

LAND-PRICE DYNAMICS AND MACROECONOMIC FLUCTUATIONS

by

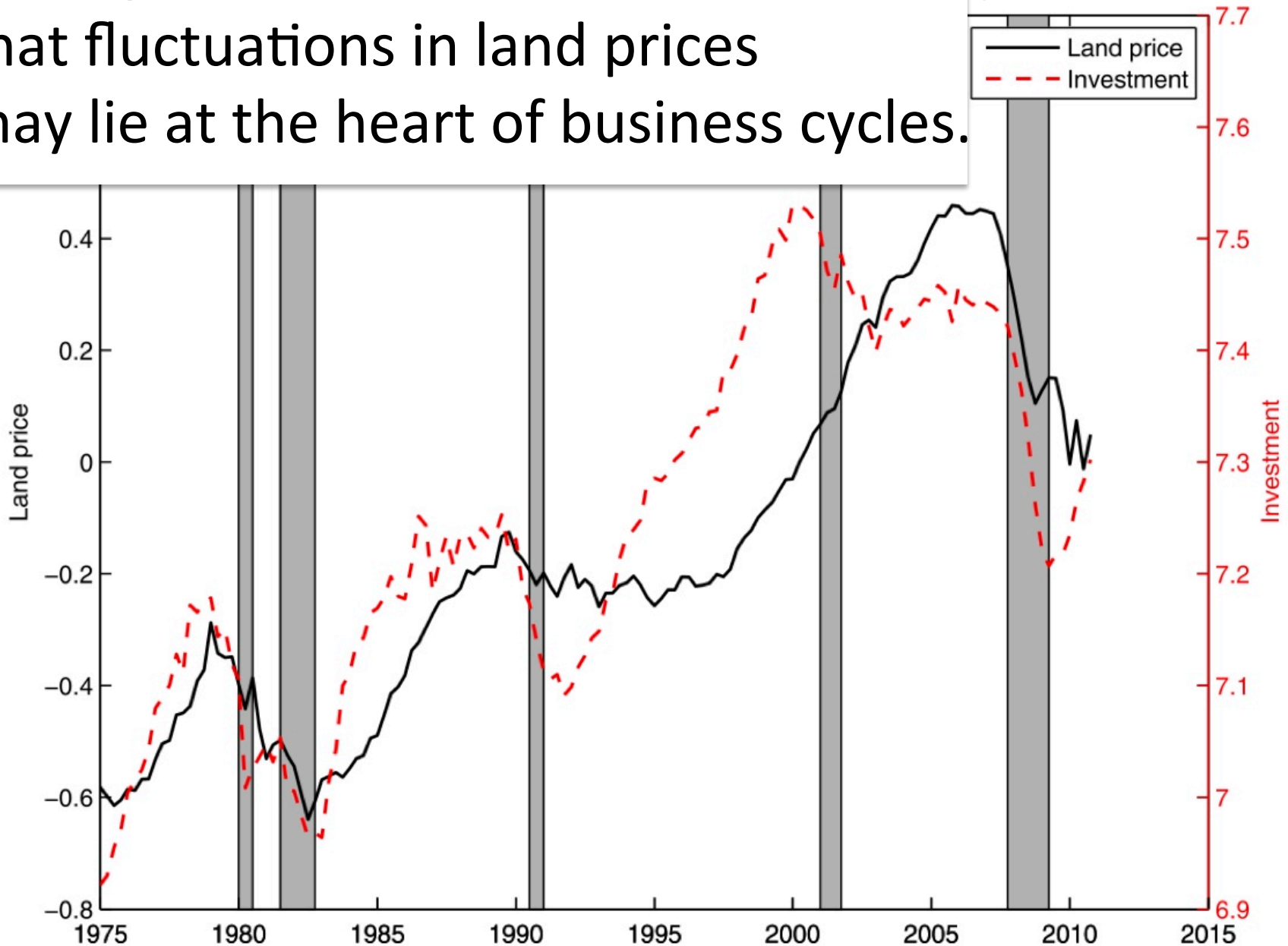
ZHENG LIU, PENGFEI WANG, AND TAO ZHA

Discussion by

Lawrence Christiano

- This will be an important reference for students of business cycles in general, and the recent recession in particular.
- Sets a high standard for empirical work.
 - Serious about the econometrics.
 - Serious about the economics.
 - Model refreshingly simple by standards of DSGE models.

This figure motivates the authors to explore the idea that fluctuations in land prices may lie at the heart of business cycles.



