western and Central Washington saw price increases over the previous year, with the total area seeing year-over-year prices rise nearly 10 percent in both September and October. Despite what might be going on elsewhere in the nation, no bubble is bursting in Washington State.

Table 2: WCRER Affordability Indexes

	Housing Affordability Index		First Time Buyer Affordability Index	
	2001	2006	2001	2006
San Juan	88	37	52	22
Jefferson	121	65	63	37
King	107	70	59	39
Kittitas	153	91	70	46
Whatcom	136	84	73	46
Whitman	151	109	65	49
Island	133	83	78	51
Clallam	148	88	84	51
Snohomish	120	85	72	52
Skagit	123	89	80	54
Pierce	136	96	81	56
Kitsap	155	96	86	58
Clark	152	98	92	59
Wahkiakum	445	98	75	62
Thurston	158	107	93	63
Walla Walla	175	113	96	64
Douglas	132	104	83	65
Chelan	138	119	80	69
Ferry	165	116	88	69
Spokane	184	124	102	69
Mason	195	113	100	70
Lewis	199	121	88	72
Cowlitz	164	124	98	74
Garfield	187	144	91	76
Gray's Harbor	202	126	109	76
Pend Oreille	173	128	94	78
Asotin	185	135	93	78
Franklin	136	128	88	84
Stevens	188	135	103	84
Yakima	157	142	96	87
Pacific	234	157	120	90
Grant	179	145	94	91
Benton	178	170	109	102
Columbia	320	196	176	113
Adams	170	171	91	114

Source: Washington Center for Real Estate Research

How much should a home cost?

The previous discussion of prices and incomes, while helpful in understanding the nature of the problem, does not tell us much about what constitutes a reasonable price for a house. While demand certainly influences price, we cannot ignore what happens on the supply side. The housing market is a somewhat unusual market in that used product constitutes the vast majority of inventory for sale at any moment. Nonetheless, the supply of new housing will determine where prices settle.

In a competitive market, a rise in demand for any product should stimulate production such that prices settle at the point where the least efficient producer is making a minimal profit. In the case of an open housing market, the price of a used house should not be any higher than the price at which the least efficient builder in the market could build the same house new. After all, who would pay more for a used house than they could pay for a new one down the street? So, if the price of a used house is much higher than the cost of construction, then the buyer is paying for something other than sticks, bricks and labor (Glaeser and Gyourko 2003).

Take the case of a specific home on the market in Bellevue during the week of November 6, 2006. This 1,210 square foot rambler was built in 1955 and has had few upgrades. Yet the owner was asking \$400,000. In contrast, the King



County Assessor assigns an improvement value of just \$116,000, or \$95 per square foot, which is almost exactly the construction cost in 2006 of such a structure, according to R.S. Means Residential Cost Data. Adding the cost of infrastructure and utilities, the total construction cost of replicating that house on a bare plot of land should be no more than perhaps \$150,000. So, what explains the difference between the construction cost of \$150,000 and the asking price of \$400,000?

The answer, of course, is in the value of the land. Or, more accurately, the value of the permission to have a house occupy that parcel of land. As the number of “permissions to build” – zoned capacity minus loss of capacity for critical areas, rights of way, infrastructure-related moratoria, etc. – becomes increasingly scarce in urbanized areas near job centers, the value of those permissions increases significantly, despite the low value of the actual structures.

So, the difference between construction costs and the price of homes is the value of the “permission to build.” If there are an adequate number of permissions available in a market area, their value will be low (the cost of obtaining permits), and the cost of homes will be determined more by actual construction costs (both land development and home building) plus some allowance for land itself. Without the excessively high value of the “permission” embedded in the example above, it would be priced in the \$150,000 range.

Inexpensive new-construction homes are still possible in the state. In the Tri-Cities, the state’s most affordable metropolitan area, new 2,000 square foot homes can be found for under \$200,000. Clearly, high prices are not a function of construction costs, but of the shortage of “permissions” in relation to the demand for new housing, and the consequent bidding up of those building opportunities.

The answer to the question at the head of this section, then, is that any home should cost no more than the cost of construction and a modest cost for land, plus profit. Construction costs should also provide a cap on the price of used homes since the price of an existing home cannot exceed the cost of building an identical replacement. The discussion below will show what happens when land costs, and the “permissions” embedded in them, get out of hand and drive up home prices across the board.

All markets are local

In recent years, price trends in Washington have been viewed against the backdrop of run-ups in home prices in many markets across the nation. These run-ups were fueled, in part, by interest rates pushed down by foreign investors’ desire to invest in the U.S. Some see the specter of a speculative “bubble,” and recent sharp drops in home prices and new construction in some markets may point to such a phenomenon.

