



Jobs and Housing Starts: Which Comes First?

We began assembling data for this research note with the idea that we would show that US housing starts would recover once the employment picture in the country had improved. US housing starts are at historically low levels, and have been there for *years*--the average from 1959 through mid-2008 was just over 1.5 mm units per year (single- and multi-family homes), while the average since then has been just over 0.6 mm units per year (Figure 1).

We assumed (when we began) that this is in part due to the current high unemployment rate:

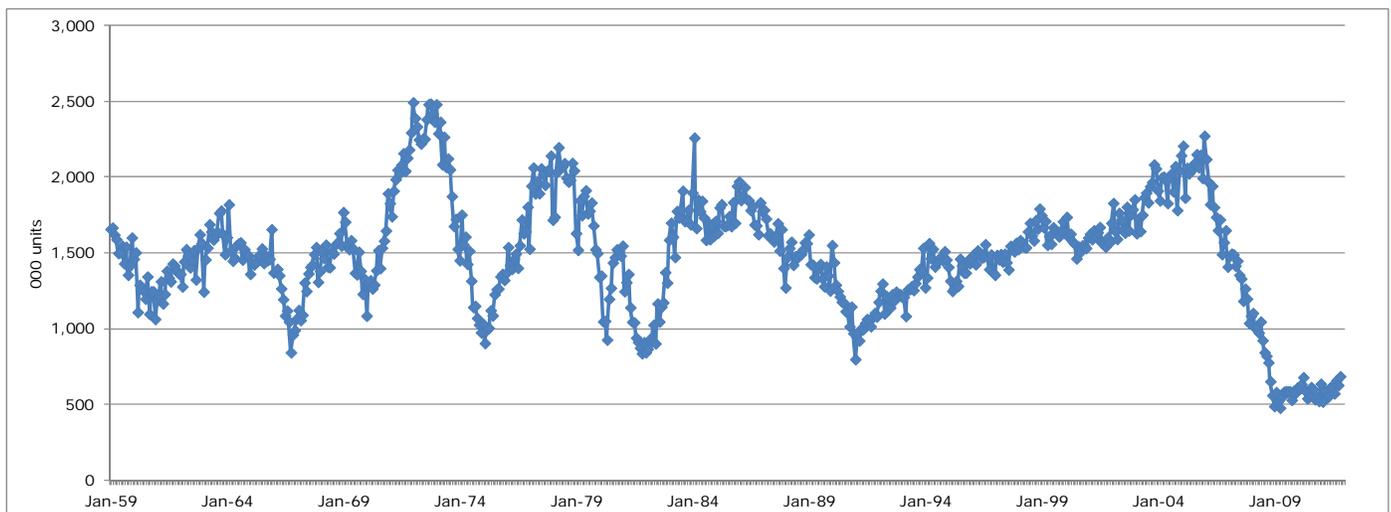
- If you are younger, you can't move out and get an apartment if you don't have a job. So household formation is down and demand for apartments is down.
- If you are a little older, you can't get a mortgage if you don't have a job. So demand for single family housing is down.

Of course, the situation is more complex than this, (but we can only fit so much on these pages):

- There is a surplus of homes on the market, both new and used (existing). (We assume the surplus is not due to a sudden drop in population, but largely due to the economic crash.)
- Current lending practices by banks require significantly higher down payments than just before the crash
- House prices in many areas are well below pre-crash levels, resulting in foreclosures and reducing worker mobility (people don't want to sell their homes at a loss).

But our initial assumption was that housing starts would increase as more people returned to work.

Figure 1. US Housing Starts



Source: US Census Bureau

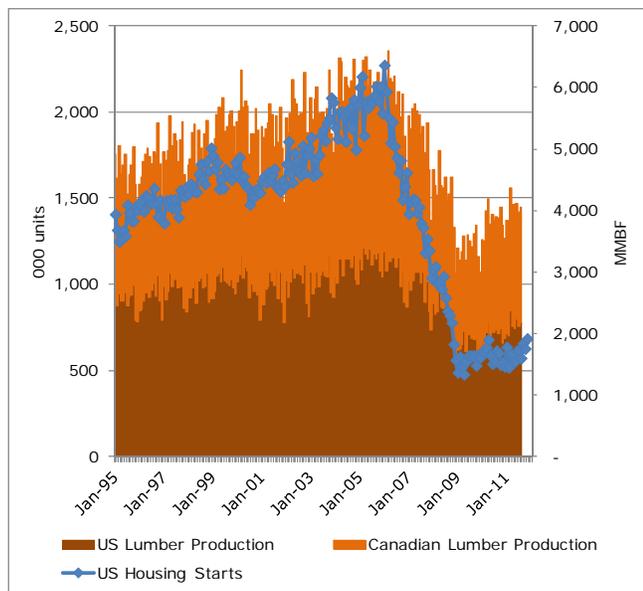
Why Are US Housing Starts Important to Timberland Investors Around the World?

