

# DRILLING BOOMS AND HOUSING SHORTAGES IS THE MARKET NIMBLE ENOUGH TO REPLACE GOVERNMENT INTERVENTION?

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## SUMMARY

During the recent drilling booms in the Marcellus, Bakken, and Fayetteville shale regions media reports of the evictions of low-income households from their rental properties due to rising rents spurred calls for the creation of need-based governmental housing assistance programs. However, further investigations reveal that these regions experienced a substantial increase in housing and hotel construction concurrent with the surge in drilling. The quick response of the housing market combined with a delay in implementation of these programs begs the question whether the problem of housing shortages might be better solved by the private market rather than governmental intervention.

## INTRODUCTION

The pairing of staged hydraulic fracturing with horizontal drilling has spurred an energy revolution in the United States and produced oil and gas drilling booms across the country. Similar to boomtowns of the past, communities near the areas of intense drilling can experience both beneficial and harmful impacts from the resource boom. Three such harmful effects that are mentioned by local leaders and media reports are the shortage of housing caused by migrating drilling industry workers, roadway congestion and deterioration from the increase in truck traffic, and increased stress on social services such as law enforcement and schools caused by the increased population.

The housing shortage can be especially problematic in rural or remote areas where the existing housing market contains an insufficient surplus of housing units to accommodate the increased demand. Likewise, the ability to commute from other communities may be inhibited by the distances involved. The severity of the impact on the housing market depends in large part on how quickly the market responds to the price signal caused by the increased demand. Economic theory states that in a competitive market the elevated price of housing should incentivize producers to increase the housing

supply to satisfy the additional demand. This new supply then would exert downward pressure on the price of housing. Streamlining housing regulations and simplifying zoning laws would likely improve the speed at which the housing market can produce additional supply. This may lessen the pressure for housing market intervention and will at least simplify the housing assistance programs that might be enacted later. However, the potential to oversupply housing given that a bust normally follows the boom complicates the situation.

## ARE HOUSING ASSISTANCE PROGRAMS SUCCESSFUL?

The widespread reports of low- and fixed-income households being evicted due to their inability to pay increased rents have led to calls for local and state officials to provide a social safety net for those who are displaced (Loewenstein, 2010). A notable example of legislation arising out of this situation is Pennsylvania's PHARE (Pennsylvania Housing Affordability and Rehabilitation Enhancement) Act. PHARE directs the Pennsylvania Housing Finance Agency (PHFA) to develop programs to ensure a reasonable supply of housing for low- and moderate-income households (PHFA, 2010). The means for meeting this objective were not concretely specified in order to allow applicants for funding to also work within the requirements of other state and federal programs (PHFA, 2010). Projects that have been funded so far have generally targeted low- and fixed-income households and have included providing rent/utility payment assistance, grants for rehabilitation of existing properties, and grants for construction of new housing (PHFA, 2010). An important question to consider is whether the funding spent on rehabilitation projects would have a larger effect on decreasing rents across the housing market if it was instead spent on projects that would increase the total supply of housing.

PHARE is partially supported by the impact fee assessed on shale oil and gas wells. However, there was a significant delay between the identification of the housing shortage and actual implementation of the program. The drilling boom in the Marcellus Shale in Pennsylvania began around 2008 and peaked in 2011, declining substantially afterwards. The PHARE Act was passed in 2010 but impact fees to fund its programs in shale drilling counties were not distributed until early 2013 (Farrell, 2013). Subsequent reports from the heaviest drilling counties in Pennsylvania indicated that although apartment

rents did substantially increase during the drilling boom, the high prices were temporary and moderated over time (Maykuth, 2013). This may indicate that the PHARE Act funded programs came too late to address the problem at its peak.

**ARE MARKET INCENTIVES SUFFICIENT TO SOLVE THE PROBLEM?**

While political debate may delay the implementation of housing assistance programs, the homebuilders in the local housing market may be able to more quickly increase supply to meet the booming demand, which may partially (or fully) alleviate the need for government aid. The speed of response of the housing market to the price signal is a primary factor for determining whether a housing assistance program might be needed. A recent study found that a significant housing construction boom accompanied the shale gas drilling in the Marcellus Shale region. Each shale well drilled was associated with around 2.5 additional housing permits approved in the same county that same year (Farren et. al., 2013).

