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Did Credit Market Policies Cause the Housing Bubble?

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Between 2000 and 2006, the Case-Shiller/Standard and Poor's Housing Price Index increased by 74 percent in real terms, as America experienced a massive housing bubble. Moreover, prices in some metropolitan areas grew even faster. Prices in Los Angeles, for example, rose by 130 percent during this period while prices in greater Tampa rose by 97 percent over this time. As the bubble burst, that index dropped by a third and major financial institutions became insolvent, at least partially because of housing-related losses. What caused this great boom-bust cycle that tore through America's housing markets?

Many economists have argued that aspects of the credit market, including low interest rates, can explain the boom. According to this view, aggressive mortgage approvals and easy mortgage terms encouraged buyers to bid more for housing. During the boom, this logic led some to argue that home prices were appropriately higher. After the bust, this logic has led others to blame Alan Greenspan, former chairman of the Federal Reserve Board, and his successor Benjamin Bernanke for causing the bubble by spreading easy money.

There is certainly some circumstantial evidence indicating a role for credit markets in this boom. Mortgages became more widely available and cheaper along a number of important dimensions from around 2001 through the peak of the housing market. There was a flood of global credit, much of which came to the U.S. Many buyers who took advantage of subprime loans paid top dollar for housing and are now delinquent on their mortgages.

The evidence summarized in this Policy Brief casts doubt on the view that easy credit can explain the bubble. It isn't that low interest rates don't boost housing prices. They do. It isn't that higher mortgage approval rates aren't associated with rising home values. They are. But the impact of these variables, as predicted by economic theory and as estimated empirically over many years, is too small to explain much of the housing market event that we have just experienced.

For example, over the 2000 to 2006 period, real interest rates fell by about 1.3 percentage points. In the data, the largest plausible connection between prices and rates that we found was that a one percentage point swing in real rates was associated with an eight percent change in prices. Our theoretical work, and most of our empirical work, predicts an even smaller connection. Given these estimates, the interest rate drop can explain only a ten percent rise in

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prices, which is a small fraction of the price increase that actually occurred.

Moving forward, the relatively modest connection that we find between interest rates and prices has implications for public policy. America has long accepted policies, like the Home Mortgage Interest Deduction, that operate by lowering the effective cost of capital for buyers. A weaker link between interest rates and housing prices makes it easier to imagine reforming these policies in ways that decrease the distortions that they create by encouraging buyers to borrow big to bet on housing.

