

## Reply to referee 2

Thank you very much for your thorough and insightful comments. Here I reply to each of your points:

1. A general equilibrium model would indeed be nice. But I fear that it would necessitate a paper of its own because many other transmission mechanisms between housing prices and consumption would then have to be dealt with. For instance, higher housing prices are likely to lead to higher residential investment and thus higher production and employment and higher consumption. But that would not constitute a housing wealth effect in the traditional sense.

It is indeed hard to distinguish between the classic wealth effect and such an effect. This would be another critique of the traditional wealth effect - that would also apply to financial wealth - but not one I would like to make in the paper. But it would certainly help to discuss this point in more detail either in the conclusion or the introduction.

2. You are absolutely right that the assumption of an inelastic housing supply is very strong. I cite some empirical studies - as there are not many - that address the elasticity of housing for the young (page 6, at the bottom). Also, in the data presented in figure 2 on page 7 and figure 3 on page 8 it seems that ownership of certain age categories does not change even if - as shown in figure 3 - prices do indeed change. Housing ownership rates hardly differ when prices are high in 2004/05 from ownership in 1998 when prices are much lower. I did not use the figures to argue that I assume housing demand to be rather inelastic, but could do so. To make housing more elastic, I would have to introduce an endogenous housing choice in which changes in housing prices would lead to changes in this housing choice (renting vs. owning) which would in turn affect consumption.

As far as bequests are concerned: I mention them on page 8 where I argue that they are not likely to lead to different results because for the old - who would not sell but bequest their house - price changes would not play any role. The young who inherit the house would not have to save for their house. However, it might be important what share of old wants to bequest their house and what share of young households gets the house. Those shares would have to be subtracted from equation 22) and 23) on page 13. If the number of persons bequeathing their house and the number of persons inheriting the house differ, then a bequest motive would change the effect of housing prices on consumption.

There is another aspect that I also did not think through yet: If the young who inherit a house plan to sell the house later on and not bequest it, changes in housing prices would also lead to different consumption of the young. But then one would also have to introduce another choice in order to determine whether they plan to sell or not and thus to rent or not once they become old.

Overall, I feel that all those possible extensions would burden the model and I would prefer to stick to my assumption of an inelastic housing demand. I could try to find more empirical evidence on that and discuss some of the implications of a less elastic housing demand for the wealth effect more extensively. However, let me stress that the main aim of my model is not to propose the ultimate alternative theory to the housing wealth effect. It is more intended to make readers skeptical about the alleged wealth effect and propose some simple mechanisms that are not far away from reality that should make you weary of too simple a story. The more elements are added to the model, the less this general message will be understood. This does not mean that more should be done but I think this would have to be done in further work.

3. The influence of the generation's size on housing prices is an interesting question. I did not yet think it through but it seems to me that rent is endogenous in the model and could be determined by the interaction of the middle-aged supply of rental housing ( $1 - h^m$ ) to the young and the old and their respective demand. All supply and demand functions should depend on the relative size of each generation in the model. The function that determines rents could then be plugged into the arbitrage condition and thereby make housing prices dependent on the different population sizes. I have to check whether this reasoning really applies.
4. As far as banks are concerned, I do indeed not model them explicitly since this is a partial equilibrium model. For the purposes at hand I do not see a need to do so since I already introduce financing restrictions. A lender is restricting his lending based on some risk assessment. Whether the whole banking sector makes losses or deficits would also depend on the rest of the economy which is not modeled. For instance, construction and other firms are also likely to borrow etc. But introducing all those sectors is likely to lead to a model that quickly becomes unmanageable and also not well targeted to the question at hand. The question of whether one wants to construct a general equilibrium model is discussed above.

5. On page 13 I specifically address the issue of exogenous changes in housing prices and from where they could come from - from all the variables in the arbitrage equation, i.e. interest rates on saving accounts, mortgage interest rates, the loan-to-value ratio, housing price expectations etc. But I could expand on that if it is not yet stated sufficiently clearly.
6. I evaluate the shock of a possible range of variables (see previous point) on housing prices. It is true that in the VAR, none of those variables is explicitly taken into account, only a housing price shock as such that comes from “somewhere” (but possibly from some of the previously established variables).  
The model does however *not* - as you write - focus on the impact to *expected* housing prices, but - in one variant among others (equation 23)) - on the *effect* of sudden changes in expected housing future prices on actual contemporaneous prices.