Model

- Two agents: households and entrepreneurs.
- Households
 - Have labor and no other productive resources.
 - Like to save, i.e., β_h big.
 - Like housing services and consumption of market-produced goods, dislike labor.
- Entrepreneurs
 - Can operate production technology
 - *$Y = \text{function}(\text{Labor}, \text{Land}, \text{Capital})$*
 - Like consumption, want it early, i.e., $\beta_h > \beta_e$
 - The value of their land and capital constrains how much they can borrow:
 - *$B \leq \vartheta [\text{land_price} * \text{Land} + \text{capital_price} * \text{Capital}]$*
 - Constraint satisfied as a strict equality (huge technical benefit)

Key Finding

- One shock triggers effects in data that look like a business cycle:
 - Shock to household marginal utility of housing: φ

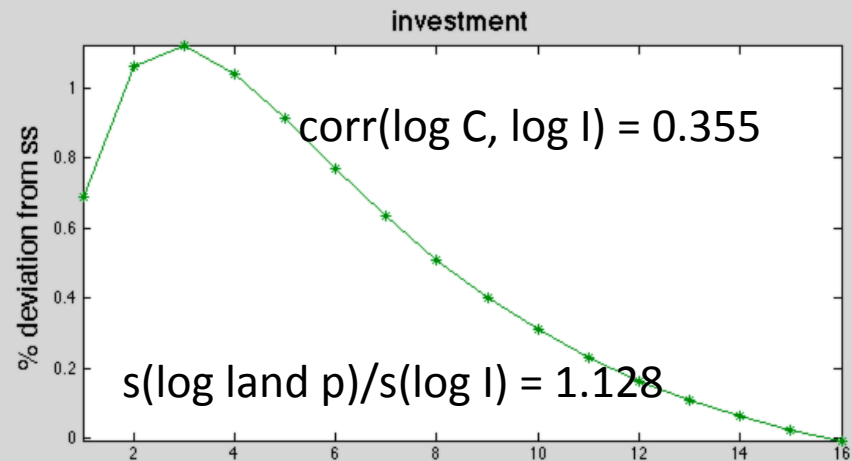
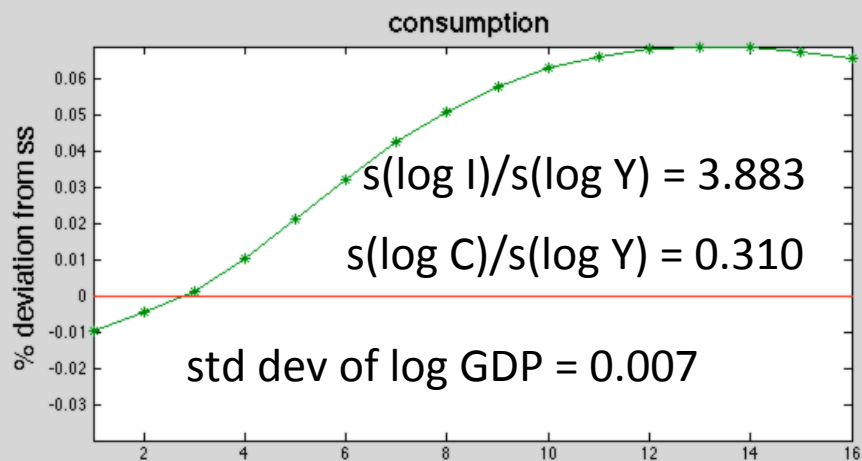
Mechanism in the Model

- When households marginal utility of housing jumps, house price jumps.
- Households can acquire the purchasing power to buy houses from two places:
 - harder work (good for business cycles!)
 - less consumption (bad! Consumption is procyclical!)
- When entrepreneurs' borrowing constraint relaxes, they borrow more.
 - They buy more consumption goods (good!)
 - Smooth consumption over time by acquiring capital and land and producing more (good!)

