

# Discussion of “Demystifying the Chinese Housing Boom” by Hanming Fang, Quanlin Gu, Wei Xiong, and Li-An Zhou

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The views expressed herein are those of the discussant and do not necessarily reflect the views of the Federal Reserve System.

# Summary

- ▶ Construction of Chinese housing price indices (120 cities, 2003-2013) based on sequential sales of *new* homes within the same housing developments.
- ▶ Finding I: **Is there a housing boom in China?** *Yes*
  - ▶ enormous price appreciation (13.1/10.5/7.9% in tier-1/2/3)
- ▶ Finding II: **Would a potential housing market meltdown trigger an imminent financial crisis in China?** *Unlikely*
  - ▶ large downpayment (>30%) vs. 0-20% in US
  - ▶ not unaffordable (income grows 6.6/9.0/8.9% in tier-1/2/3)
- ▶ Finding III: **Were low-income households able to buy houses?** *Yes*
  - ▶ stable participation in the housing market
  - ▶ large financial burdens with price-to-income ratios of 8 ~ 10

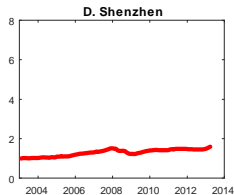
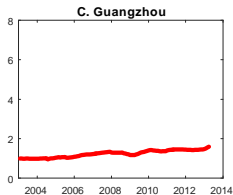
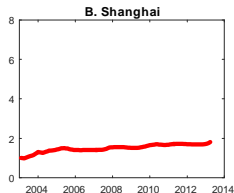
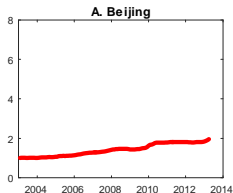
# The Chinese Housing Boom

- ▶ China's investment in residential real estate
  - ▶ grows at **25.5%** during 1998–2014
  - ▶ more than 10% as a share of GDP in 2014



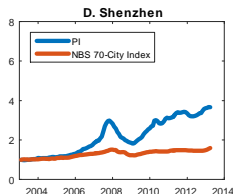
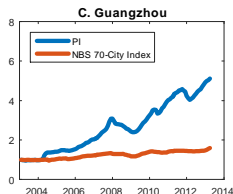
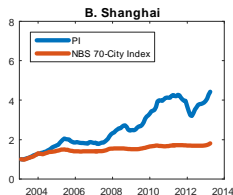
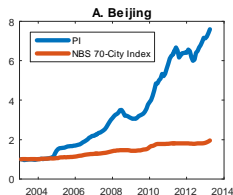
# Official Housing Price Indices

- ▶ The official housing market index is published by National Bureau of Statistics (NBS) of China
  - ▶ housing price growth: too smooth and too low (4.7-6.7%, tier-1, 2003–2013)



# Housing Price Indices in This Paper

- ▶ This paper's housing price indices seem to be more realistic:
  - ▶ rich dynamics and reasonable housing price appreciations (13-21%, tier-1, 2003–2013)



# Nascent Chinese Housing Market

- ▶ The Chinese housing market is nascent in nature
  - ▶ before 1978 when first economic reforms began, all land and homes were publicly owned
  - ▶ In 1988, land transactions were allowed
    - ▶ the beginning of commercialization of housing in China
  - ▶ In 1994, “A Decision From the State Council on Deepening the Urban Housing Reform”
  - ▶ **In 1998, “Circular of the State Council on Further Deepening the Urban Housing System Reform and Accelerating Housing Construction”**
    - ▶ the housing market started to take off
  
- ▶ The short history of the housing market (and the data) poses a major challenge to housing price index construction.

# Construction of the Chinese Housing Price Indices

- ▶ To control for quality change, two popular approaches of housing price index construction
  - ▶ “hedonic price regressions” (Kain and Quigley (1970))
    - ▶ used in Wu-Deng-Liu (2012) to construct Chinese HPI
  - ▶ “repeated sales method” (Case and Shiller (1987))
- ▶ Due to nascent nature of Chinese housing market, the authors propose a hybrid approach using a comprehensive mortgage loan dataset
  - ▶ For city  $c$ , month  $t$ , *new* home  $i$  in development project  $j$ ,

$$\ln P_{i,j,c,t} = \beta_{c,0} + \sum_{s=1}^T \beta_{c,s} \cdot \mathbf{1}\{s = t\} + \theta_c X_i + DP_j + \epsilon_{it}$$

