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Are Home Buyers Myopic? Evidence from Housing Sales

BY ERICA MYERS, UNIVERSITY OF ILLINOIS

Consumers are often more responsive to changes in purchase price than to less salient product costs such as shipping and handling expenses, sales tax, and operating costs of appliances. This type of consumer inattention has important implications for policy measures such as taxation, since in order to affect behavior policies need to target costs to which people pay attention. In recent years, governments around the world have become interested in designing successful policy instruments for reducing greenhouse gas (GHG) emissions. Whether price-based instruments such as taxes or cap-and-trade programs will be effective crucially depends on whether consumers are responsive to fuel prices in markets for energy-using durables.

This policy motivation has prompted researchers to estimate the responsiveness of purchase price to gasoline price movements for cars, which account for close to 15 percent of U.S. greenhouse gas emissions annually. If people lack information about changes in gasoline prices, or if they are myopic about the resulting changes in the operating costs of their car, they will underinvest in fuel economy even under carbon pricing policies. If people are mis-optimizing in this way, other more traditional policy instruments, such as corporate average fuel economy (CAFE) standards may increase welfare relative to a tax alone. However, the results from this work suggest that

car buyers are relatively attentive to future fuel costs. These findings have important policy implications, suggesting that it is preferable to address pollution externalities through gasoline taxes rather than fuel economy standards, which mandate increases in average fuel economy over time.

This paper asks whether consumers are responsive to changes in energy prices in the housing market. The building sector is another large source of U.S. greenhouse gas emissions. A growing proportion of annual emissions, around 40 percent, comes from the residential and commercial building sectors. As end uses, space heating and cooling contribute almost as much to U.S. greenhouse gas emissions annually (13 percent) as personal vehicles (15 percent). In recent years, consumers spent an average of \$272 billion per year on residential natural gas, electricity, and fuel oil—almost as much as they did on gasoline and motor oil.

Consumers might be less myopic about gasoline purchases as opposed to residential fuels. Gasoline is one of the most salient products that consumers buy. Obtaining information about gasoline prices is relatively costless, since these are prominently posted at gas stations, and many people purchase gas one or more times in a week. In addition, people tend to know how much it would cost to drive from one place to another by car. Residential fuel costs may not be as well understood or salient for

consumers. Households only receive energy bills on a monthly basis, making it harder to translate consumption of particular energy services into costs. In addition, consumers receive bills where natural gas is combined with electricity in many areas, potentially muddling individual effects. Therefore, it is important to investigate whether consumers are myopic about future energy costs in the housing market to determine whether taxes alone would be appropriate for regulating emissions or whether appliance standards and building codes could improve welfare.

It can be challenging to estimate whether home buyers are attentive to energy costs. Previous attempts have found that more efficient homes with lower fuel costs receive premiums in the housing market. One limitation of this approach is that home efficiency is not randomly assigned, so that more efficient homes may be more likely to have renovations or other improvements that are unobservable to the researcher, but appreciated by home buyers. Therefore, the observed premium for efficient units may be due to unobserved differences in homes rather than the causal effect of energy cost savings.

My study is the first to estimate the effect of plausibly exogenous variation in energy costs on housing prices. I use changes in the relative fuel prices of heating oil and natural gas over time as a source of variation in energy costs. Natural gas is used to heat homes in most parts of the United States where substantial heating is required. However, in the northeastern United States 30 to 40 percent of households still heat with heating oil. For this study, I focus on the state of Massachusetts, where there is significant overlap in the geographic and age distributions of oil-heated homes and gas-heated homes. I compare the transaction price of oil-heated versus gas-heated homes for the period 1990–2011, during which there is significant variation in the relative fuel prices. With two dominant heating fuels I am able to control for unobserved variation in the macroeconomic environment. In addition, I observe

multiple sales of homes, which allows me to control for time-invariant characteristics of a home. As the relative fuel price of a home increases, it should sell at a discount compared to homes with less expensive fuel.

I find little evidence that home buyers are systematically “under-valuing” future fuel costs. When the relative cost of heating goes up by \$1 per million British Thermal Units, it leads to a \$1000–\$1200 discount in relative housing transaction price. These results are consistent with full capitalization of the future benefit to consumers. These results are consistent across the income distribution, suggesting that rich and poor home buyers are similarly cognizant of home heating costs. It appears that home buyers are paying attention not only to whether a home heats with oil or gas, but the relative prices of those fuels—and further, how those relative price differences translate into differences in the value of the future stream of payments.

The finding that home buyers are paying attention to fuel prices and how those price movements translate into a stream of future cost differences suggests that fuel costs are well-understood and salient at the point of sale. This has important implications for carbon policy since an increasing proportion of U.S. carbon dioxide emissions come from the residential and commercial buildings sector. Because home buyers appear to be informed about and are paying attention to fuel prices, pollution pricing will create incentives to reduce the amount of energy people choose to consume, to convert to cleaner heating fuels, and possibly to increase the efficiency of building shells and appliances.

NOTE:

This research brief is based on Erica Myers, “Are Home Buyers Myopic? Evidence from Housing Sales,” Energy Institute at Haas Working Paper no. 273, July 2016, <https://ei.haas.berkeley.edu/research/papers/WP273.pdf>.