This same trend was seen in a subsequent analysis using similar methodology for the Bakken Shale in North Dakota and the Fayetteville Shale in Arkansas (Farren, 2014). The consideration of these shale regions allows for a comparison of housing market impacts between remote (Bakken), rural (Marcellus), and suburban (Fayetteville) regions. Conceptually, drilling areas that are more interconnected with nearby cities will experience a weaker shock than rural or remote locations due to the greater supply of housing and hotel rooms for migrating drilling rig workers. Preliminary results indicate that through

2011 each hundred shale gas or oil wells drilled in a county was associated with a 17 to 53 percent increase in the number of single-unit housing permits approved in the same year. Hotel construction showed similar trends with regard to increases in employment in the drilling industry – an increase of a hundred jobs was associated with between three and fifteen additional hotel rooms built in the county in the same year.

An illustration of these results is shown in Figures 1, 2, and 3. Figure 1 shows how home and hotel construction in the Marcellus shale region deviated from the regional trend during the boom from 2009 through 2013. Figure 2 shows the astonishing increase in both housing and hotel construction in the Bakken shale region beginning at the same time as the drilling boom in 2010. The Fayetteville region (Figure 3) however, saw a much smaller increase in housing construction compared to the Bakken and Marcellus regions during its 2008 through 2012 boom. This might be due to the suburban nature of the drilling boom, although the number of wells drilled during the Fayetteville boom was also much smaller than in the other two regions. All three regions saw substantial increases in the number of hotel rooms in primary drilling counties occurring at nearly the same time as the corresponding drilling boom.

The important takeaway from these preliminary results is that the increases in home and hotel construction occur concurrently with the drilling boom. On the surface, this seems to indicate that the housing market responds fairly nimbly to the price signal created by the

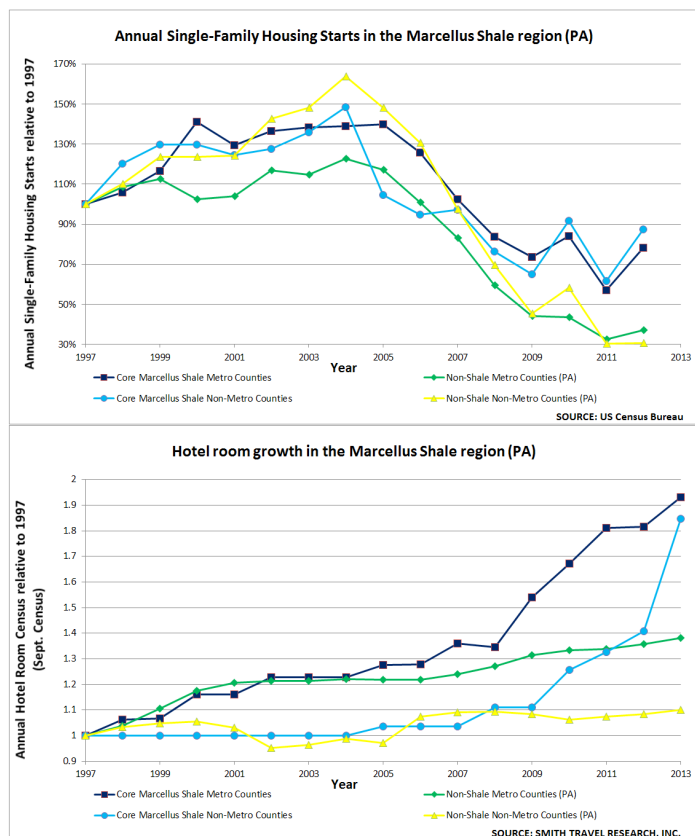


Figure 1. Housing and Hotel Booms in the Marcellus Shale Region.

