Dicussion of "Demographic Trends, Housing Equity, and the Financial Security of Future Retirees" by James Poterba, Steven Venti and David A. Wise

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This paper forecasts the distribution of future home equity among retirees. This involves projecting the joint distribution of future homeownership rates, home prices, and equity to value ratios. The most noteworthy findings are that households face a wide range of plausible home equity changes, with an interquartile range of approximately zero to almost 200% for 20 year changes in real value. The authors also find that the ratio of average home equity to average total non-pension wealth by age and by wealth quintile has been almost constant over the last two decades, despite large changes in leverage and asset values.

I have three sets of comments. The first consider the forecasts in the context of an equilibrium model. Second, the forecasting methodology has important, albeit offsetting, biases. Third, it is not clear what we learn about sufficiency of retirement savings from the distribution of feasible home equity levels.

What, if anything, would a model tell us?

The forecasts of future home equity center around current debt-to-equity ratios and home values and home price appreciation over the last three decades. Simulations based on relatively recent history may not reflect the true distribution of future home purchases, leverage, or prices. Investors in real estate and mortgage backed securities have learned that the

hard way over the last two years. For that reason, it would be nice to appeal to a dynamic stochastic general equilibrium model of home prices and mortgage demand into which different paths for some underlying fundamental, such as productivity, could be planted. Unfortunately, such a model would be at least one of intractable or incapable of matching many empirically relevant moments.

Forecasting home prices based on an economic model based on some kind of rational expectations, would involve forecasting future discounted "dividends" from homes. Two major problems with this approach are that the dividends that homes offer their owners are not observable, and that the appropriate discount rate for housing dividends is difficult to characterize.

The dividends to owner housing are not observable because homeowners do not pay themselves rent. The market rent for units comparable to owner homes may not reflect a dividend in any meaningful way. Rental units are typically different from owner units, and changes in rent will partly reflect demand for rental, as opposed to owner, units. Also, the utility flow to an owner may not change when market rents change. For these reasons, we do not know the time series relationship between, say, GDP and dividends to homeowners.

The appropriate discount rate for housing is difficult to evaluate for a variety of reasons. The discount rate might be decomposed into a riskless rate, a risk premium, and expected growth. The risk premium is problematic in part because home equity is commonly, but not always, held until death. The option structure induced by the availability of remaining in the home implies that older owners may not be risk averse towards home price variability. Sinai and Souleles (2005) show that for younger owners, variability in housing prices may make a home more valuable for hedging purposes. Given that economists do not have the tools to assess what the right price level is for housing, it is unrealistic to expect a model to deliver an accurate expectation of growth even in a single housing market. Calibrating a distribution for price growth by location is far beyond the current state of economic science. Van Nieuwerburgh and Weill (2006) calibrate differences in housing costs in a much simplified

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model.

With these caveats in mind, it is reasonable to think that home values should be highly correlated in a long time series with something like discounted GDP. Indeed, I find that over the last three decades, at a five year horizon, changes in the national OFHEO repeated sale home price index have had a correlation of .3 with changes in GDP divided by the ten year treasury rate minus lagged CPI growth, when both series are deflated by the non-housing CPI.

Particularly given the results on the constancy of the ratio of home equity to total non-pension wealth, it would be interesting to compare plausible distributions of home equity under the authors' methodology to forecast distributions based on a constant ratio of home equity to wealth and estimated values of wealth based on simply discounted GDP. One might then recognize that there are a range of multipliers of this value that housing markets would apply, depending on the heat of the market, and depending on how elastic supply is in a given market. An approach along these lines would have the benefit of time series for GDP, interest rates, and inflation that are more than twice as long as the OFHEO series and include the Depression years.

Interestingly, changes to the S&P 500 index have also been highly correlated with discounted GDP over long horizons, but negatively correlated with changes in home values (as the authors observe). It bears mention that the recent extreme event of rapidly decreasing home prices has been matched by a large drop in stock market values. Any future work that tries to estimate a joint distribution of housing and total wealth must decide whether to trust intuition, which says that there should be a positive correlation between stocks and housing, or our own eyes, which have seen a negative correlation for as long as we have data.

Coastal housing prices have drifted away from home prices in the rest of the country over the last two decades. Presumably, this has to do with changes in the wage premium to education driving up demand for locations blessed with amenities and agglomeration opportunities. Whether this trend continues or reverses will have important effects on the

distribution of both wealth and home equity. Assuming that the next T years will look like the past three decades, as the authors do, assumes that growth in home prices across regions will continue to diverge.

A problem in applying standard models to equilibrium in housing markets is the empirical retention of home equity late into life among the elderly. One would expect to see transitions into rental status, smaller homes, or at least home equity borrowing among older households with high levels or changes to the ratio of home equity to wealth. As the authors have shown in previous work, such transitions have been the exception rather than the rule in recent decades. The fact that older homeowners have retained home equity is presumably part of the reason the demographics-based prediction of Mankiw and Weil (1989) went awry.