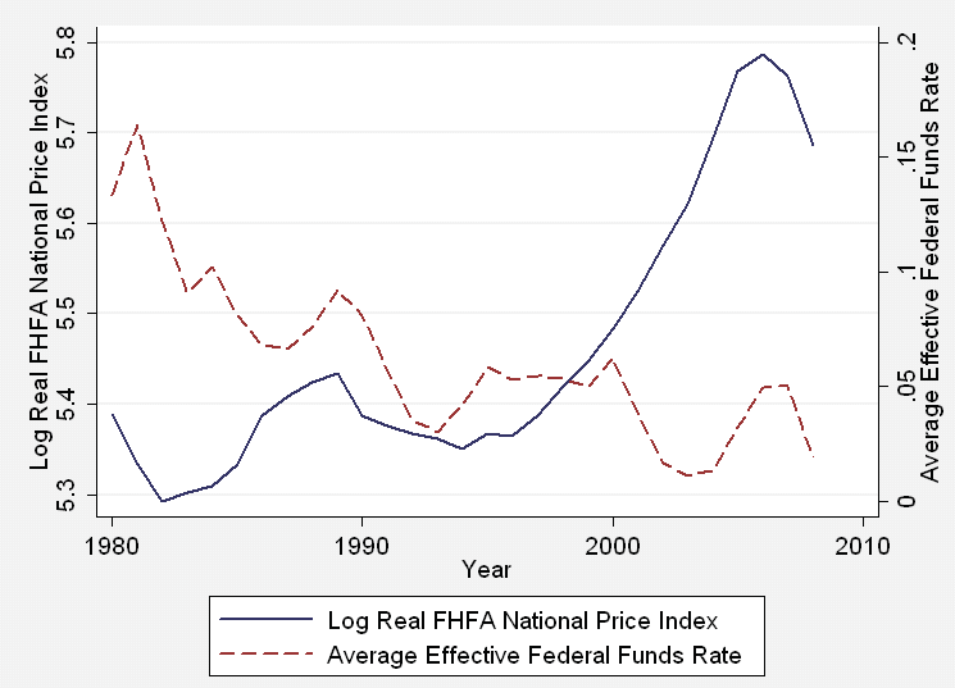
Background

Many prominent authors have argued that the recent housing bubbles throughout the United States resulted from low interest rates. Because low mortgage rates make home ownership cheaper, Charles Himmelberg, Christopher Mayer, and Todd Sinai (2005) suggest that that the sustained low interest rates from 2001 to 2005 explain the dramatic increase in housing prices in many parts of the country over approximately that time period.

Some analysts, including John Taylor (2009), have focused in particular on the actions of the Federal Reserve System. The Federal Funds Rate is one of the interest rates controlled by the Federal Reserve. Many experts think that keeping the rate low encourages economic growth, but increases inflation risks. Following the brief recession in 2001, the Federal Reserve kept this rate at the relatively low level of one percent until mid-2004, and then raised it very gradually over the next two years. For those who think that the Federal Reserve privileged economic expansion at the cost of inflation, the rise of housing prices seems to offer an object lesson about the dangers of expansionary monetary policy.

As Figure 1 shows, the timing of these low rates coincides well with the housing bubble; house prices (which are shown as the solid line in Figure 1) peaked in 2007 according to the Federal Housing Finance Administration

Figure 1: House Prices and the Federal Funds Rate, 1980 - 2008



(FHFA) Index. At the same time, the Federal Funds Rate (shown as the dashed line in Figure 1) was just coming off of a sustained period at one percent. But this correlation does not settle the question. For instance both Benjamin Bernanke (forthcoming) and Alan Greenspan (forthcoming) have recently argued that the Federal Funds Rate cannot explain the housing bubble, pointing out that it differs from the long-term interest rates charged on mortgages. They attribute the bubble instead to banks issuing non-traditional mortgages, light-touch regulation leading to destructive financial innovation, or excessive savings from abroad keeping long-term interest rates low.

The largest plausible connection between prices and rates that we found was that a one percentage point swing in real estate rates was associated with an eight percent change in prices.

Interest Rates and the Price of Housing

The economics of interest rates and housing starts with a justly famous paper by James Poterba (1984) that focuses attention on the user cost of housing. Poterba argues that the cost of renting and owning equivalent units should be equal, in the long run. If prices are too high, relative to rents, then people should stop buying and if prices are too low then people should stop renting. That argument suggests that the relationship between rents and prices should depend on the costs of borrowing money. Under stronger assumptions, the price-to-rent ratio will equal one divided by the after-tax interest rate cost plus the property tax cost plus the cost of maintenance and depreciation minus expected appreciation.

This formula suggests that there can be an extremely strong connection between prices and interest rates. Consider, for example, a locale where house prices rise by three percent a year (in nominal terms) and where maintenance costs and property taxes together equal three percent of a home's value. If interest rates also drop from five percent to four percent, then prices would fall by about 25 percent.

However, there are four reasons why interest rates might have a smaller impact on house prices than this calculation suggests:

Reason # 1: Interest rates mean revert and people can refinance. Anyone who buys a house when rates are high should expect to be able to refinance his mortgage when rates fall. We estimate that the ability to refinance should lower the expected interest rate-price relationship by about 20 percent.

Reason # 2: Interest rates mean revert and people move. Let's say that the interest rate was six percent today, but I knew that it would be eight percent next year and that I would be moving then. These facts should cause me to be quite wary about paying too much for a house during a low interest rate environment because I expect to be selling the housing during a higher-rate environment. We estimate that mobility and the mean reversion of interest rates should lower the expected interest rate-price relationship by an additional 10-to-20 percent.

Reason # 3: Housing supply is elastic and new building can satisfy demand. Imagine that housing could always be built for $200,000 by an unregulated market with plenty of land and unfettered builders. Simple economics tells us that prices never should rise much above $200,000, no matter what happens to interest rates. This doesn't mean that the price-to-rent ratio predicted by the

user cost formula is wrong because rents will also stay low if supply is elastic. But if housing supply is elastic, then as interest rates go down, both rents and prices should remain steady. The fact that in much of the U.S., land is cheap and regulations are few should lead us to further question the role that interest rates play in driving housing prices.