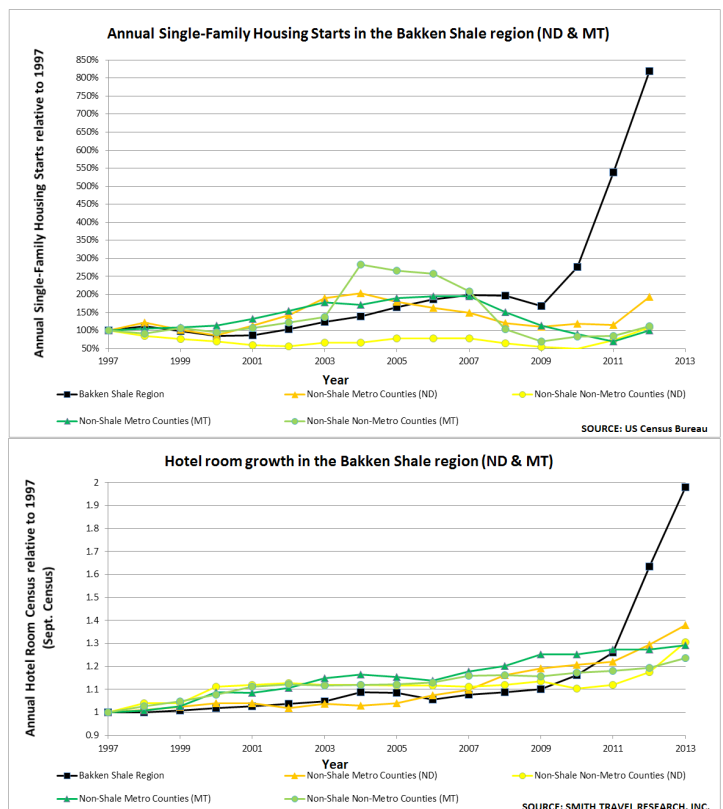


Figure 2. Housing and Hotel Booms in the Bakken Shale Region.

“A housing boom has accompanied each of the oil and gas drilling booms considered in this brief, with substantial home and hotel construction occurring concurrently with the increase in drilling.”

increase in housing demand. An alternate explanation for the housing boom might be that it actually is spurred by local mineral rights owners receiving lease signing bonuses and initial resource royalty payments from the drilling industry and then re-capitalizing that windfall in the form of a new home. In many cases, however, a property’s mineral rights are severed from the surface rights, with the owners of the mineral rights living outside the community where the drilling is performed. The property-owner improvement explanation also does not explain the surge in hotel construction.

### WHAT ABOUT THE BUST? ISSUES OF OVERSUPPLY

A significant issue facing local populations and home builders is the high likelihood of a bust in the housing demand if drilling should decline. This has already occurred in the Marcellus Shale region following the drop in natural gas prices – energy firms shifted their drilling assets to oil-rich formations in North Dakota and Texas. If home builders attempt to fully meet the rise in housing demand during the drilling boom, there will likely be an oversupply of housing during the bust. This is problematic because derelict structures can foster social problems such as crime, decrease nearby property values, and demoralize community

residents, leading to a loss in cooperative behavior. Conversely, home builders may anticipate the bust and hedge their potential loss of investment by limiting their housing construction projects, thereby not fully alleviating the rise in rental prices.

### CONCLUSION AND POLICY RECOMMENDATIONS

Further investigation is needed to more accurately understand the connection between the housing boom and the drilling boom, but the occurrence of a housing boom in multiple drilling regions indicates that the two events are consistently connected. The quick response of the housing market also indicates that if governmental programs for housing assistance are not already in place to support low-income households displaced by high rents, the market may produce a faster answer to elevated housing prices than governmental policy. In this case, the best response is for policy makers to ensure that housing and hotel regulations, zoning restrictions and utility connection procedures are streamlined to the greatest extent possible in order to avoid inhibiting new construction. This will allow the market to respond as quickly as possible to the increase in housing demand.