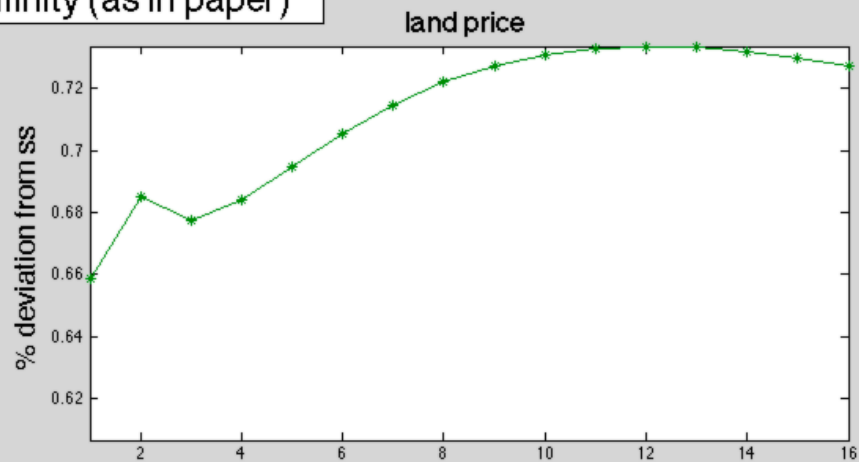
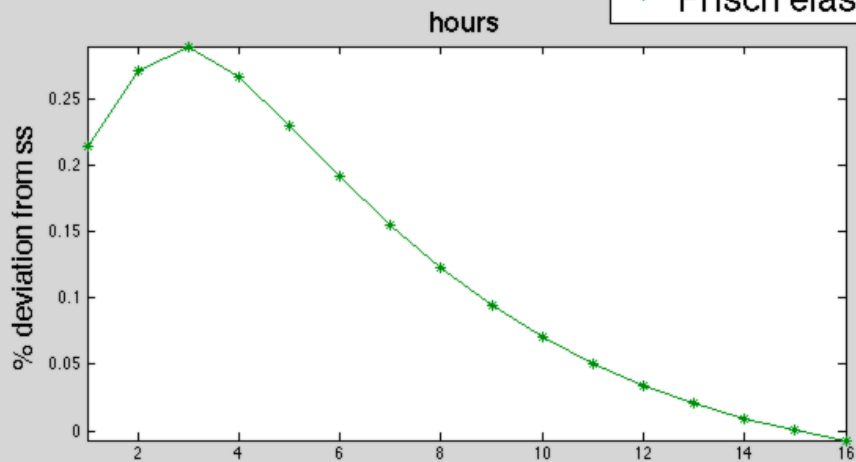
Mechanism

- For φ to be an important business cycle shock, must imply consumption is procyclical
 - Requires that households don't decrease their consumption too much when marginal utility of housing (i.e., φ) jumps.
- In the model utility linear in leisure
 - Implies Frisch labor supply elasticity is ∞
 - It is optimal to pay for additional housing by working harder (good for business cycles!).
 - Households avoid a big, utility-reducing, drop in consumption to buy a house.

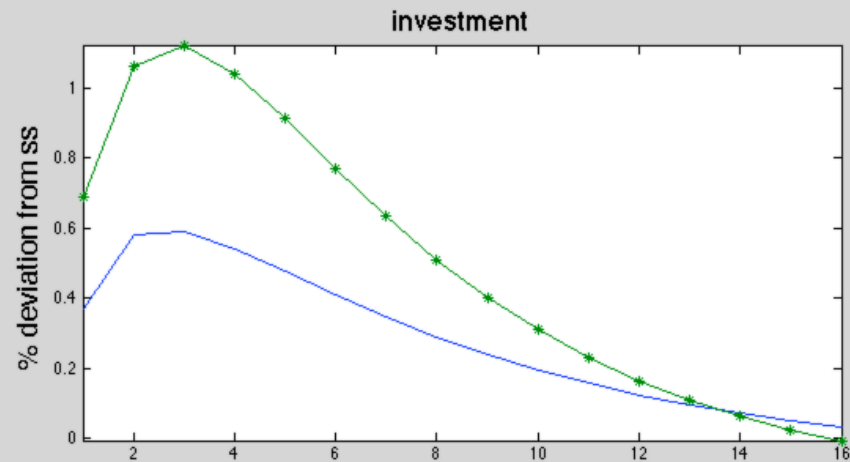
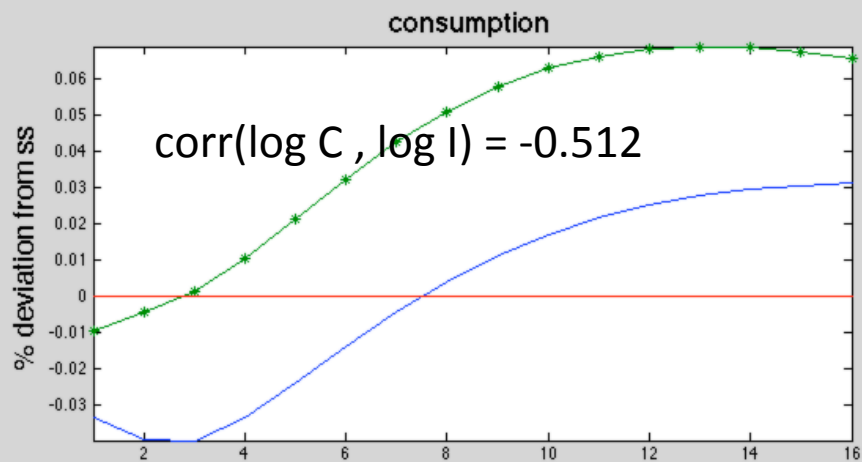
Response of Economy to a One Standard Deviation Positive Shock in Housing Demand