Reason # 4: Some people are credit constrained and cannot borrow all that they would like at the market rate of interest. One reason that interest rates are so powerful in the user-cost model is that as the interest rate falls, people value future housing price gains more. This assumption would make sense if people were banks and could borrow all they would like at the market interest rate. But if interest rates don't determine how much buyers value future gains, then the predicted relationship between prices and interest rates falls dramatically.

Similar arguments also confound the connection between approval rates or downpayment requirements and housing prices. Certainly, as banks approve more loans, prices should be expected to go up. The demand for housing is essentially being increased thanks to approval policies. But given reasonable assumptions, the predicted connection should be pretty weak.

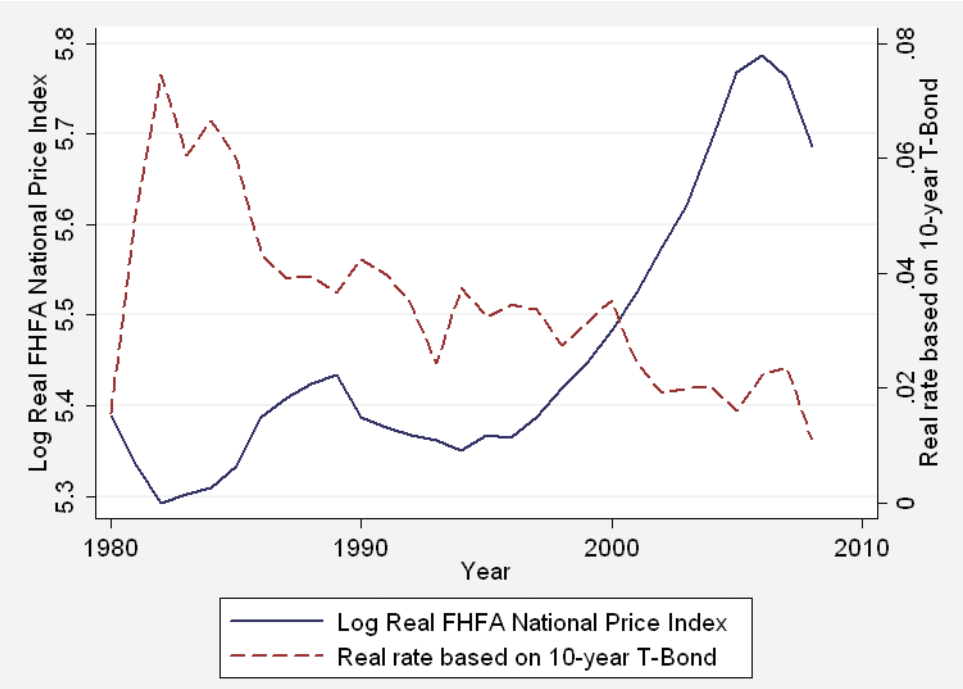
We examined this model using United States housing market data from 1980 through 2008. By testing the model over a longer period than just the bubble era, we ensure that the results are as consistent as possible with the long-term relationships that we observe. Over this longer period, we found that the relationship between ten-year real interest rates and house prices was much weaker than the relationship needed to explain the housing bubble. We estimate that a one percentage point reduction in the interest rate increased house prices by no more than eight percent, an effect that is comparable to the results from our model but far too small to explain the magnitude of the actual housing bubble.[1]

The data used in this analysis are shown in Figure 2, where the FHFA house price index is again plotted as a solid line, and the time course of long-term real interest rates is plotted on the dashed curve. As the figure shows, real ten-year rates fell by around 1.3 percentage points from 2000 to 2006. If we multiply this decline by our estimated effect, we can explain about a ten percent increase in house prices. This is not nothing, but remains only one-third of the 30 percent increase in real national prices measured by the FHFA index or the even larger 74 percent gain in the Case-Shiller/Standard and Poor's Index which examines prices in 20 large metropolitan areas.

The data do not reveal a particularly strong relationship between interest rates and house prices. Real rates do impact prices, especially when they decline from already low levels, but the estimated impacts are not nearly big enough to explain the bulk of the variation in house prices.