Policies which reduce the barriers for hotel/motel construction may be especially effective since migrating drilling crew workers prefer the amenities and flexibility provided by hotels compared to the lesser amenities and less flexible lease terms generally offered by the apartment rental market. An additional benefit of encouraging hotel construction is that the structures can be repurposed to fit other local needs when the surge in housing demand has passed. If designed with a relatively small amount of forethought, hotels/motels can be renovated into future low-income apartments, assisted-living centers/nursing homes, schools, medical clinics/hospitals, or office parks. Since much of the existing housing stock and public building infrastructure in the rural shale drilling areas is of substantial age and diminished utility, the potential to repurpose hotels built during the boom to meet other needs afterwards is a clever way for local communities to experience long-term benefits from the boom even during the bust. Once a community’s future needs have been identified, public officials and local business leaders could use a put option contract to give the hotel builder the option to sell them the hotel property at a future date. This would reduce some of the risk of investment to the hotel builder, which would incentivize additional construction and help prevent further increases of housing prices during the boom.

Another housing option that has been used in multiple shale regions is the construction of “man-camps.” These communities generally use house trailers or mobile homes and semi-permanent construction methods in order to quickly provide relatively cheap housing to

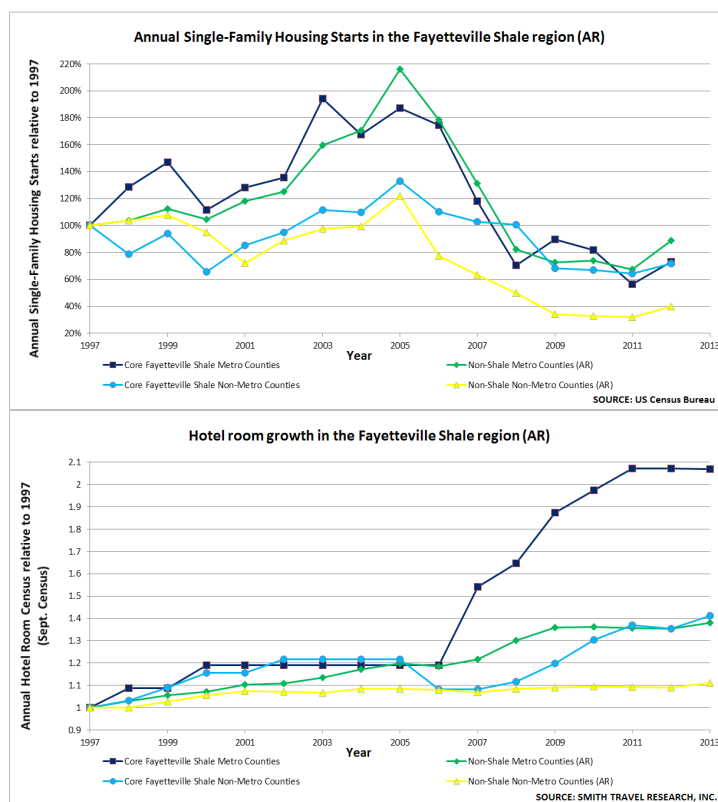


Figure 3. Housing and Hotel Booms in the Fayetteville Shale Region.

migrating drilling workers. Man-camps can help mitigate the impact of the drilling boom on local housing prices, but there is a problem of their eventual reclamation. If the owner of the man-camp was able to ensure that the area would be returned to its former state or repurposed for another use following the need for the man-camp's existence, then this may be a good option to quickly address surges in housing demand. Their potential to become derelict ghost towns during the bust is a troubling issue, however.

To forestall the oversupply of housing during the bust and minimize the impact of abandoned structures, local leaders could organize community groups or encourage entrepreneurs to purchase and repurpose derelict properties using revenues gained from mineral royalties. This could also be an excellent way to reinvest the extracted resource capital in the local community.

A streamlined permitting process for construction of structures — whether apartments, hotels, or man-camps — to meet the drilling rig workers' housing demand will minimize the disruption to the local housing market and therefore the negative impact on the resident

population. The resulting rental prices may still be higher than the original rent levels, which may motivate discussion of whether government or charitable assistance is appropriate for low-income households, but the best initial solution is to enable market forces to naturally counteract the rising rents. 🌱

#### NOTE

Readers wishing to read more deeply regarding housing market policy recommendations are referred to "Author's Recommendations" in *Marcellus Natural Gas Development's Effect on Housing in Pennsylvania* published by the Center for the Study of Community and the Economy at Lycoming College (Williamson and Kolb, 2011).

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