It must be remembered, however, that real estate markets are essentially local. Inputs to supply may be mobile, but the finished products are very immobile. Demand can shift around the country as industries look to house operations in areas with inexpensive housing, but housing cost is only one of many factors in location decisions. If housing costs were a major factor, businesses would be flooding into big Midwestern industrial cities which have very low housing prices, but this is not happening.

In large part, supply is fixed in a location and demand is generated by regional job and income growth, as well as migration. Each market will have its own interaction between supply and demand, resulting in locally driven price be-



havior. The various Washington markets must be viewed in terms of their own supply and demand factors and, increasingly, the supply and demand factors of the adjacent markets. It would be nice if an oversupply of homes in North Carolina could be shipped out to meet high demand in King County, but, alas, that demand will end up being served by Snohomish and Pierce Counties, and beyond.

IT'S SUPPLY AND IT'S DEMAND

Despite the persistence of conspiracy theories and rumors of mysterious and malevolent forces at work, the rise in home prices in Washington markets can be explained through the simple dynamics of supply and demand. When examining home prices, most of the attention is usually given to demand factors – economic and employment growth, interest rates, investment trends – with the assumption that supply hums along with little interruption. This paper will argue, however, that the primary culprit in the medium and long term trends of price increases is the inability of the housing industry to supply enough homes to keep up with demand.

Before addressing supply issues, however, we will briefly look at some demand factors that have skewed markets in areas of the state, and which provide additional demand that cannot be explained by local economic conditions.

Three disruptive sources of demand

If a local housing market is strictly dependent on local job markets and employment trends, demand can be reasonably forecast based on the activities of local employers. In a number of Washington markets, however, demand is being driven by factors outside the local job market. Among the key disruptive drivers are:

Leakage from high priced areas. One-by-one, formerly affordable areas of Central Puget Sound have become high priced. Areas like Bonney Lake and Port Orchard, which once had new construction homes affordable to first time buyers, have become move-up markets with much higher prices. As high prices ripple out from the Seattle-Redmond axis, lower paid workers must move to the next market to find affordable detached housing. Thus, people working in East King County buy homes in South King County, driving up prices there. People working in the Kent Valley, in turn, must look for homes in Pierce County, driving up prices there and forcing Pierce County workers to move to Thurston County, and so forth. Thus, as seen in the charts and tables above, formerly affordable markets like Mason and Lewis counties are coming under unprecedented demand pressure from areas where wages are higher.

Telecommuters and alternative lifestyles. Many areas of the state that have been historically affordable are also very attractive places to live. With the spread of broadband communications and cheap long distance service, many independent consultants, contractors and entrepreneurs can enjoy rural and waterfront lifestyles while still conducting business that is anchored in the Central Puget Sound region. Areas within an hour or two of Seattle, such as Kitsap, Kittitas, Mason, Island, Skagit and Jefferson Counties make ideal platforms for the telecommuting lifestyle, bringing significantly higher incomes into formerly inexpensive markets.

Retirees. Like the telecommuters, retirees often look for areas that are inexpensive, and attractive and not too far from the cultural amenities of the metropolitan core. Retirees also want to stay reasonably close to the ad-



vanced medical facilities found in large cities. Retirees can bring the equity from selling their valuable home in the Central Puget Sound area into peripheral markets and drive up the price of homes beyond what local wages can support.

Two of these factors – long commutes and retirements – are not really new. But what has exacerbated their impact on peripheral communities is the use of urban growth boundaries in these outlying counties and the accompanying restriction on rural development. In the past these rural counties had a large capacity to support inexpensive very low density residential development with manufactured housing on gravel roads, septic systems and wells. With those inexpensive housing opportunities cut off, local residents have been forced to compete with newcomers for existing homes and new subdivisions built to expensive urban standards.

The picture of housing demand in Washington is not so simple. Planning models that confine demand projections to counties and the economic activity originating there will miss an increasing part of housing demand and be unable to factor in demand patterns that break the connection between home prices and local incomes. We do not have planning systems that can address the fact that social and economic trends in King County ultimately push up prices in Lewis County. Counties and cities need to expand their conception of demand and prepare to accommodate the housing needs generated by more than just their own economic bases.

HOW TO THINK ABOUT SUPPLY AND DEMAND

Demand factors in housing markets, such as interest rates, economic growth and investment psychology have been well researched. The other side of the market – supply factors – has been researched far less. Beginning in the 1990s, however, a group of urban economists has begun to unravel the dynamics of housing supply, helping explain why certain housing markets with growing demand have seen huge price increases, while other markets with growing demand have not.

Several influential papers on this subject are the basis for the discussion and analysis that follows (see References). We begin with some important conceptual insights that help frame how we think about the housing market. Then, we see some conclusions from analysis of the dynamics of housing supply and the way supply elasticities influence demand patterns.