Housing in the US consumes about 20 percent of the world's softwood lumber. Some of that lumber is used in remodeling and repairs, but housing starts account for most of it.

Softwood lumber is produced from softwood sawlogs, which are the most significant high-value products for the majority of timberland investments. A drop in demand for softwood lumber means a corresponding drop in demand for softwood sawlogs, and a reduction in cash flows from investments.

The relationship between US housing starts and North American softwood lumber production is shown in Figure 2. The sharp drop in housing starts was accompanied by a sharp drop in lumber production. (The correlation coefficients for housing starts are lumber production are 0.85 for the US production (South and Pacific Northwest) and 0.84 for Canada.)

Figure 2. US Housing Starts and North American Softwood Lumber Production



Sources: US Census Bureau, Random Lengths

The numbers suggest global demand for softwood lumber could be as much as 10 percent below "normal". With housing starts at 60 percent below the long-term average for more than three years, the US demand for softwood lumber could be half of what it was before the crash. The impact has been felt outside the US as well: Canada has been hard hit (Figure 2) and radiata pine growers in the southern hemisphere have had to reduce shipments to the US. (Demand in China has offset some of the drop in US consumption, but China does not use wood as a structural element in most of its houses, so wood consumption per unit is much less than in the US.)

So, US housing starts are important to softwood sawtimber growers around the world. When will US housing starts to recover to the long-term average level?

Unless a second major economic crisis hits the world in 2012, the US will eventually return to building housing at its long-term average rate because that rate is required to keep up with its population growth. The backlog of homes for sale will decline as more people get jobs and buy houses. Younger people would find it easier to form households and move into apartments if they had jobs.

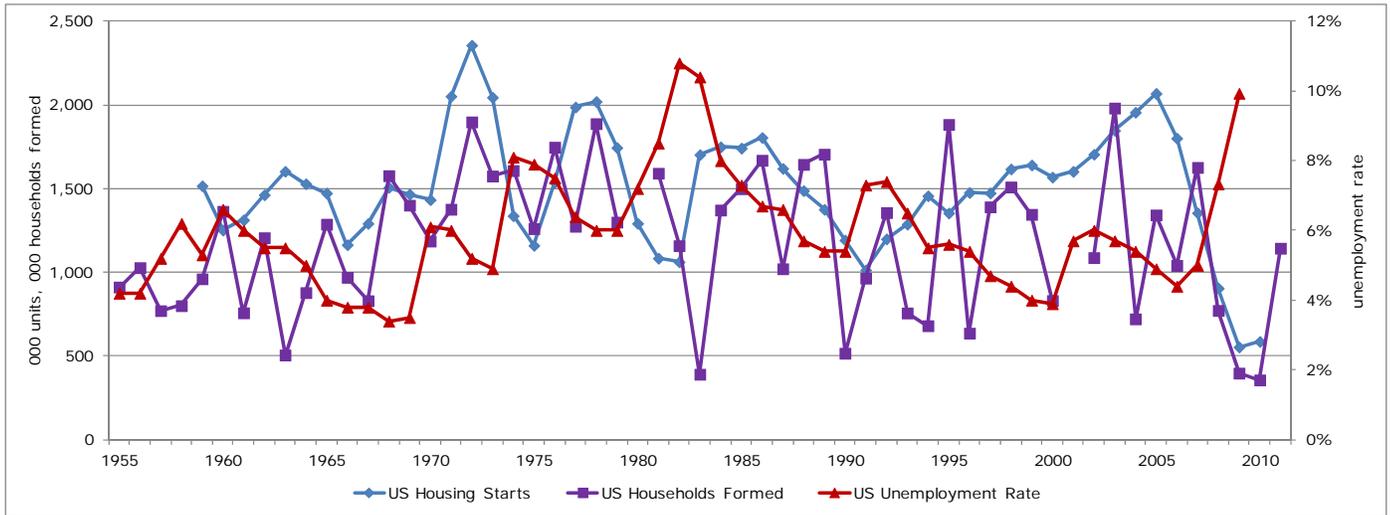
Initial Analysis

We assumed there would be a relationship among housing starts, unemployment and household formation. Annual data are shown in Figure 3.¹

Table 1 shows the correlation coefficients. Some of them are what we expected. They indicate that housing starts are positively correlated with household formation--as people form new households, they want a place to live. Housing starts are negatively correlated with the unemployment rate--people can't get a mortgage or afford an apartment if they don't have a job.

¹ Household formation is only available annually

Figure 3. Housing Starts, Household Formation and Unemployment



Sources: US Census Bureau, US Bureau of Labor Statistics

Table 1. Correlation Coefficients for Housing Starts, Household Formation and Unemployment

	US Housing Starts	US Households Formed	US Unemployment Rate
US Housing Starts	1.0000	0.4354	-0.4092
US Households Formed		1.0000	-0.2042
US Unemployment Rate			1.0000

Household formation and the unemployment rate are negatively correlated, but not strongly so. (Apparently forming a household without a job is not as difficult as buying a new house without a job. Maybe recent college graduates form "households" after graduation without landing a job first(?))