A question in forecasting future home equity is thus whether households will become more like life cycle consumers facing complete markets. If so, we would expect to see much reduced equity to debt ratios in the future. The reverse mortgage market has grown rapidly in percentage terms recently, but on a small base. All the results in the paper rely on an assumption that there will not be major growth in that market, or that if there is, it will be accompanied by considerable price appreciation. In particular, the authors assume that homeowners will reduce mortgage debt at a rate matching historical average amortization. Historical data do not include jumps in home equity borrowing among the elderly, but it does not seem right to assign such a jump zero probability.

The constancy of the ratio of home equity to wealth over time, shown visually in Figures 8-1 through 8-4 intriguing. Part of what makes the result interesting is the fact that there is considerable cross-sectional heterogeneity in the ratio. Home value is non-homothetic in wealth, and the ratio of home equity to total wealth is, too. The equity to wealth ratio is decreasing in wealth, but constant within wealth deciles over time, despite growing wealth by quantile. A natural justification for these results is that home values were rising relative to overall wealth. This is true for the majority of households with limited stock market wealth.

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The absence of large cohort effects in the ratio of home equity to wealth is noteworthy. This non-relationship appears to mask numerous offsetting effects: cohorts are becoming wealthier, non-housing assets are growing in value, older households have lower housing value to other asset ratios, older households are less leveraged than other households, and later cohorts are becoming more leveraged. That these and other effects have offset historically does not mean that they will in the future.

A mechanism that also seems to be at work is that leverage has increased with time as the lending market became (until the last few months) looser and looser. This looseness doubtless had significant effects on housing values (see, e.g. Ortalo-Magné and Rady (2006)). Following the logic of Artle and Varaiya (1978), we would expect homes to be more valuable to buyers anticipating the ability to cash out capital gains through reverse mortgages. The elasticity of price with respect to elder borrowing capacity would have to be large for current ratios of equity to wealth to withstand a large increase in borrowing after retirement.

Calibrating a future home price distribution

The authors use historical changes in OFHEO home prices by state to calibrate a distribution of future home price changes. In particular, the distribution of T year changes in log home prices for households in a given state is obtained by drawing a sum (with replacement) of historical one-year OFHEO price changes in that state. Even assuming that the three decades of data available to the authors have reflected the true distribution of price changes going forward, there are significant biases to the volatility and possibly mean, of the distribution based on the OFHEO data and sampling approach.

There is downward bias in the volatility of forecast home values because state average price changes are less volatile than metropolitan home prices, which are in turn less volatile than changes in value in neighborhoods and individual homes. The move from metropolitan means to individual results is particularly problematic, given the large magnitude of home improvement expenditures (thousands of dollars per year on average, with wide variance) and

stochastic depreciation. Possibly operating in the opposite direction is the fact that home price changes are serially correlated. National home prices, and particularly prices in large coastal cities, have followed two up-and-down cycles over the life of the OFHEO data. If we believe that home prices can not deviate too far from fundamental values before correcting, large price swings may show up in simulations that would be unlikely to occur if longer horizon draws were taken. In the authors' defense, there are only two long cycles to draw from over the last thirty years, and we just witnessed an almost uninterrupted decade-long run-up in prices.

As the authors recognize, the OFHEO data, which is confined to repeated sales of new homes, exhibits less volatility than the Case-Shiller data. The latter data is less geographically representative, but includes homes of very high and low value that may have more price volatility than homes that are subject to conventional mortgages. While the repeated sale methodology deals better with problems of composition than a median home index, if home builders sell disproportionately in down markets (as they cannot wait for higher prices as well as homeowners who receive a dividend), then excess depreciation of new homes will bias volatility of a repeated sales index downward.

What does home equity tell us about retirement readiness?

The authors observe that home equity is rarely spent absent death of a spouse or entry of a household member into long-term care. In the case of bequests, it is not clear that more home equity is better than less. Heirs may be worse off, not better off, if home prices rise. In the case of long-term care, prices are correlated cross-sectionally with housing prices. If the elasticity of care costs with respect to housing prices is large (incorporating effect of labor costs on both), then again utility may be lower in high price states than low. One way to think about this is that rather than the national CPI for all goods, housing should be deflated by by regional CPI (where available), for all non-housing goods. Oddly, the two sets of series are sufficiently highly correlated that this likely induces little bias.

Another consideration is that older homeowners have some ability to time the sale of their homes. Given serial correlation in prices, it is not impossible to believe that older owners could avoid selling during market troughs. In that case, the distribution of future home equity may be downward biased.

In summary, the authors have presented a strikingly wide range of plausible range of home equity wealth for future retirees. They have also documented the intriguing fact that home equity to wealth ratios are quite stable across time and cohorts. The difficulty of modelling equilibrium in housing markets leaves us with little choice but to assume that the future will look like the past, but there are good reasons to think that it may not. Chief among these reasons are growth in the home equity lending market both before and after retirement; the recent volatility of housing prices, unmatched in the last three decades; and the divergence of coastal from non-coastal housing prices. The authors have identified an important task for future researchers: providing a justification for the near constant equity to wealth ratio in the face of major and imperfectly correlated changes to non-housing wealth, home prices, and leverage.

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