Conceptual framework

Discussions of housing markets frequently confuse or fail to acknowledge some important concepts. Among them:

Distinguish between income problems and price problems. There are two distinct housing affordability problems: household incomes that are too low and house prices that are too high. If a housing market is functioning smoothly, builders and investors can supply housing at all price ranges down to some floor below which the housing would not be safe or healthy. There will always, however, be people who cannot pay for even the lowest cost housing, and they will need subsidies. The real effort should be to ensure that the market can supply housing at the lowest price consistent with health and safety, so subsidy dollars can be saved for the truly poor (Glaeser and Gyourko 2003).



Distinguish between consumption motivation and investment motivation.

Ownership housing serves two distinct purposes: a place to live and a long-term investment. Home buying decisions will be influenced by the interplay of these motivations (Case and Shiller 1998).

In markets with poor prospects for growth, buyers tend to view homes in terms of consumption: the degree to which a home meets the practical needs of the household in a cost-effective way. In markets with expectations of growth and price appreciation, on the other hand, buyers focus on expected future investment returns on their home purchases. In this environment, buyers may spend far more on houses than their apparent intrinsic worth, and may purchase homes that are not entirely appropriate to their lifestyle, all because they are confident that the value will continue to grow.

Follow the relationship between prices and rents. One way to recognize the distinction between consumption and investment motivations is to track the differences between rents and prices. This also provides some additional insight into the underlying value of a home (Gyourko et al. 2006).

In a competitive market, the rent for a house should reflect an appropriate return on the value of the house. Or, put another way, the value of the house can be determined by the rent it can command (this is the way commercial properties are usually valued). After all, why would someone pay more to own a house (mortgage interest plus foregone earning on the down payment) than they would simply to rent a comparable home? The answer, of course, is that the buyer expects the value of the house to increase, with the investment returns offsetting higher monthly costs (Himmelberg et al. 2005).

So, to see if there is a perceived investment value above and beyond consumption value, we can calculate the value of a home based on its rental income and compare that value to the sale price of a similar home. And, it turns out, we can use the same example from Bellevue. Not far from the 1955 Rambler listed for \$400,000 is a similar mid-1950s Rambler renting for \$1,300 per month. If the owner of this rental expects a standard six percent return after paying taxes and expenses, the property would be valued at around \$210,000 (looked at the other way, if someone bought the \$400,000 Rambler and rented it out for the same return, they would need to charge \$2,400 per month). Therefore, the market seems to suggest that such homes in Bellevue have a \$190,000 investment value above and beyond their consumption value as expressed in rent.

The intensive price for land is less than the extensive price. As noted above, the value in a building lot is not in the land itself, but rather in the permission to put a home on that land. Although many homebuyers say they want a large lot with a big back yard, it turns out that, given a choice, they will not pay much for that big yard. If two identical houses are on different sized lots and the larger lot cannot be subdivided, the house on the larger lot will sell for little more than the house on the smaller lot. Or, if someone has an opportunity to purchase extra land to extend their lot, they will not pay very much for that land (Glaeser and Gyourko 2003).

This is the difference between land priced on the intensive margin (added to an existing building lot) and the extensive margin (creating a new building lot). Looking at a number of markets around the country, Glaeser and Gyourko found that land just used to extend a lot, but not to create a new “permission” could cost between \$1 and \$2 per square foot, whereas land that makes up a legal lot can sell for up to ten times that price. This same



research found that the intensive price of land in the Seattle area was near zero.

We can find a local example. During the week of November 13, 2006, a legal 4,000 square foot building lot was listed in North Seattle at \$190,000, indicating an extensive price of \$47.50 per square foot. Also in that week, two newer homes in that neighborhood, of almost identical size and configuration, were listed at the same price of \$499,950. Yet one home sat on a lot of 7,537 square feet and the other on a lot of 9,479 square feet. An extra two thousand square feet of lot size appears to make little or no difference in asking price, indicating an intensive land price of near \$0, as predicted by the research.

Supply and price behavior

Construction costs have remained constant. Throughout the U.S., the construction costs of building homes have remained constant or actually decreased when adjusted for inflation. While prices for some materials have increased, the use of alternate materials and improvements in production methods have

offset these increases (Glaeser et al. 2005). The R.S. Means Company, which provides a variety of construction estimating services, tracks the cost of building homes. Table 3 shows the inflation-adjusted per square foot costs of building a basic two-story home in various markets around Washington in 2001 and 2006.

After adjusting for inflation, construction costs have actually fallen in all markets. Remember, however, that Table 3 compares costs for an identical house, and as will be shown below, builders have been moving upscale.

