Discussion of "Housing Collateral and Consumption Insurance Across US Regions"

by

Hanno Lustig and Stijn van Nieuwerburgh

Dirk Krueger

UPenn, University of Frankfurt, CEPR and NBER

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Introduction

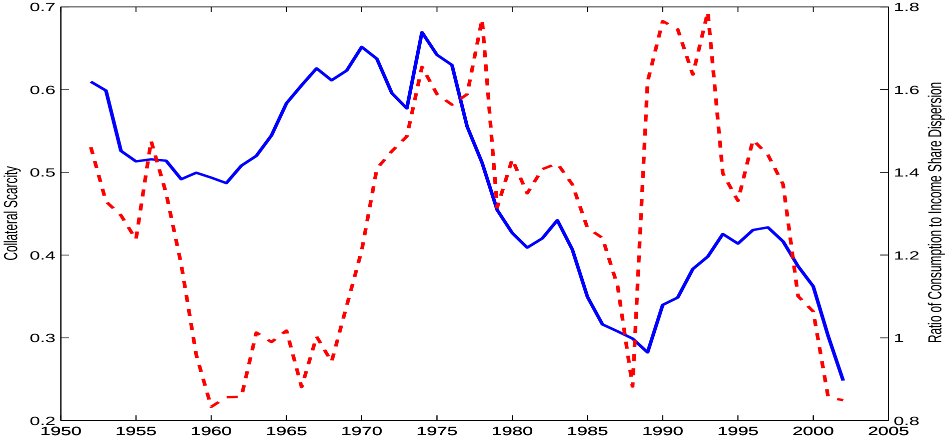
- Fact 1: Households' consumption is not perfectly insured against idiosyncratic income shocks. Degree of insurance varies over time.

- Fact 2: Value of U.S. housing stock varies substantially over time.

- Question: Causality?

- Mechanism: Households borrow to smooth nondurable consumption. How much they can borrow is determined by the value of their housing collateral. Changes in the value of the housing stock over time thus determines time variation in households' ability to insure income risk.

Figure 1. Housing Collateral Scarcity and Degree of Risk Sharing.
On the left axis is the collateral scarcity measure $\widetilde{myrw}$ (solid blue line). On the right axis is the ratio of observed cross-sectional consumption share dispersion to income share dispersion (dashed red line). When collateral is scarce, US regions accomplish less risk-sharing



The Model

- Continuum of regions. Representative household within each region

- Endowments of nondurable, tradeable consumption good $\eta_t(y^t, z^t)$ and nontradable houses $\bar{h}_t(y^t, z^t)$. Law of large numbers applies.

- Preferences representable by

$$U(c, h) = \sum_{y^t, z^t} \beta^t \pi(y^t, z^t) \left[\frac{c_t(y^t, z^t)^{1-\gamma} + \psi re_t(y^t, z^t)^{1-\gamma}}{1 - \gamma} \right]$$

- Budget constraint of agent j

$$
\begin{aligned}
& c_t + \rho_t(j) re_t + \sum_{(y',z')} q_t(y',s') a_t(y',s') + \int p_t(i) h_{t+1}(i) di \\
= \; & \eta_t + a_{t-1}(y,z) + \int h_t(i) \left[p_t(i) + \rho_t(i) \right]
\end{aligned}
$$

- Collateral constraint

$$
-a_t(y',z') \leq \int h_{t+1}(i) \left[p_{t+1}(i) + \rho_{t+1}(i) \right]
$$

The Mechanism

- Consumption smoothing across dates/states is achieved via purchase of state-contingent Arrow securities $a_t(y', z')$. Degree of consumption smoothing depends on tightness of constraints. Determined by

$$my_{t+1} = \frac{\int \bar{h}_{t+1}(i) \left[p_{t+1}(i) + \rho_{t+1}(i)\right]}{\eta^a_{t+1}}$$

- If $\psi = 0$, then $\rho \equiv 0$, thus $p \equiv 0$ and the collateral constraints become

$$a_t(y', z') \geq 0$$

Since Arrow securities are in zero net supply and there are no other assets by assumption, $c_t \equiv \eta_t$ (autarky).

- On other extreme, perfect consumption insurance implies

$$c_t^j(y^t, z^t) = \chi^j \eta_t^a$$

- Use budget constraints to back out $\hat{a}_t(y^{t+1}, z^{t+1})$ that support the full-risk sharing allocation. Note: currently low (idiosyncratic) η_t induces $\hat{a}_t < 0$. Higher variance of (the idiosyncratic part of) η_t, requires more negative $\hat{a}_t$ to support perfect consumption insurance.

