Another striking feature about this more recent era from figure 1 is how truly national the impact on prices has been. In the boom leading up to the global financial crisis, there was much more heterogeneity across markets. We all know about the so-called sand state market bubbles (Las Vegas, Phoenix, and Miami), but the Case-Shiller price series from other Sunbelt markets in North Carolina (Charlotte), Georgia (Atlanta), and Texas (Dallas) show no such boom during the run-up to the global financial crisis. It strikes me as worth considering why we do not see as much cross-market variation now. Changes in short- and long-term expectations already are compared and contrasted across four markets, and that obviously can be done in next year's survey, too. However, I would be interested in seeing a breakdown of written responses by market to learn whether different points were raised or whether buyers in, say, Milwaukee and San Francisco tended to reference similar or different factors. Finally, this is another area where coordination with other surveys could be valuable for our understanding of housing markets. There is much useful variation across the four markets surveyed here, but there is even greater variety across the country. Differences across markets, especially over time, provide a potentially useful context in which to study housing market behavior.

CONCLUSIONS This paper represents the continuation of a remarkably innovative research program into housing market expectations. The research it has spawned is now legion in scope and influence. Going forward, I hope we learn more about housing markets by exploiting the data in the written answers to supplementary questions that delve into issues beyond the survey respondents' specific views on future price appreciation. It would be useful to start publishing the underlying micro data on these answers, with an appropriate lag. Who knows what insights new textual analysis programs might provide? I also encourage more questions pertaining to the supply side of housing markets, particularly during and after the COVID-19 crisis.

REFERENCES FOR THE GYOURKO COMMENT

Case, Karl E., Robert J. Shiller, and Anne K. Thompson. 2012. "What Have They Been Thinking? Homebuyer Behavior in Hot and Cold Markets." *Brookings Papers on Economic Activity*, Fall, 265–98.

Kuchler, Theresa, Monika Piazzesi, and Johannes Stroebel. 2022. "Housing Market Expectations." Working Paper 29909. Cambridge, Mass.: National Bureau of Economic Research. https://www.nber.org/papers/w29909.

GENERAL DISCUSSION Frederic Mishkin related his first question to a point made by Joseph Gyourko about Robert Shiller's "great disappointment" of attempting to create settings where arbitrage can make housing markets more efficient. He explained that one of the important aspects of the authors' paper and earlier work on this survey is that housing markets are expected to be settings where rational expectations and market efficiency are unlikely to be found because of the lack of arbitrage. Mishkin wondered why this arbitrage continued to be elusive.

Mishkin's second question was posed to Gyourko and Adam Guren. He agreed with Guren's and Gyourko's assessments that the current rise in housing prices is driven by real factors rather than a traditional bubble; supply chain difficulties and increasing labor costs would cause housing prices to increase without a bubble forming. In this setting, a rise in home prices is efficient, since it comes from input costs and a corresponding increase in price increases the use of those inputs. Mishkin asked how much of the rise in housing prices was a public policy issue. He pointed out increasing supply restrictions from zoning laws over the last twenty years with an example from near his own home and asked how much of a role public policy played in increasing the difficulty of building new housing. He also asked why zoning laws have changed in the last twenty years.

Caroline Hoxby asked about heterogeneity of the period over which buyers forecast prices. For example, a house flipper may plan to own a house for only a short time, while others may plan to own and live in a house for decades, and still other homeowners may lie between those extremes. Depending on how long an owner plans to keep a house, their forecast of short- or medium-term price fluctuations may change. House flippers may not think in-depth about long-term price changes, while those who own their homes until retirement may not consider short-term price changes. Hoxby's concern is that the authors' data on expectations in price fluctuations look very smooth, which may be hiding a large amount of variation among homeowner expectations. Particularly those who plan to own their homes for a long time, she stated, may not think carefully about price changes even in the next ten years because they will not be selling their house in that period regardless of changes in the market. She wonders how the authors and discussants consider the period over which home buyers forecast prices in view of the home buyer's expected period of homeownership.

Gyourko addressed Mishkin's question about supply constraints in building new housing. He started by stating that he cannot answer this question with complete certainty, and much of that uncertainty stems from a lack of frequent, clear survey data. He added that this problem is worse in coastal markets, but regulation likely does not play a large role in constricting housing supply in cities like Nashville, Atlanta, and in most cities in Texas (except Austin). Gyourko did not see Mishkin's example of homeowner communities preventing new housing development around their homes as representing a large segment of housing markets. He explained that while such actions are common, they do not affect the housing market as a whole because the number of new dwellings that are prevented is not large.

Guren discussed Hoxby's concerns about home buyer time horizons. He agreed that there may be heterogeneity among the period over which home buyers consider prices, and he stated that this heterogeneity is especially important in a bubble. He used this question to argue that the authors could maximize the impact of their research by publishing micro data from their survey, as the Federal Reserve Bank of New York survey does.[1] With this micro data, researchers could examine variation in home buyer expectations based on age, income, or other factors.

Shiller addressed the question of expectation time horizons first. He agreed that the opportunity for respondents to comment on housing markets provides rich context for the survey. Shiller proposed a focus group setting where skilled moderators speak with respondents about their expectations and can account for heterogeneity in the moment. This would better reflect the complexity of expectations than a fixed questionnaire like the authors' survey could.

Anne Thompson discussed Hoxby's question, pointing out that the authors' use of a trimmed mean reduced the effect of outliers on their conclusions. Because of this trimmed mean, heterogeneity in respondents' expectations for future home prices is limited to realistic forecasts. She stated that the individual responses, while they varied, were reasonable and rational, and no unrealistic outlying expectations distorted the data.

Janice Eberly brought up the large role of first-time home buyers and younger buyers in 2020 and 2021, pointing out that these groups were typically slow to enter the housing market before the onset of the pandemic. She asked whether the authors think that these groups represent pent-up demand and the effects of the pandemic, or whether other factors could explain the increasing role of first-time buyers and young buyers.

Thompson addressed this question, answering that while first-time and younger home buyers did see an increasing role before 2021, there was a large surge in the number of home buyers who fell into one of these

1. Federal Reserve Bank of New York, Center for Microeconomic Data, "Data Bank: Survey of Consumer Expectations," https://www.newyorkfed.org/microeconomics/databank.html.

groups in 2021. Individual responses show that first-time home buyers are older, on average, in 2021 than in earlier surveys. Thompson also discussed the increasing square footage of houses bought by first-time home buyers in 2021 compared to other years. These first-time home buyers, many of whom were millennials, had more savings because of high savings rates during the height of the pandemic among those who kept their jobs.