Table 3: Construction Costs

	Construction cost for average two story, 2000 square foot house Per square foot, in inflation-adjusted 2006 dollars						Avg. Annual Increase
	2001			2006			
	labor	materials	total	labor	materials	total	
Seattle	\$38.26	\$43.96	\$82.22	\$38.89	\$43.18	\$82.06	-0.04%
Tacoma	\$40.58	\$46.63	\$87.20	\$38.50	\$42.75	\$81.25	-1.54%
Olympia	\$40.58	\$46.63	\$87.20	\$38.50	\$42.75	\$81.25	-1.54%
Vancouver	\$42.51	\$48.85	\$91.36	\$37.35	\$41.47	\$78.81	-3.09%
Wenatchee	\$36.33	\$41.74	\$78.07	\$35.42	\$39.33	\$74.75	-0.96%
Yakima	\$39.42	\$45.30	\$84.71	\$36.96	\$41.04	\$78.00	-1.78%
Spokane	\$38.26	\$43.96	\$82.22	\$38.50	\$42.75	\$81.25	-0.27%

Source: R.S. Means Residential Cost Data

Housing prices are high only in certain parts of the U.S. While high housing prices afflict many areas, most of the United States does not face a situation in which home prices are substantially and persistently higher than construction cost (Glaeser and Gyourko 2003) or out of line with incomes (Case and Shiller 2004). In fact, as seen in Tables 1 and 2, most of Washington State remained affordable until recently, even as prices in King County persistently rose.

Across the country, in many metropolitan areas the cost of housing is not too far from the cost of construction, indicating that the “permission to build” carries little price. Housing prices remain reasonable even in some of the economically successful areas of the country. According to the National Association of Homebuilders Housing Opportunity Index, the bulk of housing in Atlanta, Minneapolis, Denver and Raleigh-Durham remains affordable to median incomes, despite the strong growth in these areas (NAHB 2006).

Research strongly correlates high housing prices with local regulatory restrictions on homebuilding. In areas with strict land use regulations, home prices tend to be higher than in areas with weaker controls. This is not to suggest that we should remove controls from land use and adopt a Houston-style “anything goes” approach, but rather to indicate that the choices we make to



regulate land use do have real consequences in terms of home prices. Other areas of the country have chosen to emphasize low home prices and have succeeded in keeping housing affordable (Glaeser and Gyourko, 2003).

High housing prices are not a universal feature of American life in the new millennium, brought on by some mysterious force, but rather an outcome of deliberate policies.

Lack of new construction increases “serial correlation” and price volatility.

As described above, when homebuyers pay substantially more for homes than rental values justify, it is because they anticipate the investment paying off (Capozza et al. 2002, Glaeser 2006).

No one does this, however, in markets characterized by persistent slow growth, such as the old industrial cities of the Midwest where home prices are often below construction cost. Nor do they do it in fast-growing areas that have abundant homebuilding activity, such as are found in the Sunbelt. If buyers see a lot of new product heading to the market, they will not overpay for a home, fearing that prices will not, in fact, rise.

In other words, abundant homebuilding activity breaks the market psychology that drives people to pay more for a home than its underlying rental value. Conversely, a restricted building environment sends a signal that builders will not be able to undercut the market for used homes with cheaper new homes, and buyers pay close attention to such signals (Case and Shiller 2004). If no new construction is on the horizon, paying more for a house than its underlying cost makes perfect sense, since the anticipated appreciation will more than offset the higher costs of the mortgage (Himmelberg et al. 2005).

There is an adage in the investment business that “past returns are not an indication of future performance.” Ignoring this advice results in what economists call “serial correlation,” or the persistence of trends in investment returns. In housing, serial correlation in an environment of heavy demand and restricted supply leads to overshooting of prices and the potential for price bubbles. Capozza and colleagues (2002) have shown that high prices for new construction contribute heavily to serial correlation, and that lowering the cost of bringing in new product will break the cycle of price increases.

Glaeser (2006) has shown that areas with restricted housing supply experience greater price volatility, not just in terms of price increases, but also in terms of price declines. These boom-bust cycles lead to significant economic dislocation and disruption as asset values decline.

Intuitively, if the housing industry can respond quickly to rising prices (that is, if there is a high supply elasticity in the housing market), it can undercut excessive prices being sought by those who are trying to ride the wave of ever-increasing prices for used houses. No one will pay more for a used house than they can pay for a new one, so if it is easy to build new houses, the prices of used ones will remain in check.

New construction has fallen in high-priced locations. In examining the characteristics of high priced areas around the country, researchers found that the rate of increase in the housing supply had fallen significantly in areas with persistently high housing prices. Three very expensive markets, Los Angeles, San Francisco and New York, increased their housing stock by 60 percent, 30 percent and 20 percent, respectively, during the 1950s. By the 1990s, all three areas had seen their housing stock growth rates shrink below 10 percent. (Glaeser et al. 2005)



So, why do homes cost so much?

