

Report on “Housing market bubbles and business cycles in an agent-based credit economy”, by E. J. Erlingsson, S. Cincotti, H. Sefansson, J. T. Sturlusson, A. Teglio and M. Raberto

The paper studies the relationship between credit rules of banks and the business cycle in an agent-based macroeconomic model that has a housing market. It is found that easier access to mortgages makes the economy more volatile.

I am very sympathetic to the agent-based approach in economics, and also to the topic that the authors study. Given the recent financial crises that presumably originated from a housing market bubble in the U.S. it is an area where economists should really strive for a better understanding of the underlying economic mechanisms. The authors conjecture that the origins of a volatile economy are hidden in the credit rules applied by banks for mortgages. Again, I think that this is a prime suspect worthwhile to investigate. What is then presented in the manuscript, however, is a sometimes more than questionable modeling approach with unreasonable simulation output produced. I think that if the authors want to make a meaningful contribution in this research area they have to think about and resolve these issues. Let me list some that I find questionable:

1. In the first paragraph the authors motivate the paper by propagating their methodology. I would find it more appropriate if they started arguing why understanding housing bubbles in a macroeconomic context is important.
2. Also, they may want to collect and present evidence on housing bubbles, credit rules, and the like at least for Iceland which the model seems to target at. Having a better understanding of the institutional background of the main driving parameter of this model would certainly improve the contribution.
3. page 5: Why would one introduce a Leontief production function with labor and capital to assume afterward that capital is infinitely productive and fixed? Why not just say that labor is the only input?
4. page 6: Labor productivity is constant and equal across firms. But then, the authors assume workers of different skill levels (compare with page 9). Why would one introduce different skills anyway if they are irrelevant for the economic mechanisms to be studied?
5. page 8: Construction firms cannot adjust their capital stock. Here, I would assume that it is not backed by empirical evidence on the size of the construction sector during housing booms.
6. page 8: Why do construction firms use a different projection rule than consumption good firms? Is a random choice of the amount of houses to be produced really such a good modeling approach?
7. page 11: It is assumed that loans to consumption good producers and construction firms are never paid back!

8. page 13: I did not find taxes and government transfers being included in household income. Are they?
9. What is the purpose of the government policy “general transfer benefits” which seems to constitute a large fraction of the household income. Why is it modeled?
10. page 16: The plot on real GDP seems to suggest that yearly growth rates of around 40% (red line from year 7 to year 8) are possible. I do not find this to be a reasonable calibration even for a loose credit policy. But also in the baseline scenario there seem to be unrealistic growth rates for some years.
11. In the abstract, the authors claim that there is economic growth. Indeed, the plot on page 16 suggests a positive trend. I find this puzzling. Where does the long-run growth come from? In the model, human capital does not change, there is no improvement in technology, capital is not growing, and labor input is constant, too. Where is the growth engine in this model?