

Discussion:
“Housing Market Spillovers:
Evidence from an Estimated DSGE Model”
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Housing Market Spillovers: Evidence from DSGE Model

by Matteo Iacoviello and Stefano Neri

- Questions

- ① What drives fluctuations in house prices?
- ② How large are spillovers to the rest of the economy?

- Approach

- ▶ Simple model of housing (2-sector economy)
- ▶ Embedded in standard DSGE model
- ▶ Calibrate/estimate the model
- ▶ Counterfactual exercises

Findings

- Trend in house prices
 - ▶ Technological progress construction sector lags
 - ▶ Land plays limited role
- Fluctuations in house prices
 - ▶ Sector-specific shocks explain 50% variance
 - ▶ Housing demand (preference) and supply (technology) shocks
- Spillovers on consumption
 - ▶ Explain 12% variance non-housing consumption (post 1989)
 - ▶ Mechanism: house value used as collateral for household borrowing

Housing supply and demand shocks

- Decomposition supply and demand driven by residential investment

Housing supply and demand shocks

Table 5. Contribution to Housing Booms of the Estimated Shocks

Period		% change, q	Contribution to changes of:		
			Technology	Monetary Pol.	Housing Pref.
1976:I	1980:I	16.6	5.3	-3.0	12.4
1980:II	1985:IV	-12.2	-3.1	0.1	-5.7
1998:I	2005:I	14.5	5.9	2.1	8.6
2005:II	2006:IV	-0.3	-0.2	-2.7	0.5
		% change, IH			
1976:I	1980:I	0.7	-28.0	-13.1	34.2
1980:II	1985:IV	26.4	48.3	-2.4	-15.3
1998:I	2005:I	22.0	-4.1	9.8	25.2
2005:II	2006:IV	-15.5	-4.3	-11.4	-3.9

Note: Contribution of Technology Shocks (Non-Housing, Housing and Investment Specific), Monetary Shocks (Interest Rate and Inflation Objective) and Housing Preference Shocks to the housing market cycles reported in the text. Changes in the variables are expressed in deviation from the estimated trends.

Housing supply and demand shocks

- Decomposition supply and demand driven by residential investment
- But all interesting action is through house prices
 - ▶ Why need to match residential investment?
 - ▶ Take house prices as exogenous?
- Concerns
 - ▶ Is the response of non-housing consumption very different?
 - ▶ Anything else very different?
 - ▶ Are housing supply shocks really exogenous?

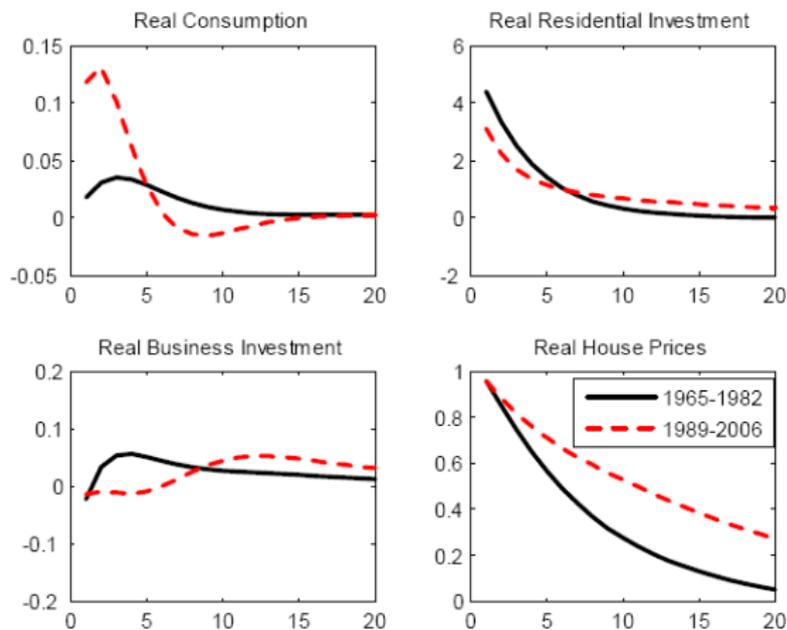
Housing supply and demand shocks

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Housing market spillovers



House prices fall by 30% (Shiller)

⇒ Consumption drops 4.1% (cf. std dev = 1.2%)

Housing market spillovers

- Clearly very relevant
 - ▶ Current crisis
 - ▶ Spillovers seem to be large
- Collateral effects plausible, but:
 - ▶ Mechanism is assumed, not tested
 - ▶ Paper is vague about the details of the mechanism
- Alternative mechanisms for spillovers
 - ▶ Construction sector
 - ▶ Mortgage-backed securities
- Details of the collateral effects mechanism
 - ▶ What drives the result?
 - ▶ What can break it?
 - ▶ What can strengthen it?

Collateral effects

“we show how our model is consistent with the idea that the conventional wealth effect on consumption is stronger when collateral effects are present”

Collateral effects

- Patient households

$$\underbrace{q_t u_{c,t}}_{\text{cost more housing today}} = \underbrace{u_{h,t}}_{\text{benefit today}} + \underbrace{\beta (1 - \delta_h) E_t [q_{t+1} u_{c,t+1}]}_{\text{ENPV still having } (1-\delta_h) \text{ tomorrow}}$$
$$u_{c,t} = \beta E_t \left[\frac{R_t}{\pi_{t+1}} u_{c,t+1} \right]$$

- ▶ Wealth effect of house prices (+)
- ▶ Direct effect (if preference shock) (-)

Collateral effects

- Patient households
 - ▶ Wealth effect of house prices (+)
 - ▶ Direct effect (if preference shock) (-)
- Impatient households

$$q_t u_{c,t} = u_{h,t} + \beta (1 - \delta_h) E_t [q_{t+1} u_{c,t+1}] + \underbrace{m E_t \left[\lambda_t \frac{\pi_{t+1}}{R_t} q_{t+1} \right]}_{\text{collateral effects}}$$

$$u_{c,t} = \beta E_t \left[\frac{R_t}{\pi_{t+1}} u_{c,t+1} \right] + \lambda_t$$

- ▶ Wealth effect (+)
- ▶ Substitution effect (+)
 - ★ Has nothing to do with collateral ($m = 0$)
 - ★ Use housing for consumption smoothing
- ▶ Collateral effect (+)

Collateral effects (cont'd)

“we provide an in-sample estimate of the historical role played by collateral effects in affecting U.S. consumption dynamics”

- What really drives the spillovers?
 - ▶ Borrowing constraints
 - ▶ Collateral effects
- What can break this result?
 - ▶ Substitution effect: must depend on utility function
 - ▶ Wealth effect changes sign for renters
- Important for quantitative analysis