The conclusion of research at the national level on home price trends around the country can be summed up with the following chain of events:

1. **Lot prices increase.** In the face of a strong economy and strong demand for housing, an insufficient number of “permissions to build,” pushes up the value of those permissions, and thereby the price of the building lots to which they are attached. This inflation in the value of permissions applies both to existing building lots with homes on them, and to newly developed building lots.
2. **Builders move upscale.** The high price of building lots leads homebuilders to move upscale and build ever more expensive homes on those lots. This is, in part, due to the need to follow established practices of the ratio of lot price to home price (the “contributory lot value” that will be described below).

But moving upscale also makes business sense: if the number of units that can be built is restricted by the shortage of permissions, the obvious reaction is to build only the more expensive products. This is analogous to the reaction of the Japanese auto industry to the restraints on auto imports to the U.S. in the 1980s. When Japanese carmakers were restricted in the number of units they could ship to the U.S., they stopped making stripped down economy cars and moved upscale.

3. **Prices of existing homes move up.** With the price of new homes moving up in response to high lot costs, and the inability or unwillingness of the housing industry to build new, low-cost homes, prices of existing homes rise to reflect the embedded value of the “permission to build” that comes with their building lot. Hence, the \$400,000 rambler in Bellevue, which provides an “affordable” alternative to the \$700,000 new homes in the area.
4. **Nothing can dampen expectation of future price increases.** If the supply of “permissions” remains restricted, buyers will assume that no flood of new, inexpensive supply will reach the market, and that therefore paying more for a home than it seems worth is a safe thing to do. The value of the embedded permission will not fall. The rambler may have a replacement value of just \$150,000, but it is safe to pay \$400,000 for it today because no one is going to build a \$350,000 home down the street and the rambler will likely be worth \$450,000 next year.

What makes the Puget Sound markets especially interesting is that prices did not drop precipitously in the early 1990s as they did in most of the markets in the country that were hot in the late 1980s, and they have not fallen this year as they have in markets that were hot in 2005. It would appear that buyer expectations are built around the assumption of continued economic growth and low supply elasticity.

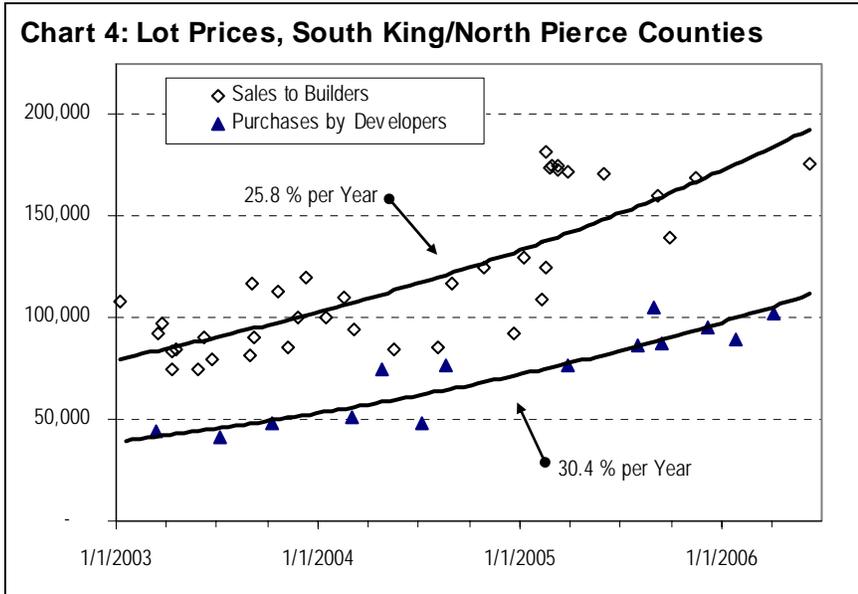
TRENDS IN LAND AND LOT PRICES

The first section above describes rising housing prices in Washington State and the Puget Sound region, and the second section provides a theory that points to high lot prices as the main culprit in driving high housing prices. Next we examine lot price trends to see how they compare to housing price trends and how lot prices are contributing to the price of finished homes.



Lot prices are increasing

Lot prices, it turns out, have increased dramatically in the Seattle area in the last four years. We obtained a data series on land prices, lot prices and contributory lot values from CJM Investment Property Advisors, a leading property appraisal firm. This data is based on actual transactions for land, lots and homes. We focus on competitive submarkets where there are still parcels of land large enough to obtain reasonable economies of scale in land development.