Are these strong correlations? Remember that timberland is widely considered to be strongly correlated with inflation and the correlation coefficient of that relationship is about 0.40.

But we've always thought the correlation between housing starts and employment should be stronger. We have discussed this relationship with people in the past. Some have suggested treating employment or the unemployment rate as a leading indicator of housing starts. Others have suggested using first differences of starts and/or employment.

Further Analysis--and a Surprise(?)

We tried a number of scenarios using monthly data: leading and lagging employment, unemployment and the unemployment rate, and leading and lagging the first differences (or month-to-month change) of those series as well. None of the first differences produced strong correlations. The correlation coefficients for the unemployment rates and starts are shown in Figure 4. (The correlation between starts and the unemployment rate is slightly lower for the monthly data: -0.41 for the annual data vs. -0.36 for the monthly data).

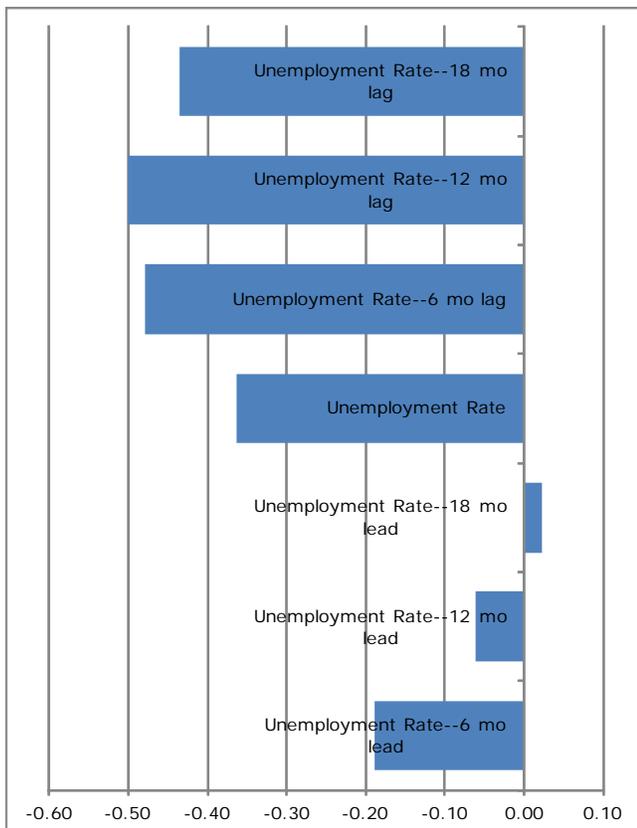
The surprise is that (maybe) we don't need employment to improve so we can build more houses, but that *we need to start building houses to reduce unemployment*. Based on the correlation coefficients in Figure 4, housing starts are a better leading indicator of employment than the other way around. The strongest correlation is the negative correlation between housing starts and the unemployment rate lagged 12 months--when housing starts decrease, the unemployment rate will increase 12 months later. An increase in housing starts will lead to an decrease in the unemployment rate (and an increase in employment) a year after.

We started out thinking that employment needed to improve if we wanted more housing starts. But think of all the jobs involved in building houses in the US. They include:

- Harvesting trees and getting them from the forest to the mill.
- Converting logs to wood products at sawmill and panel plants and hauling the products in trucks to building sites.
- Building the houses, where jobs include carpenters, plumbers, electricians, roofers, etc.
- Making things that go inside the houses (flooring, furniture, cabinets and appliances—*some* of these are still made in the US).

If housing starts are at 40 percent of the long-term average, then employment in these jobs must be well below the long-term average as well.

Figure 4. Correlation Coefficients for Housing Starts and Unemployment



Summary

While we have looked only at correlations (rather than using a more complex analysis involving regression models), it appears that housing starts are a leading indicator of employment, when we had expected to find the opposite.

Events

I will be making presentations at two up-coming events.

IQPC's 10th Timberland World Investment Summit

I will be presenting *Risk Management for Timberland Investments* during the pre-conference workshops on January 30. The full conference runs through February 1. For the conference agenda or for more information, visit IQPC's website at

<http://www.timberlandworldsummit.com/>

Four-State Forestry on the Grow Conference (2012)

I will be making two presentations at the Four State Forestry conference on Friday March 9 and Saturday March 10 at Idabel, Oklahoma. The first will be on world wood markets and the second will be on the truths and myths of timberland investment. For more information, check the website:

www.4stateforestryonthegrow.org

Forest Research Notes, Vol. 8, No. 3
Copyright © 2012, Jack Lutz

Jack Lutz, PhD
Forest Economist
Forest Research Group
385 Central Street
Rowley, MA 01969
978-432-1794
207-717-5858

jlutz@forestresearchgroup.com
www.forestresearchgroup.com