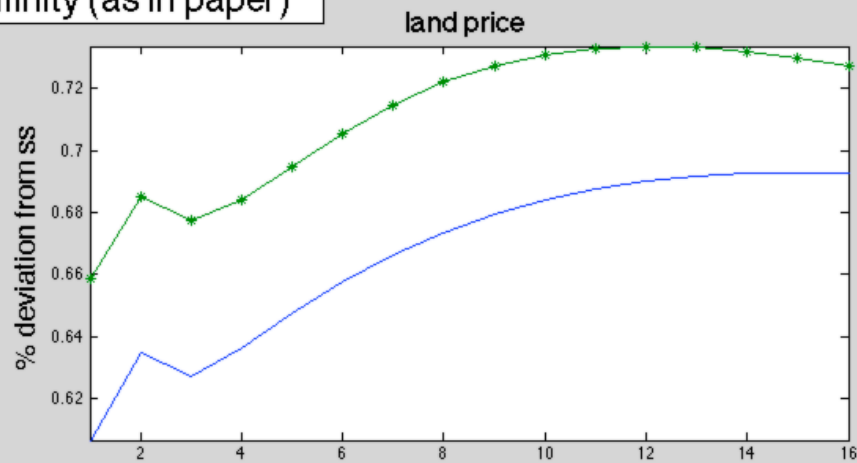
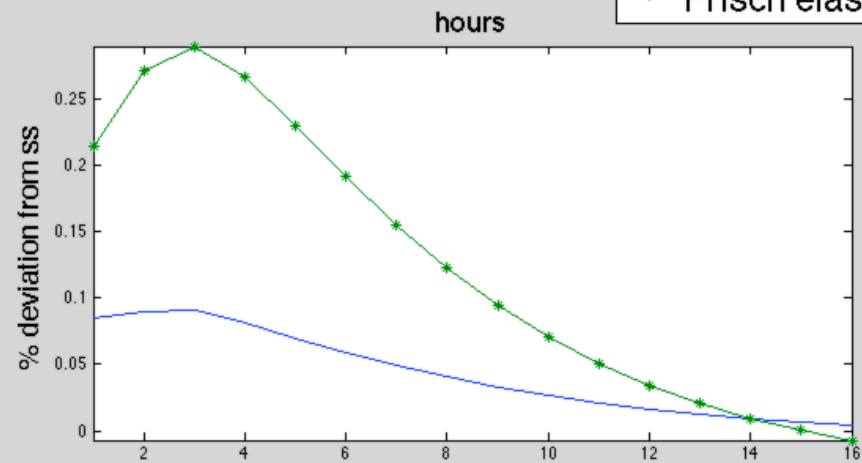
—*— Frisch elasticity = infinity (as in paper)



Response of Economy to a One Standard Deviation Positive Shock in Housing Demand



— Frisch elasticity = 1
—* Frisch elasticity = infinity (as in paper)



- As often happens in economics, results hinge a lot on how labor supply is treated.
 - Need a very high labor supply elasticity for it to work.
- Two interpretations of labor supply elasticity:
 - Intensive margin: infinite labor supply elasticity has been rejected by labor economists.
 - Extensive margin: here there is substantial debate, though recent research is negative-

Chetty, R., A. Guren, D. Manoli and A. Weber, 2012, "Does Indivisible Labor Explain the Difference Between Micro and Macro Elasticities? A Meta-Analysis of Extensive Margin Elasticities," NBER Macroeconomics Annual.

Comovement Between C and I

Without High Labor Supply Elasticity

- Could assume that the marginal utility of household consumption is increasing in consumption of housing services (complementarity)
- May not work to get household consumption up.
 - In the model, increased household desire for housing raises house price and this unleashes a huge wave of housing purchases by entrepreneurs.
 - Entrepreneurs buy so much that households actually end up with *less* housing services
 - Although they want houses more, the price is too high.
 - So, complementarity may cause households to cut consumption more, and hurt fit of the model.
- Another possibility:
 - Market goods and housing services are substitutes.
 - That should work!

Conclusion

- A symptom of a really nice paper is that it gets you thinking about all sorts of things.
- This paper makes one wonder about labor supply elasticities and the complementarity/substitutes between housing and market-provided goods.
- Likely to inspire much follow-up research.