In a typical single family residential project, a land developer buys “raw” land and undertakes the planning and regulatory approval process to create a subdivision, and then installs the infrastructure such as streets, sewers and water lines. The land developer then sells the finished lots to builders who construct the actual homes. Although some firms take projects all the way from raw land to

finished homes, the data we use involves arms-length lot sales transactions between land developers and homebuilders.

Chart 4 shows per-lot prices in the South King County/North Pierce County area. Each triangle represents a transaction for raw land, with the price on the Y axis being the average cost of the land for each lot (i.e. the price of the parcel divided by the number of lots yielded). Each diamond represents the sale of lots in a finished subdivision, with the price on the Y axis being the average lot price in the subdivision.

We have data on 38 transactions where developers sold finished lots to builders, spanning the period from January 2003 to June 2006. These sales included 1,032 lots in total, an average of 27 lots per transaction. We also have data on 14 purchases of raw land by developers, from March 2003 to April 2006, developable into 698 lots, an average of 50 lots per transaction.

Both the finished and raw lot prices in South King and North Pierce Counties rose over the time intervals. Prices received by developers for finished lots

were greater that they were paying for raw land, as should be the case. We show simple exponential trend lines for both data series along with the implied growth rates.

Table 4: Lot Sales to Builders, South King/North Pierce Counties

Independent variable is the natural logarithm of lot price

Dependent Variables	(1)	(2)	(3)	(4)
Year	0.244	0.258		
(t-statistic)	(11.53)	(8.15)		
Area in Sq. Ft./1000	0.031		0.069	
(t-statistic)	(2.69)		(2.57)	
Miles from Seattle	-0.019			-0.019
(t-statistic)	(-6.56)			(-2.81)
Observations	38	38	38	38
Adjusted R ²	0.861	0.649	0.131	0.157

Table 4 presents the results of a regression analysis of lot prices in sales to builders using three explanatory variables: the date of the sale, the size of the lot (in thousands of square feet), and the distance from downtown Seattle (in miles). The dependent variable is specified as the natural logarithm of lot price; therefore, the coefficients represent percentage increases in lot prices associated with one unit increases in the corresponding variables. Column (1) shows the result of the multiple regression using all three variables.



Columns (2), (3) and (4) show results for the simple regressions using each variable separately.

The most interesting specification is (1), which incorporates all three variables. The coefficient on each variable is statistically significant, as demonstrated by the reported t-statistics. The 0.244 coefficient on year indicates that, controlling for lot size and distance from Seattle, lot prices increased at an annual rate of 24.4 percent over the period. The 0.031 coefficient on area indicated that a 1,000 square foot increase in lot size was associated with a 3.1 percent increase in lot price. Evaluated at the average lot size in the sample, 6,000 square feet, this means that a 10 percent increase in lot size brings a 2 percent increase in price, consistent with the national results cited earlier on the difference between the extensive and intensive price of land. Finally, the -0.019 coefficient on miles from Seattle indicates that lot prices drop 1.9 percent, \$2,300 on average, with each mile of distance from downtown Seattle.

The 24.4 percent average annual growth rate in finished-lot prices is more than twice the 12.4 percent annual increase in house prices over the same period, as measured by the OFHEO repeat sales price index for the Seattle metro area. This pattern, the price of lots rising at a faster rate than the prices of housing, is consistent with the story we have been telling: that high house prices are caused by a shortage of permissions to build.

The price paid for raw land has risen even faster than the price received for finished lots, 30.4 percent per year over the period. This is unsurprising, since the value placed on the permission to build is a greater fraction of the price of a raw lot than of a finished lot, and it is the permission to build that is in short supply. However, the opposite pattern—the price of finished lots increasing more rapidly than the price of raw land—is also possible if developers are forced to develop increasing difficult land over time.