In sum, the data do not reveal a particularly strong relationship between interest rates and house prices. Real rates do impact prices, especially when they decline from already low levels, but the estimated impacts are not nearly big enough to explain the bulk of the variation in house prices in general, and specifically during the recent boom.

Figure 2: House Prices and Real Interest Rates, 1980 - 2008



Interest Rates and Limits on the Supply of New Housing

Our model suggests that the price effects of interest rates should be greater in metropolitan areas that have less land, more regulation, or topography that is not conducive to new buildings (such as significantly amounts of steeply sloped land or extensive wetlands). To test this hypothesis, we used a composite index developed by Albert Saiz (forthcoming) to compare metropolitan areas with the most natural and man-made limits on supply – such as the Miami, Los Angeles, San Francisco, Oakland, New York, San Diego, Boston, Chicago, and Seattle metropolitan areas – with those with the fewest restrictions – such as the Houston, Dallas, Charlotte, and Atlanta metropolitan areas.

As the model predicts, in the one-third of metropolitan areas with the fewest limitations on new housing there is a negligible relationship between housing prices and changes in interest rates. In contrast, there was a stronger connection between prices and interests rates in the one-third of areas with most limits on new housing. Moreover, this relationship was stronger in periods when interest rates were particularly low. The average real price gain between 1996 and 2006 was 88 percent in the third of metropolitan areas with the least elastic housing supply and 23 percent in the third of metropolitan areas with the most elastic housing supply. Thus, one of the policy implications of this research is that in some regions more restrictive building environments exacerbated the bubble in housing prices.

In addition to high prices, the housing bubble was associated with a dramatic increase in the rate of construction of new homes. As one would expect, this relationship was present in the one-third of metropolitan areas with the fewest constraints on new housing. Conversely, in the one-third of metropolitan

areas with the most constraints on new supply, the relationship was weak or non-existent. Put another way, the number of permits between 2001 and 2006, relative to the housing stock in 2000, was nearly three times as high in the metropolitan areas with the fewest limitations on new housing relative to the areas with the most restrictions.

Taken as a whole, these empirical results generally are quite consistent with our model. The effects go in the directions predicted by theory, and have similar magnitudes as well. We take this as evidence that our model captures the crucial features of housing demand over the past 30 years. However, these results remain unable to explain the full magnitude of the housing bubble. This is true even in the supply-constrained areas, where prices did respond substantially to changes in interest rates. For example, these estimates suggest that prices in supply-constrained areas such as greater Boston should have risen about 14 percent between 2000 and 2006 while prices in less constrained metropolitan areas such as Atlanta should have risen by around two percent. The actual price increases, according to Case-Shiller data, were 54 percent and 13 percent. Thus, interest rates can explain only a small amount of the volatility experienced in places like greater Boston or greater San Francisco, where man-made and/or natural features constrain the supply of new housing.

Underwriting Standards and the Price of Housing

The final part of our analysis explored whether this remaining effect might be due to increased demand from borrowers who were brought into mortgage markets for the first time during the recent housing and credit boom. Our model predicts two effects on top of the straightforward prediction that new potential buyers represent new demand and hence raise prices. First, if these new buyers were more optimistic than previous homeowners then they would bid up prices much more than the previous homeowners, and they would have been particularly responsive to the cost of maintaining their investment—i.e. the mortgage interest rate. Second, if they were more impatient than previous borrowers then they would not have been very responsive to the long-term costs of homeownership. The net effect of their demand on housing prices is not obvious, however, since their willingness to pay more in the future would be offset by the smaller benefit they receive from future price appreciation.

