



## Trends in Housing Starts

Housing starts have been increasing steadily since 1991. Can they keep increasing?

Why should we care?

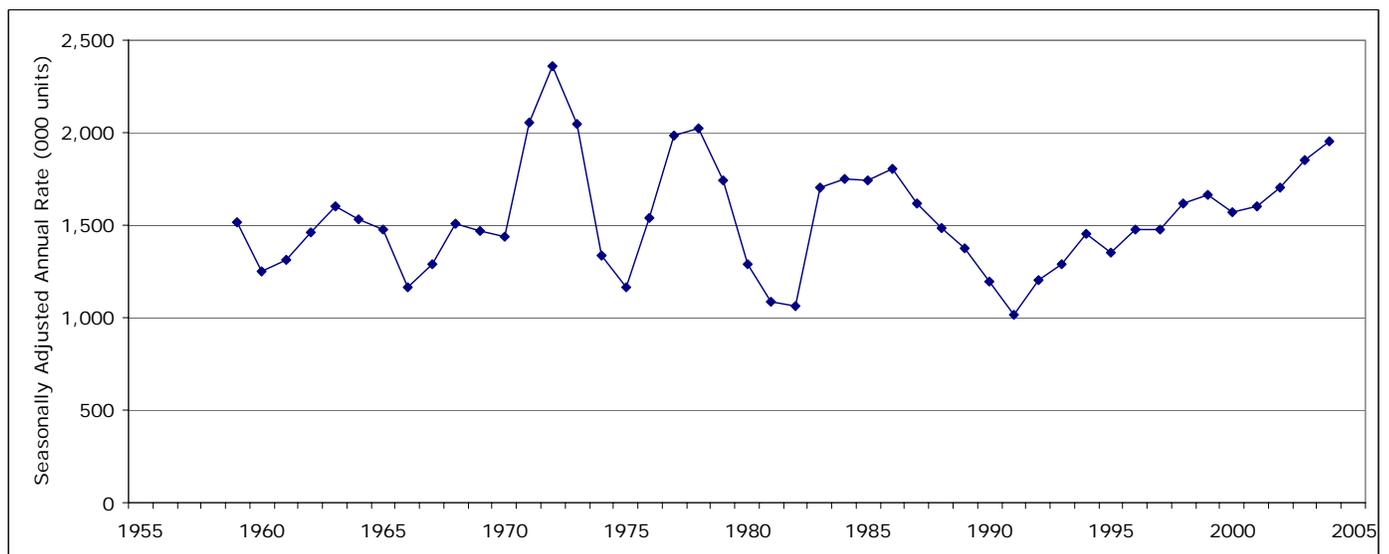
Because housing starts are an important driver of softwood lumber demand. Softwood lumber demand is, in turn, an important driver of softwood timber demand.

For the past 40 years, about 60% of the softwood lumber consumed in the United States has been used in new housing. The amount of lumber per housing unit varies over time with the average size of houses and the ratio of multifamily homes to single family homes. (Multifamily homes usually require less lumber per unit due to smaller unit size and walls shared with other units). In difficult economic times, fewer new houses are built and a higher percentage of softwood lumber is used in improving and renovating older structures.

Housing starts have shown variation over time (Figure 1), but our control chart analysis (not shown here) shows the *annual* housing start series is mean-reverting. The average annual rate of new home construction has been just over 1.5 million units per year, but it has ranged from 2.4 million units in 1972 to 1.0 million units in 1991. The rate is affected by a number of factors including interest rates (fewer people can afford high mortgage rates) and general economic conditions (few unemployed people can afford a mortgage regardless of the interest rate).