- ▶ Housing price index  $PI_{c,t}$  with  $PI_{c,0} = 1$  and for  $t \geq 1$

$$PI_{c,t} = \exp\left(\beta_{c,t}\right)$$

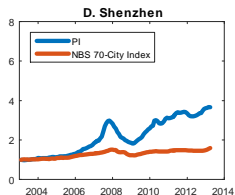
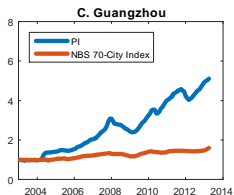
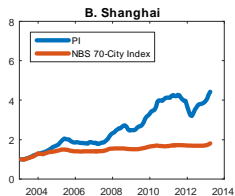
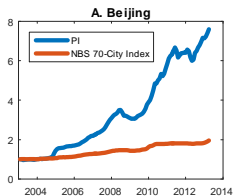
## Some Quibbles

- ▶ The indices are constructed based on purchases of *mortgage* borrowers (18% of Chinese households). How different would the housing price indices be if all households were included in the sample?
  
- ▶ Changing demand for certain characteristics over time (e.g., square footage or location) may bias the estimation.



# Comments: Comparison of Housing Market Indices

- ▶ Why are the new indices so different from the official NBS indices?
- ▶ For example, both indices seem to be close during 2003-2005, but diverge afterwards. Why?



## Comments: Comparison of Housing Market Indices

- ▶ The NBS index construction method is conceptually similar to this paper

1. for each sampled housing complex  $j$  in city  $c$ , calculate average transaction price  $P_{j,c,t}$

$$P_{j,c,t} = \frac{\text{Total Sales Revenue in Complex } j \text{ in } t}{\text{Total Area Sold in Complex } j \text{ in } t}$$

2. for each city  $c$ , compute volume-weighted average of price changes

$$\frac{PI_{c,t}^{NBS}}{PI_{c,t-1}^{NBS}} = \sum_{j \text{ sampled}} w_{j,c,t} \frac{P_{j,c,t}}{P_{j,c,t-1}}$$

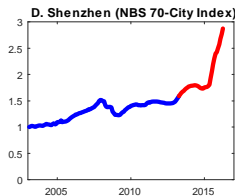
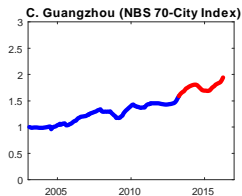
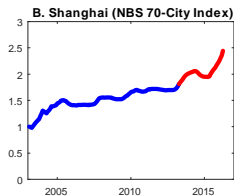
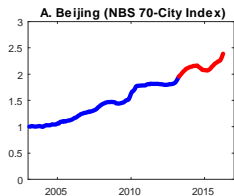
- ▶ Despite some differences, can the authors apply the NBS method to construct alternative NBS indices?

$$\ln P_{j,c,t} = \beta_{c,0} + \sum_{s=1}^T \beta_{c,s} \cdot 1\{s = t\} + \epsilon_{it}$$

- ▶ By comparison, alternative NBS indices may shed light on why official NBS indices are too smooth (e.g., suburbanization).

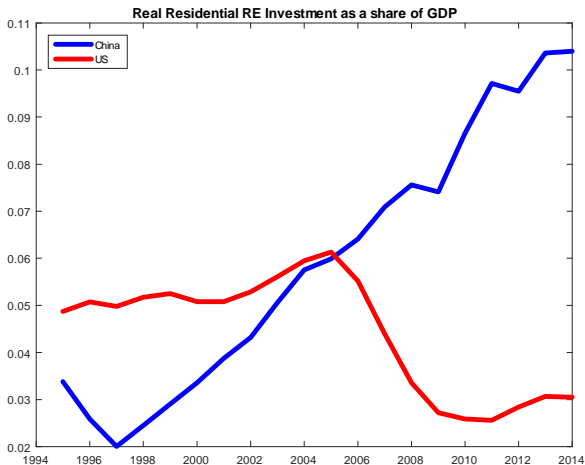
# Comments: Investment or Speculation?

- ▶ Housing in China is also considered as “alternative investment”, but has it become a tool for speculation lately?
  - ▶ As shown by recent NBS indices, Shenzhen housing price level increased by 40% per annum between Jan 2015 and Mar 2016
  - ▶ Alarmingly, “zero down payment”, “P2P down payment loans”



## Comment: Boom or Bubble?

- ▶ Can this paper shed light on the debate whether the Chinese housing market has a bubble? (Chen-Wen 2014)
  - ▶ Compared to the US, residential RE investment as a share of GDP in China seems to be very high.



# Conclusion

- ▶ Very interesting paper and important questions.
- ▶ Based on a new methodology and a comprehensive dataset, the authors build a 120-city housing price indices in China between 2003 and 2013.
  - ▶ Significant improvement upon the official indices.
  - ▶ Discussion about the differences would be very helpful.
- ▶ The authors document the Chinese housing boom and consider risks in the housing market as moderate
  - ▶ has the housing market become riskier, speculation-driven, bubbly?
  - ▶ "too important to fail"?