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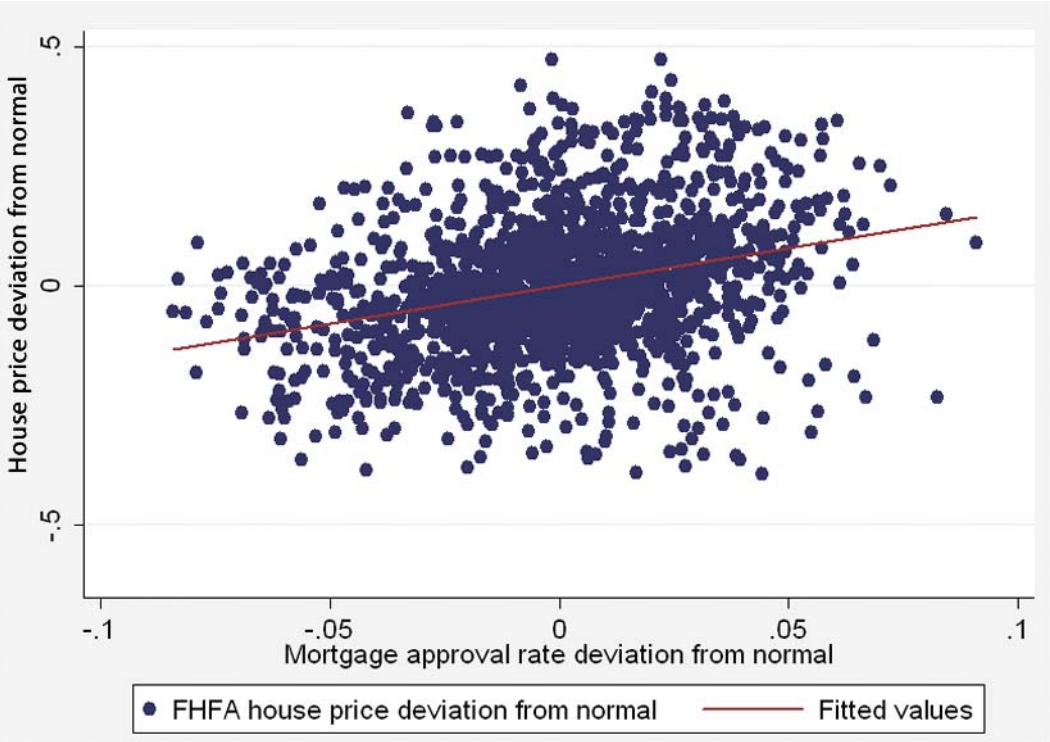
One reason that new borrowers may have entered the market over this period is because of credit loosening along dimensions other than interest rates. These new homeowners were particularly responsive to downpayment requirements, and the less stringent mortgage requirements that arose during this period probably were conducive to lending to high-discount-rate individuals.

We tested the implications of changing approval rates using data on mortgage applications from 1990 to 2008. We computed an adjusted mortgage approval rate for each location, using a dataset released under the Home Mortgage Disclosure Act that contains nearly every mortgage application in the country, and adjusting for various characteristics of the applicant. We used this measure to gauge the looseness of credit

Figure 3: Mortgage Approval Rates and House Prices, 1990 - 2008



availability in the area, which is our best proxy for the borrowers' impatience.

We then examined the connection between the adjusted approval rate and local house prices, as measured by the Federal Housing Finance Administration. Figure 3 shows this relationship, with one observation for each metropolitan area in each year. We have normalized the values by taking out the average effect for each metropolitan area and the average effect for each year, so the values shown are deviations from average. Even after this normalization, the graph shows a strong relationship between mortgage approvals and housing prices. Further analysis revealed that the effect is robust to controls for differential price responses in higher-demand areas and more regulated areas, though these controls do reduce the magnitude of the effect.

We further refined this analysis by focusing on borrowers who are more likely to be impatient. While we obviously cannot measure impatience directly, we have reasonably accurate information on the applicant's income, which we take as a proxy for their ability to access credit markets. If the credit boom disproportionately benefited low-income borrowers, their entrance into the market should incorporate the idea of impatient borrowers being newly offered credit, at least to some extent. As it turns out, the comparable analysis for low-income borrowers does not show a particularly strong connection between their approval rate and local house prices.

Downpayment Requirements

According to both our model and Bernanke (forthcoming), downpayment requirements are another important dimension of loose credit because the value to homes of impatient agents will substantially increase when they are able to increase their leverage by borrowing

more money and back-loading the costs of homeownership. However, the data suggest that the distribution of leverage among those who purchased homes did not change very much over the course of the recent boom.

Specifically, we computed loan-to-value (LTV) ratios from all home purchases recorded by DataQuick (a firm that aims to collect the universe of sales in most major metropolitan areas) by dividing total borrowing by the sale price. These ratios represent the fraction of the house value that is purchased on borrowed money, and are the complement of the downpayment.

