"The Missing Internal Devaluation: Nominal and Real Adjustment to the Great Recession within the US"

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This Paper

- What was the relative price adjustments in the U.S. during the Great Recession?
- Evidence from a panel of MSAs
- Data on sectoral prices from the Regional Price Parity dataset of BEA
- Results suggest a lack of relative aggregate price adjustments
- Yet, service prices do react: house price drop raises service prices
  - Response of service prices could be rationalized by an increase in mark-ups
  - Number of service firms shrinks, but labor share does not

Empirical Setup

$$y_{l,t} = \alpha_l + \gamma_t + \beta hp_{l,t} + \theta X_{l,t} + \epsilon_{l,t}$$

- panel of MSA log-level variables from 2008 up to 2011
- time fixed effects capture aggregate conditions
- Identification comes from the cross-sectional variation in house prices
- Instrument house prices with interaction of housing supply elasticity & 10y TBill rate

Caveats on the Empirical Setup

- Time fixed effects control for MSAs' **common response** to aggregate conditions
- Yet, time fixed effects do not wash out different MSA-specific responses
  - MSA specific exposure to the financial crisis goes beyond housing mkt & demographic conditions

Caveats on the Empirical Setup

- Time fixed effects control for MSAs' **common response** to aggregate conditions
- Yet, time fixed effects do not wash out different MSA-specific responses
  - MSA specific exposure to the financial crisis goes beyond housing mkt & demographic conditions
- IV strategy does not identify the causal effect of house prices on consumer prices
  - Housing supply elasticity exclude industry-specific supply-side shocks (e.g., construction)
- Results should be consistent to the price response to "other" demand shocks:
  - Government spending shocks (Nakamura and Steinsson, 2014)
  - Variation in industry imports from China (Autor, Dorn and Hanson, 2013)

House Price Changes and CPI Changes

- The panel considers log-level variables at the annual frequency
- The literature considers the changes throughout a period of time (e.g., the bust) Mian, Rao, and Sufi (2013), Mian and Sufi (2014), Stroebl and Vavra (2014)
- This approach is less contaminated by short-run dynamics
- I have estimated the following OLS regressions

$$\Delta Y_{l,2011-2008} = \alpha + \beta \Delta hp_{l,2011-2008} + \epsilon_{l,2011-2008}$$

$$\Delta Y_{l,2006-2002} = \alpha + \beta \Delta hp_{l,2006-2002} + \epsilon_{l,2006-2002}$$

- Data on 27 MSAs, which account for 40% of U.S. population
- No demographic controls

House Price and CPI: 2008 - 2011

	(1)	(2)	(3)	(4)
	All Items Prices	Service (excl. Rents) Prices	Durable Prices	Non Durable Prices
		Panel A: OLS Regressions		
Δhp_l	0.0873^{***}	-0.0485	-0.0281	0.0660
	(0.0229)	(0.0449)	(0.0513)	(0.0373)
N. Obs.	27	27	27	27
		Panel B: IV Regressions		
Δhp_l	0.1837^{*}	0.2036	-0.1411	0.0470
	(0.0952)	(0.2145)	(0.1780)	(0.1191)
N. Obs.	27	27	27	27

House Price and CPI: 2002 - 2006

	(1) All Items Prices	(2) Service (excl. Rents) Prices	(3) Durable Prices	(4) Non Durable Prices
	Panel A: OLS Regressions			
Δhp_l	0.0564^{***}	-0.0162	-0.0130	0.0136
	(0.0129)	(0.0150)	(0.0158)	(0.0098)
N. Obs.	27	27	27	27
	Panel B: IV Regressions			
Δhp_l	0.1184	-0.0384	0.1337	-0.0102
	(0.0922)	(0.0804)	(0.1715)	(0.0562)
N. Obs.	27	27	27	27

House Price Changes and CPI Changes

- When prices changes are computed through either the boom or the bust
  $\rightarrow$ weak relationship between house price & service price

- Stroebel and Vavra (2014): an increase in house price raises local retail prices
  - This link is strong in "homeowners" zip codes, and non-existent in "renters" zip codes

- Is the MSA level too wide to identify the effect of house prices on the price level?

Understanding the Rise of Service Prices

- Housing price drop is associated to rising services prices
  - Yet service wages do not change
  - Response of service prices could be rationalized by an increase in mark-ups
  - Number of service firms shrinks, but labor share does not
- Cross sectional behavior is consistent with aggregate patterns
- From 2007Q4 to 2009Q2:
  - Durable CPI & real PCE dropped by 2.01% & 13.23%
  - Non-Durable CPI & real PCE dropped by 0.41% & 3.31%
  - Services CPI rose by 3.25% & real PCE dropped by 0.66%
- Is there a link between missing disinflation & missing devaluation?

Concluding Remarks

- Very interesting paper on the relative price adjustments in a monetary union
- Cross-sectional variations across U.S. geographical areas could shed light on sources of lack of internal devaluation
- The level of the empirical analysis could be still too wide to identify the link between house price changes and CPI changes