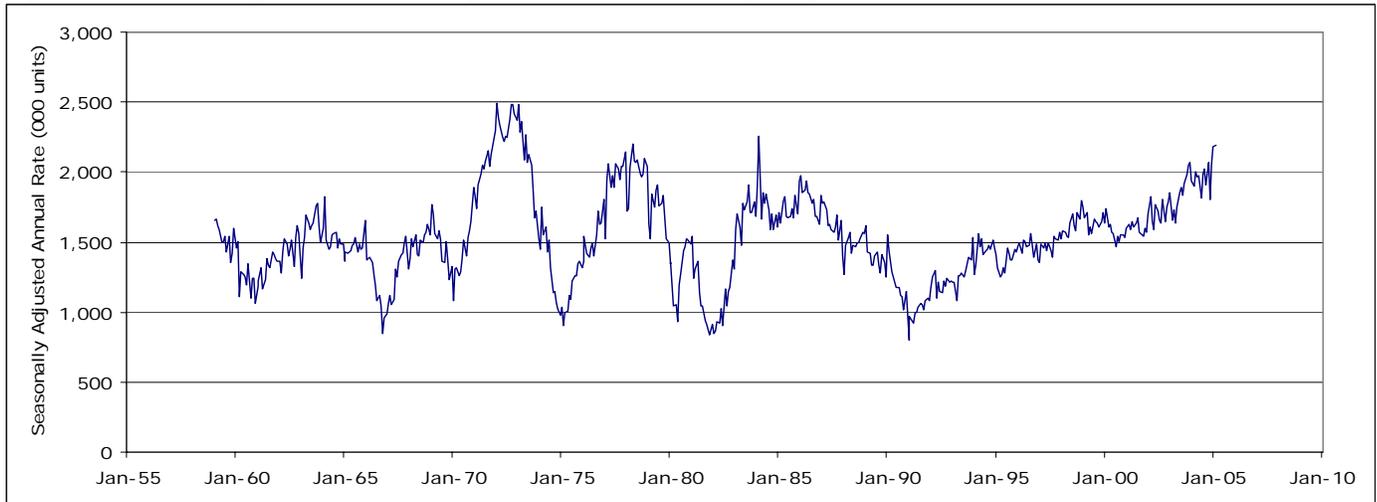
While Figure 1 shows the number of housing units reported as started in any given year, the financial markets respond during the year to monthly reports issued by the Bureau of the Census. The March 2005 report showed housing starts had dropped between February and March, and the drop in the stock market that day was blamed in part on the drop in housing starts. We present the monthly report numbers below.

Figure 1. Annual Total Housing Starts



Source: USDC Bureau of the Census

**Figure 2. Monthly Total Housing Starts, Seasonally Adjusted Annual Rate**



Source: USDC Bureau of the Census

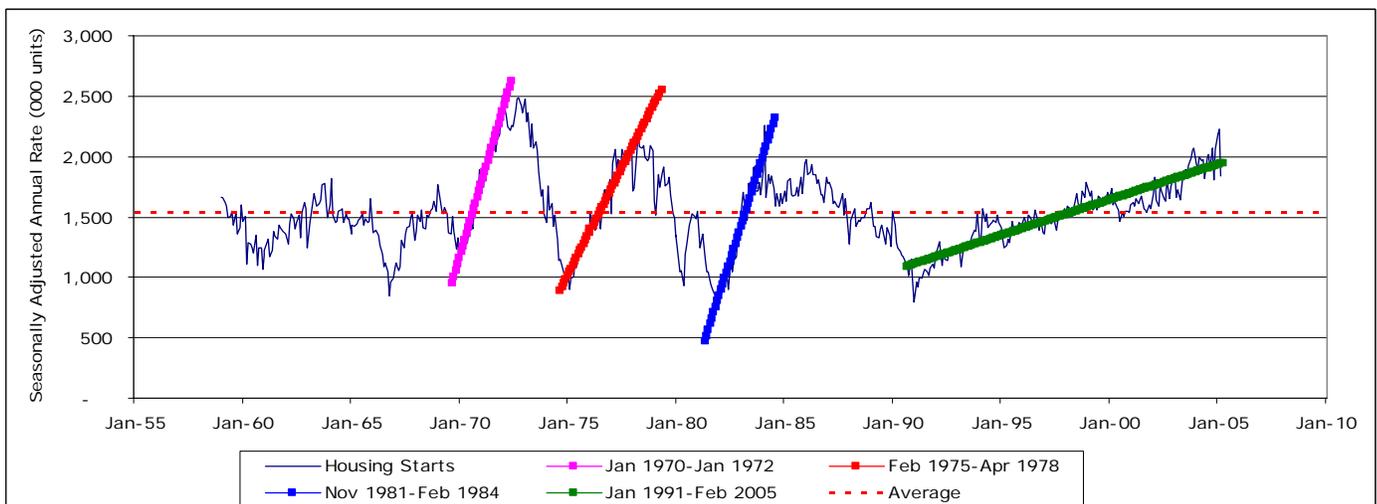
Figure 2 shows the seasonally adjusted annual rate (SAAR) of housing starts reported each month by the USDC Bureau of the Census from January 1959 through March 2005. There are several cycles that are immediately apparent (to me, anyway) when looking at Figure 2, and these are highlighted in Figure 3.