Somewhat surprisingly, this analysis suggests that that mortgage leverage was virtually unchanged over the course of the bubble. For example, in 1998, when the boom had barely begun, the median loan-to-value ratio in our sample of 75 metropolitan areas was 84 percent. This corresponds to a down payment of 16 percent, which is close to the traditional standard of 20 percent. However, there was substantial variation between metropolitan areas. In the Washington DC metropolitan area, for example, the median LTV ratio was 95 percent while in greater San Francisco it was 80 percent.

In contrast, at the peak of the boom in 2006, the median LTV was only a bit higher at 88 percent. Moreover, the variation across markets had shrunk and there were fewer regions with significantly lower median LTVs. Illustratively, while the median LTV in the Washington area was unchanged from 1998, the median LTV in Detroit increased from 73 percent to 80 percent. Bigger changes in LTV values occurred after the bust, as the average ratio fell sharply – to 80 percent after 2006.

The changes over time are even smaller when one looks at the upper half of the LTV distribution, where we would expect changing downpayment requirements to influence demand more strongly. Nationally, one-quarter of home purchasers in 1998 had loan-to-value ratios of at least 96 percent with only modest variation across metropolitan areas. In greater New York, for example, the top one quarter of home purchasers had loan-to-value ratios of 90 percent while in the Memphis metropolitan area, fully one quarter of homebuyers took out a mortgage at least equal to the full value of their home.

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By 2006, one quarter of all home purchasers were borrowing 99 percent of the purchase price, and in nearly two-thirds of the nation's metropolitan areas, one quarter of all purchasers were taking out loans at least equal to the full value of their homes. Taken as a whole, these data suggest that well before there was any hint of a bubble in house prices, the top quartile of home purchasers put down very little equity at purchase, and the numbers did not change much as the boom accelerated.

We also used these data to analyze the relationship between annual LTV in a metropolitan area and that region's house prices. But given that there is so little time series variation in any of these LTVs, it is not surprising that we found no statistically meaningful relationship between house value and the downpayment size.

Implications for Public Policy

Low Federal Funds Rates and low interest rates in general did not alone cause the

housing bubble. Theoretical and empirical analyses suggest that neither interest rates, nor downpayment requirements, nor approval rates moved enough over the past decade to generate the magnitude of price changes that parts of the United States experienced. Moreover, other standard explanations for rising housing prices, like rising incomes, also fail to explain much of the price volatility. Using the standard toolkit of the empirical economist, we are unable to offer much of an explanation for what happened.

We do believe that faulty expectations played some role in what happened. In our standard models, home buyers have a more or less unbiased view of what is going to happen. The work of Karl Case and Robert Shiller (2003) has shown that during booms, when people should expect prices to come back to earth, buyers instead believe in future growth. While prices did not rise substantially in places such as Houston and Charlotte with the least legal and natural restrictions on supply, there is little doubt that homebuyers in places like Phoenix and Las Vegas, where there were fewer regulatory or natural limits on the supply of new housing, had astonishing amounts of optimism about future housing prices that were completely inconsistent with the past history of those places. Similarly, buyers in the most supply-constrained places, such as Boston and San Francisco, also were over-optimistic about how much (and for how long) limits on supply could drive up prices. If economists are going to better understand housing bubbles, we will surely need to accept that home buyers often have very exuberant beliefs about housing prices.

If bubbles are formed by less than rational beliefs about price growth, which are, in turn, fueled by recent price appreciation, then it is possible that a sharp upward shock in interest rates could have burst the bubble, perhaps by pricing out the most over-optimistic buyers or by providing an illustration that price can go down as well as up. If this view is correct, then the impact of interest rates on prices might be much higher during the early stages of a bubble and the Federal Reserve could have done more to puncture the bubble by pushing up interest rates. But we are far from understanding bubbles to the extent to which we can make clear policy recommendations.

Looking forward, the relatively modest link between interest rates and housing prices makes us more confident about rethinking those Federal housing policies that act primarily by lowering the cost of credit to home buyers, most notably the Home Mortgage Interest Deduction. While this policy is politically popular, economists have long questioned its efficacy and fairness. For example, Poterba and Sinai (2008) estimated that the benefits for the average homeowning household that earns between $40,000 and $75,000 are one-tenth of the benefits that accrue to the average homeowning household earning more than $250,000. In addition, the benefit encourages people to buy bigger homes, often in far-flung locations – outcomes that seem at odds with concerns over problems such as global warming. Finally, the deduction encourages people to borrow as much as possible. In the wake of the current housing bust, it is hard

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to see the wisdom in encouraging people to leverage themselves to the hilt to bet on housing.