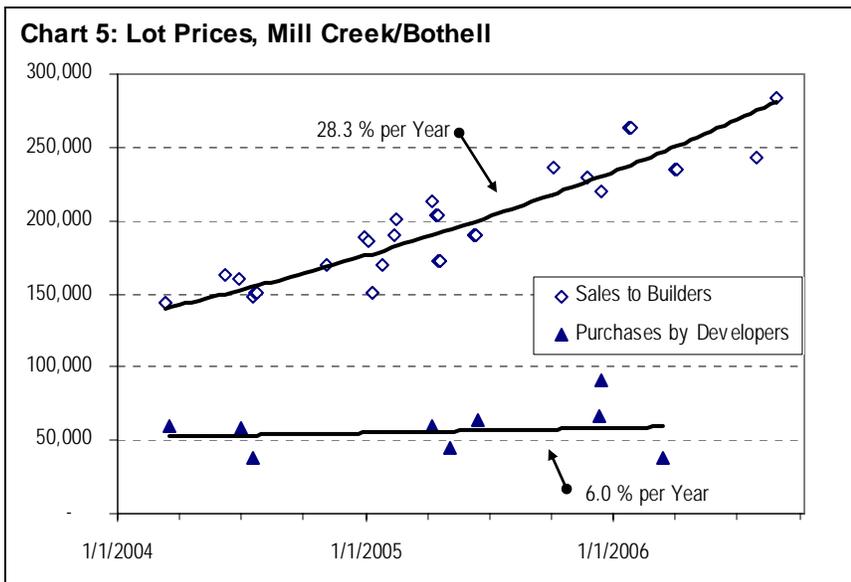


Chart 5 shows transaction data for the Bothell/Mill Creek area north of Seattle. Here we have data on 38 sales of finished lots to builders, spanning the period from March 2004 to August 2006. These sales totaled 943 lots, an average of 25 per transaction. The average annual increase in finished lot price was 28.3 percent over the period. For that same period, the average annual rate of increase in Seattle area home prices was 14.9 percent.

For the Bothell/Mill Creek area we have data on nine raw land purchases, totaling 943 lots or 63 per transaction, over the March 2004 to March 2006 period. Here the annual increase of the per-lot price paid for raw land was only 6.0 percent.

This relatively low rate of growth may be

an artifact of the small number of transactions sampled or it may reflect a declining quality of land available. If the developer must pay for elaborate site preparation and undertake expensive infrastructure improvements, both on-site and off-site, the land seller can expect to receive less for the raw land.



Lot prices are a rising share of home prices

A key benchmark in the real estate business is the ratio of lot price to home price, also known as the “contributory lot value.” This ratio can range widely. The Bellevue Rambler used in the examples above shows the lot value of between 47 and 62 percent of the home price, depending on whether we value the house based on rental income or construction cost. In contrast, a \$200,000 new-construction home in the Tri-Cities may have a lot value of only 15 or 20 percent of the home price.

For years, the rule of thumb in the building industry was that the lot price should be no more than 30 percent of the home price. But with lot prices increasing so much faster than home prices, this rule of thumb is bound to slip. So, we obtained a set of data on contributory lot values from CJM Investment Property Advisors that covers 23 Southeast King County builder projects in the 2004-2006 time frame. Data for each included the average lot price and projected values for the least and most expensive houses.

At first glance, we noticed that contributory lot value ratios were mostly well above the old benchmark of 30 percent, with many above 40 percent and a few close to 50 percent. We wanted, however, to see if there is a pattern to these increases.

Table 5 presents the results of four regression analyses using these data. In each case we use two explanatory variables, year and distance from Seattle.

For regression (1), the independent variable is lot price, in dollars. Both coefficients are statistically significant. The average lot price increases by \$40,100 per year and decreases by \$2,300 with each mile of distance from downtown Seattle.

For regression (2), the dependent variable is the average of the projected prices of the most and least expensive houses for each project. The projected average house price increases by \$64,400 per year and increases by \$600 with each mile from Seattle. The latter coefficient is not statistically significant from 0,

however.

For regression (3), the dependent value is the imputed value of the average structure for each project, calculated as the difference between the expected average house price and the average lot price. Imputed structure value increases by \$24,300 per year and by \$2,900 per mile. Neither of these coefficients is significantly different from 0.

Finally, for regression (4) the dependent variable is the ratio of the average lot price to the average of the projected values of the least and most expensive houses for each project. The coefficients for both distance and year are statistically significant. The

negative coefficient for distance indicates that land tends to represent a smaller share of house values as distance from Seattle increases. Moving one mile further from Seattle decreases the lot’s share in the cost of a house by 0.67 percentage points. This shows that some buyers are willing to spend more for the intangible value of proximity to jobs in the Seattle area and, at the same time, have less of their money go into the size or quality of the structure itself. This

Table 5: Contributory Lot Value Ratios

Dependent Variables	Independent Variable			
	(1) Lot Price	(2) Projected House Price	(3) Imputed Structure Value	(4) Lot Value Ratio
Year (t-statistic)	40,084 (6.30)	64,411 (2.33)	24,327 (0.98)	0.0485 (2.48)
Miles from Seattle (t-statistic)	-2,295 (-2.43)	612 (0.15)	2,906 (0.79)	-0.0067 (-2.31)
Observations	23	23	23	23
Adjusted R2	0.632	0.167	0.017	0.231



is the same as the story behind the \$400,000 rambler, but played out in the new-construction market.

The coefficient for year is positive, indicating that land has tended to represent an increasing share of house values. Over the 2004-2006 period, the lot's share increased by 4.9 percentage points per year. This indicates a growing market acceptance of the need to spend more on the lot and its embedded permissions, and less on the size and quality of the structure. This, again, is the same dynamic as found in the market for used homes, where the value of structures is static (based on steady or declining construction costs) but the price of homes is increasing.