Figure 3 shows the upsides of the big cycles. Increases in house building began in 1970, 1975, 1981 and 1991. The trend lines are based on the period from the lowest reported housing starts rate to the highest reported rate.

In the first three cycles, the upsides were followed by a few months of relatively level starts, then a period of decline almost as steep as the period of increase.

We may still be riding the increase that began in 1991. There was a leveling-off of the rate in 2001 and 2002, but we seem to have gotten past that now and are still climbing (at least through February 2005). The March 2005 rate was the lowest since November 2004, but it is a little early to be certain that we have reached the peak of the cycle.

**Figure 3. Trends in Total Housing Starts**



Source: USDC Bureau of the Census

**Table 1. Trends in Total Housing Starts**

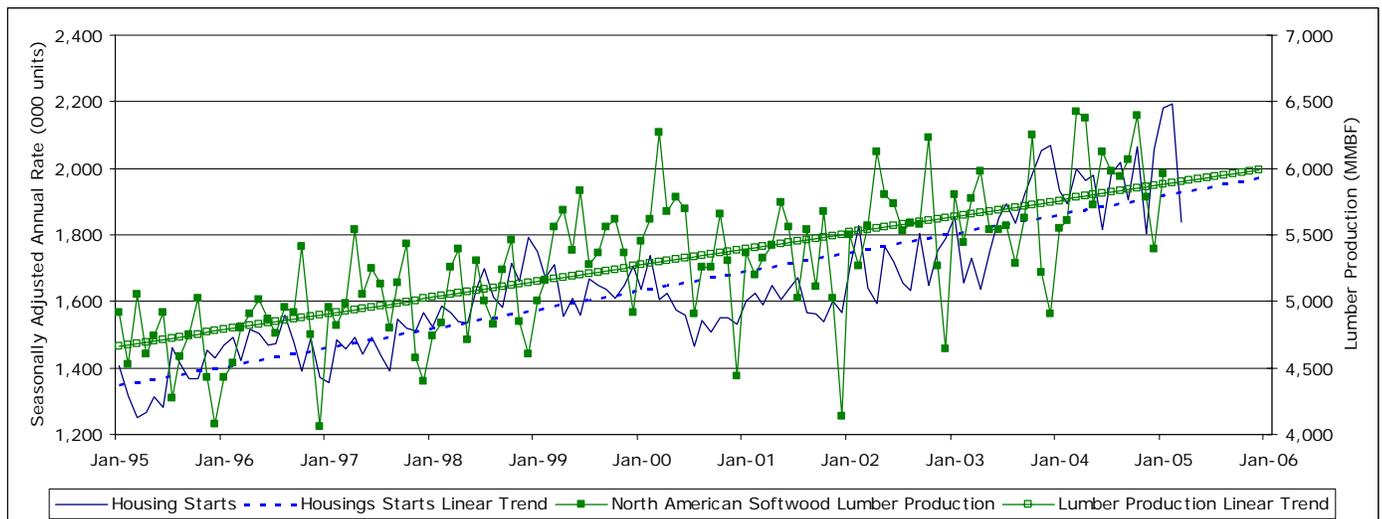
Upside Period	Number of Months in Upside Period	Number of Months in Following Downside	Slope (Annual Change)	R2 of Linear Trend Line
Jan 1970-Jan 1972	25	36	50.6200	0.9572
Feb 1975-Apr 1978	39	42	29.5830	0.8740
Nov 1981-Feb 1984	28	82	47.4800	0.9060
Jan 1991-Feb 2005	170		4.8987	0.8341
Average Annual Number of Starts Since January 1959:				1.54 mm units