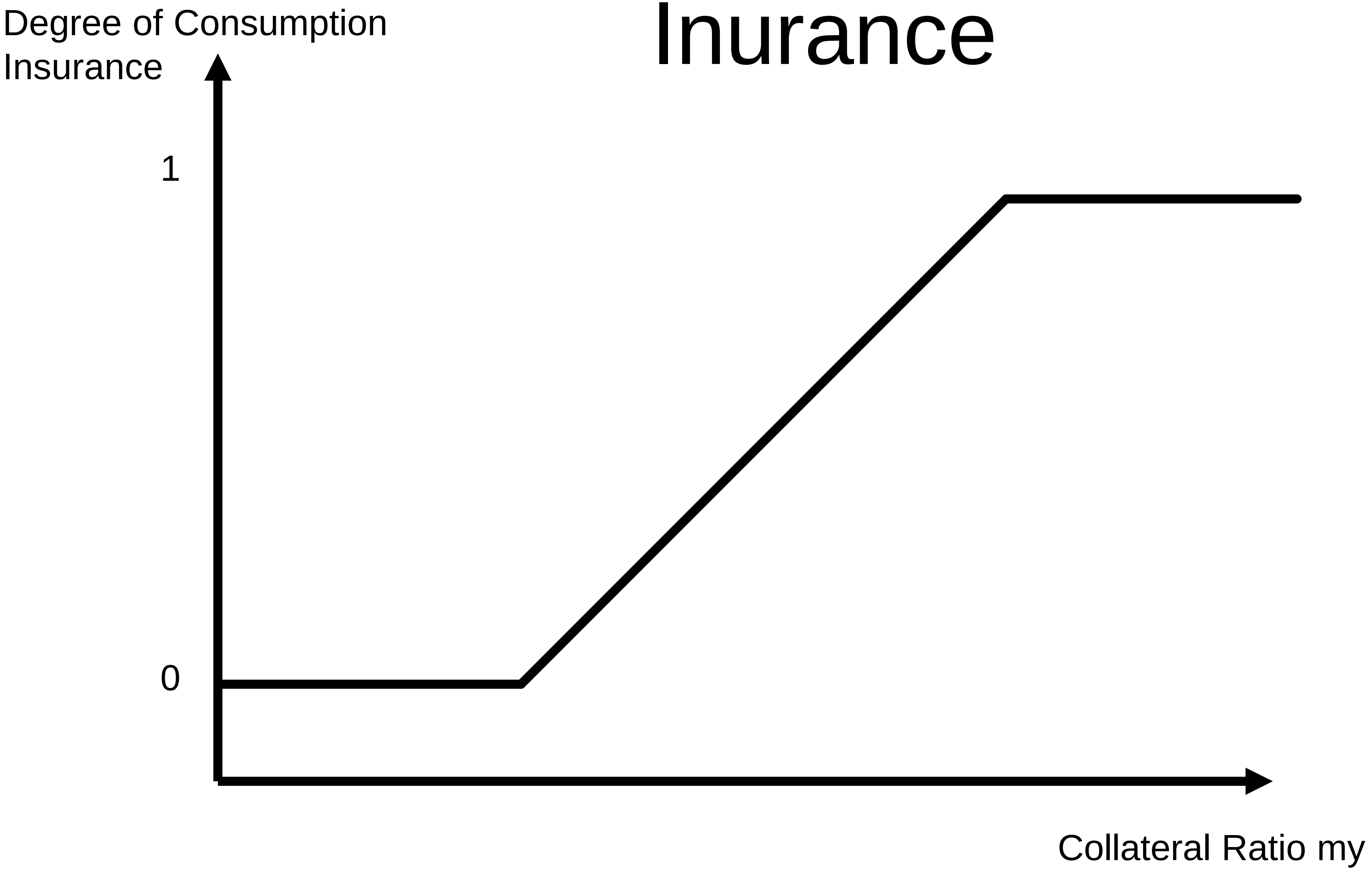
- If

$$-\hat{a}_t(y', z') < \int h_{t+1}(i) \left[p_{t+1}(i) + \rho_{t+1}(i) \right]$$

  for all (y^{t+1}, z^{t+1}), full insurance can be supported as an equilibrium.

- For large enough my this will happen. For intermediate values of my some, but not perfect consumption insurance.

Degree of Consumption Inurance



The Quantitative Results

- Estimate (augmented) consumption insurance equation (e.g. Mace, 1991)

$$\Delta \log(\hat{c}^i_{t+1}) = \beta^i_0 + \beta_1 \Delta \log(\hat{y}^i_{t+1}) + \beta_2 my_{t+1} \Delta \log(\hat{y}^i_{t+1}) + \nu^i_{t+1}$$

Table 1: Estimation Results

Coefficient	OLS (Row 1)	IV (Row 7)
β_1	0.35 (0.03)	0.31 (0.04)
β_2	-0.30 (0.26)	-0.32 (0.38)

- But: how much collateral is there in the U.S.?

How much Collateral is there?

Table 2: Fixed Assets and Consumer Durables, 2002 (Current Cost)

Type of Asset	2002	% of GDP
Equipment and Software	4,350.8	41.5%
Structures	7,035.1	67.1%
Total Private Nonresidential Fixed Assets	11,386.0	108.6%
Residential Fixed Assets	12,195.9	116.4%
Consumer Durable Goods	3,268.5	31.2%
Total Private Fixed Assets and Durable Goods	26,850.4	256.2%
Government Fixed Assets	6,247.9	59.6%
Total Fixed Assets and Durable Goods	33,098.4	315.8%

So what?

- Model misses some collateral. What if added (or alternatively, if assets besides housing are not in zero net supply)? Do we obtain perfect consumption insurance (see Cordoba, 2004)?

- If so, what can be done?

  - Change punishment from default? Already seems as weak as can be. More severe punishments lead to *more* consumption insurance.

  - Add truly idiosyncratic income shocks. This increases variance of income shocks, makes required $\hat{a}_t$ more negative in certain states. Thus perfect consumption insurance less likely to occur.

Conclusion

- Paper makes a theoretical contribution: it endogenizes borrowing constraints.

- Paper makes an empirical contribution: shows that it can, at least in principle, explain the deviation from perfect consumption risk sharing in regional data.

- Big question: is the theory quantitatively successful? Conjecture: it implies too much (perfect?) consumption smoothing once all collateral in the economy is taken into account.