We would be wary about tampering with this policy if we thought that substantially changing it would cause the housing market to collapse even further. However, since we believe that the price-interest rate link is more modest, we think it is reasonable to rethink this policy, as long as any action occurs in a careful fashion. For example, currently, the interest can only be deducted from federal income taxes on no more than $1 million worth of debt. If that upper limit was reduced to $300,000, then the distortions and the regressive nature of the deduction would be reduced in ways that would not dramatically affect most households.

Two Government-Sponsored Enterprises, Fannie Mae and Freddie Mac, are the second natural area of reform. For years, these

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agencies claimed that they were operating without public subsidy, but that is now known to be obviously false. The great benefit of their operations was to lower the interest rate paid by home buyers. Again, a more modest connection between the interest rate and housing prices makes it more plausible to consider reducing the subsidy given to both entities. And certainly, we do not want to maintain a system where publicly-insured entities take risks and pass along gains to their shareholders while having taxpayers shoulder the burden if the risks do not pan out.

What does this discussion, and the events of the past decade suggest for policies at the state and local levels? There are state and local programs that support homeownership, such as the MassHousing mortgage insurance program, but these are relatively modest and there are offsetting programs that support renters. Consequently, we do not see the same case against these programs that exists against Federal pro-homeownership policies.

The more important local policies regulate land use. In areas with particularly restrictive land use policies, such as greater Boston, housing price volatility generally has been quite large while areas with less restrictive policies – such as Houston or other metropolitan areas in Texas – generally have smaller price bubbles. As such, if Massachusetts wants to reduce the extremity of its housing price cycles, it may make sense to engage in more efforts to reduce the barriers to new building through state level actions that either supersede local zoning restrictions (such as Chapter 40B) or that reward communities that for allowing more housing (such as Chapters 40R and 40S).

The past decade has illustrated the enormous significance of the housing market to the U.S. economy. The greatest lesson of those years is that prices move down as well as up and that buying a home is not always a wise decision. In the years ahead, we can only hope that the public sector and private buyers learn – and apply – that lesson to a variety of policies that directly or indirectly affect housing.

Endnotes

[1] Consistent with our model, and with the predictions of Himmelberg, Mayer, and Sinai (2005), this effect was greater when interest rates were particularly low.

References

Bernanke, Benjamin. Forthcoming. "Monetary Policy and the Housing Bubble." *American Economic Review*, 100(2). Available at http://www.federalreserve.gov/newsevents/speech/bernanke20100103a.pdf

Case, Karl E. and Robert J. Shiller. 2003. "Is There a Bubble in the Housing Market?" *Brookings Papers on Economic Activity*, 2: 299-342.

Greenspan, Alan. Forthcoming. "The Crisis." *Brookings Papers on Economic Activity*. Available at http://www.brookings.edu/~/media/Files/Programs/ES/BPEA/2010_spring_bpea_papers/spring2010_greenspan.pdf.

Himmelberg, Charles; Christopher Mayer and Todd Sinai. 2005. "Assessing High House Prices: Bubbles, Fundamentals and Misperceptions." *Journal of Economic Perspectives*, 19(4): 67-92.

Poterba, James. 1984. "Tax Subsidies to Owner-Occupied Housing: An Asset-Market Approach." *Quarterly Journal of Economics*, 99(4): 729-752.

Poterba, James and Todd Sinai. 2008. "Tax Expenditures for Owner-Occupied Housing: Deductions for Property Taxes and Mortgage Interest and the Exclusion of Imputed Rental Income." *American Economic Review*, 98(2): 84–89.

Saiz, Albert. Forthcoming. "The Geographic Determinants of Housing Supply." *Quarterly Journal of Economics*, 125(3). Available at http://real.wharton.upenn.edu/~saiz/GEOGRAPHIC%20DETERMINANTS.pdf

Taylor, John B. 2009. *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis* (Stanford, CA: Hoover Institution Press).

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