Table 1 shows some statistics developed from the trend line analysis. The first three upsides lasted 2-3 years each. The latest upside lasted at least 14 years (and might not be done yet). The not-so-good news is that the downside of the cycle usually lasts longer than the upside. In other words, if February 2005 represented the peak of the current cycle, it might be 15 years before we bottom out again. However, the latest upside has been a little different than the previous three. On average, during the first three upsides we added 30,000-50,000 annual housing starts per month (e.g., if the annual rate in one month was 1.15 million starts, it would have been 1.20 million starts in the next month), but we have added only 4,900 annual housing starts per month during the latest upside period. The rate of increase has been much slower than in the past three cycles. As a final note, the R<sup>2</sup>s indicate that the linear trend lines are strong models of all four upside trends.

### Housing Starts and Softwood Lumber

What has happened to softwood lumber production during the latest cycle upside? Figure 4 compares US housing starts with softwood lumber production from the US and Canada since 1995. North American softwood lumber production has kept pace with US housing starts, but it is not perfectly correlated: the correlation coefficient for the two data series is just under 60%. Why is the relationship not stronger? Because not all softwood lumber produced in North America is used in building new homes in the US and not all softwood lumber used in US homes is produced in North America.

**Figure 4. Total Housing Starts (SAAR) and North American Softwood Lumber Production**



Source: USDC Bureau of the Census and Random Lengths

**Table 2. Total Housing Starts (SAAR) and North American Softwood Lumber Production**

	Slope (Annual Change)	R2 of Linear Trend Line	Compound Growth Rate
Housing Starts	4.7673	0.7369	5.00%
Lumber Production	10.1350	0.4754	2.16%

Table 2. shows some statistics developed from the housing and lumber trend lines. While Figure 4 looks at a different time period, the slope of the housing trend line is very similar to the slope of the fourth upside housing trend line in Figure 3 (4.767 vs. 4.899). The slope of the lumber production line shows that North America has, on average, increased lumber production by 10 MMBF per year since 1995. However, the lumber trend line is not nearly as strong a model as the housing start trend line ( $R^2 = .4754$ ).

Finally, the compound annual growth rate for housing starts from January 1995 to January 2005 has been 5.0% and it has been 2.2% for lumber production. (The real rate for GDP has been about 3.5% over the same period.)

**Summary**

We are well above the long-term annual average rate. Is that a problem? Past performance is not necessarily a good indicator of future performance, but I get a little nervous as we move further and further away from long-term trends. As noted above, housing starts have been growing at 5.0% over the last nine years, while GDP has only been growing at 3.5%. Is that sustainable?

It may be sustainable because demographics play as important a role as economics when it comes to housing.

In its 2000 USDA Forest Service RPA Assessment, the US Forest Service projected that housing starts would average 1.9 million units per year through 2050. The level of housing starts is expected to exceed the number of household formations. How can we add more houses than households? The Forest Service expects Baby Boomers to buy second homes and a significant portion of the existing US housing stock needs to be replaced.

If we accept the USFS projections, we still have room for growth. 2004 was the first year since 1978 in which we averaged 1.9 million units or more. We have actually averaged only 1.74 million units since 2000. To meet the Forest Service’s projected average, we will need to maintain something close to current housing starts level for the next 45 years. However, we probably should *not* expect the level of housing starts to continue growing at 5% per year

**Lumber and Timber Prices**

While strong demand for housing leads to strong demand for softwood lumber, that higher demand for softwood lumber *does not necessarily* lead to higher prices for your softwood sawtimber. Some of any increase in demand for softwood lumber can be satisfied by imports, which will keep lumber prices from rising. If lumber prices are not rising, your local mill is unlikely to pay more for your sawtimber, especially if they are producing all the lumber they can in the first place.

In addition, the supply of logs is not directly tied to the demand logs. Just because your local mills need more wood does not mean they can get it. Deep snow, abnormal rainfall and mud season can severely restrict the short-term supply of timber. So you may be able to get good prices for your timber even when lumber demand is relatively weak.

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