CONCLUSION

Homes prices have risen throughout Washington for a number of reasons, most having to do with the inability of the supply of homes to keep up with demand for homes.

On the demand side, we identify two types of demand for housing that our systems of land use planning are ill-equipped to address. First, areas on the periphery of Central Puget Sound are experiencing demand pressures from outside that result in a severe disconnect between home prices and local incomes. Yet planning for housing assumes that counties have self-contained markets in which supply will match local spending capacity.

Second, the assumption of a continued restriction on new housing supply in the Central Puget Sound region causes buyers to continue to pay far more for existing homes than their underlying value would indicate. They are persistently paying a scarcity premium for the "permission to build" that is embedded in their lot. But as long as we have strict restrictions on the number of new "permissions" that will come on the market, this overpaying is not very risky. And with prices continuing to rise, even in the face of softening markets elsewhere in the country, buyers have no reason to believe that the high prices they pay today will prove a mistake.

Both of these demand-side problems could be addressed with an increase in supply of housing. Peripheral areas need to plan for not just the demand generated by their local job market, but demand coming from the outside. These areas were affordable not long ago and could return to affordability with rapid policy adjustments.

Similarly, the market psychology that leads people to pay more for a house than its underlying value can be broken simply by introducing enough new "permissions to build" into the market such that the value of such permissions falls significantly. With low cost for a "permission to build," the cost of a home will more closely resemble actual construction costs.

Unfortunately, trends appear to be moving in the opposite direction. Areas on the periphery of Central Puget Sound are seeing the highest price increases in the state. The cost of finished building lots, which reflects the current cost of a "permission to build," is rising at an accelerating rate.

The causes of these price trends are easily identified and can be traced back to deliberate policies that restrict the supply of "permissions to build." The winners in all this are, of course, those who own the existing permissions, which is about two thirds of the households in the state. The losers are those who cannot afford to enter the market and will be forever frozen out of the opportunity to possess one of these valuable items.

**REFERENCES**

- Capozza, Dennis, Patric Hendershott, Charlotte Mack and Christopher Mayer. 2002. Determinants of Real House Price Dynamics. National Bureau of Economic Research. Working Paper 9262.
- Case, Karl, and Robert Shiller. 1988. The Behavior of Home Buyers in Boom and Post-Boom Markets. Cowles Foundation Discussion Paper No. 890.
- . 2004. Is There a Bubble in the Housing Market? Cowles Foundation Discussion Paper No. 1089.
- Glaeser, Edward. 2006. The Economic Impact of Restricting Housing Supply,” Policy Brief PB-2006-3. Rappaport Institute for Greater Boston, Kennedy School of Government, Harvard University.
- Glaeser, Edward, and Joseph Gyourko. 2003. The Impact of Building Restrictions on Housing Affordability. Federal Reserve Bank of New York Economic Policy Review, June 2003.
- Glaeser, Edward, Joseph Gyourko and Raven Saks. 2005. Why have Housing Prices Gone Up? Discussion Paper Number 2061. Harvard Institute for Economic Research.
- Gyourko, Joseph, Christopher Mayer, and Todd Sinai. 2006. Superstar Cities. National Bureau of Economic Research Working Paper 12355.
- Himmelberg, Charles, Christopher Mayer, and Todd Sinai. 2005. Assessing High House Prices: Bubbles, Fundamentals and Misperceptions. National Bureau of Economic Research Working Paper 11643.
- National Association of Homebuilders (NAHB). 2006. NAHB-Wells Fargo Housing Opportunity Index. Available at <http://www.nahb.org/page.aspx/category/sectionID=135>
- Office of Federal Housing Enterprise Oversight (OFHEO). 2006. “House Price Index.” Available at: <http://www.ofheo.gov/HPI.asp>
- R. S. Means. 2001, 2006. Residential Cost Data. Kingston, MA: Reed Construction Data.
- Saks, Raven E. 2005. Job Creation and Housing Construction: Constraints on Metropolitan Area Employment Growth. Federal Reserve Board, Division of Research & Statistics and Monetary Affairs. Finance and Economics Discussion Series, 2005-49.
- Schachter, Jason. 2001. Why People Move: Exploring the March 2000 Current Population Survey. U.S. Census Bureau Current Population Reports
- Washington Center for Real Estate Research (WCRER). 2006. “Washington State’s Housing Market (Data Presented By County).” Available at: <http://www.cb.wsu.edu/~wcrer/>
- Washington State Department of Employment Security (ESD). 2006. Covered Employment and Wages. Available at: <http://www.workforceexplorer.com/cgi/dataanalysis/?PAGEID=94&SUBID=149>