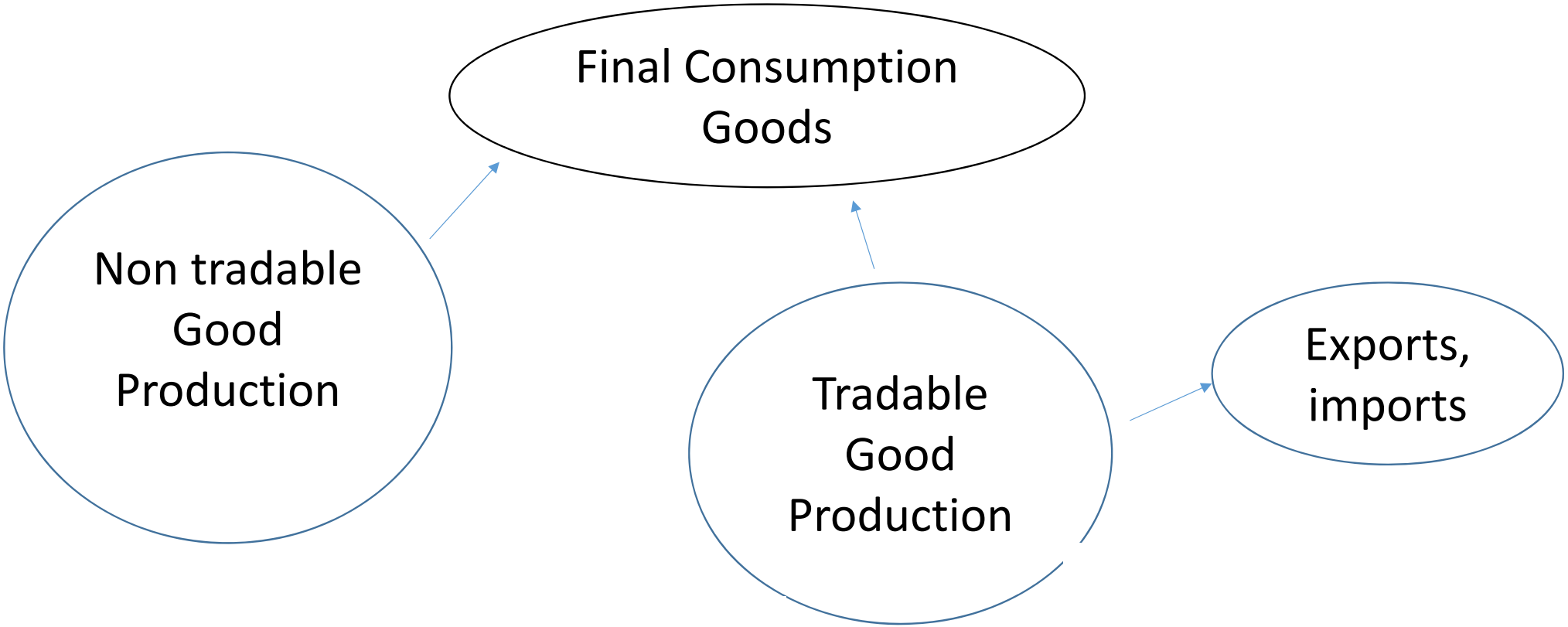
Discussion of
Castillo, Carrera, Ortiz, Vega

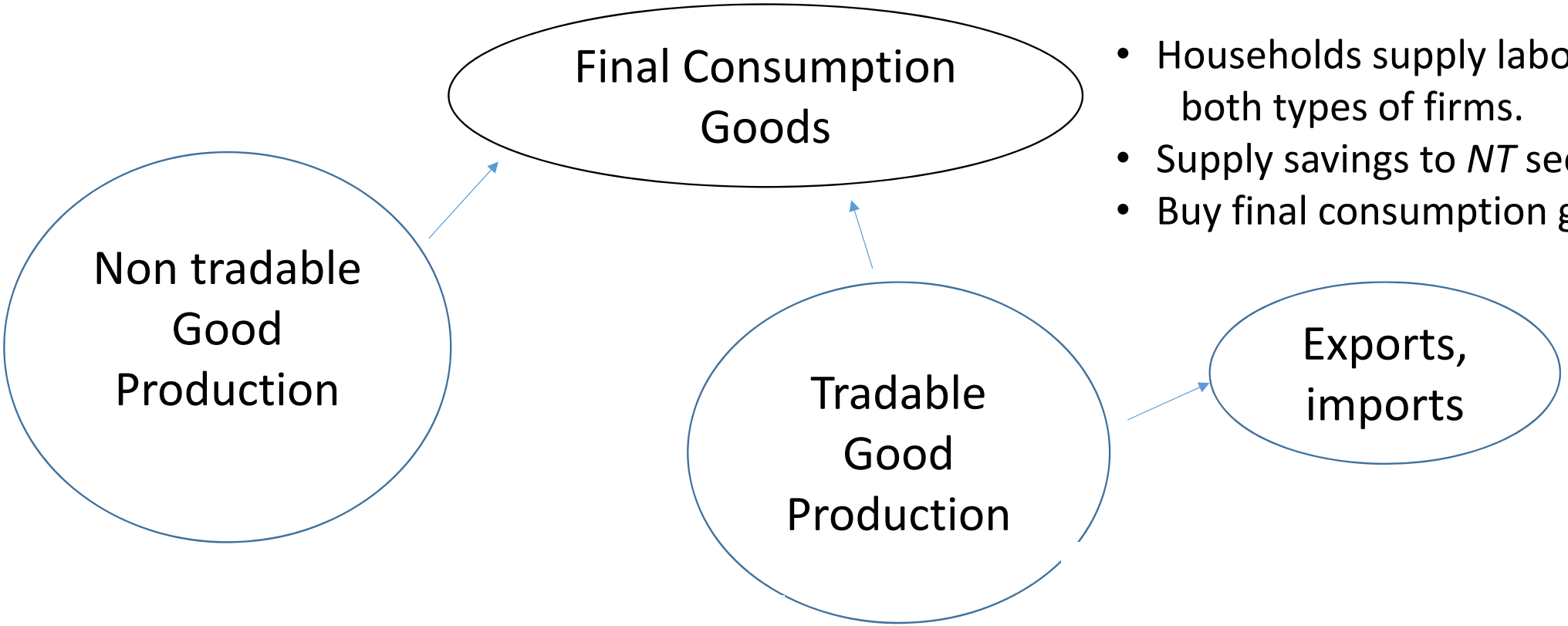
Spillovers: the role of prudential regulation and monetary policy in small open economies

By

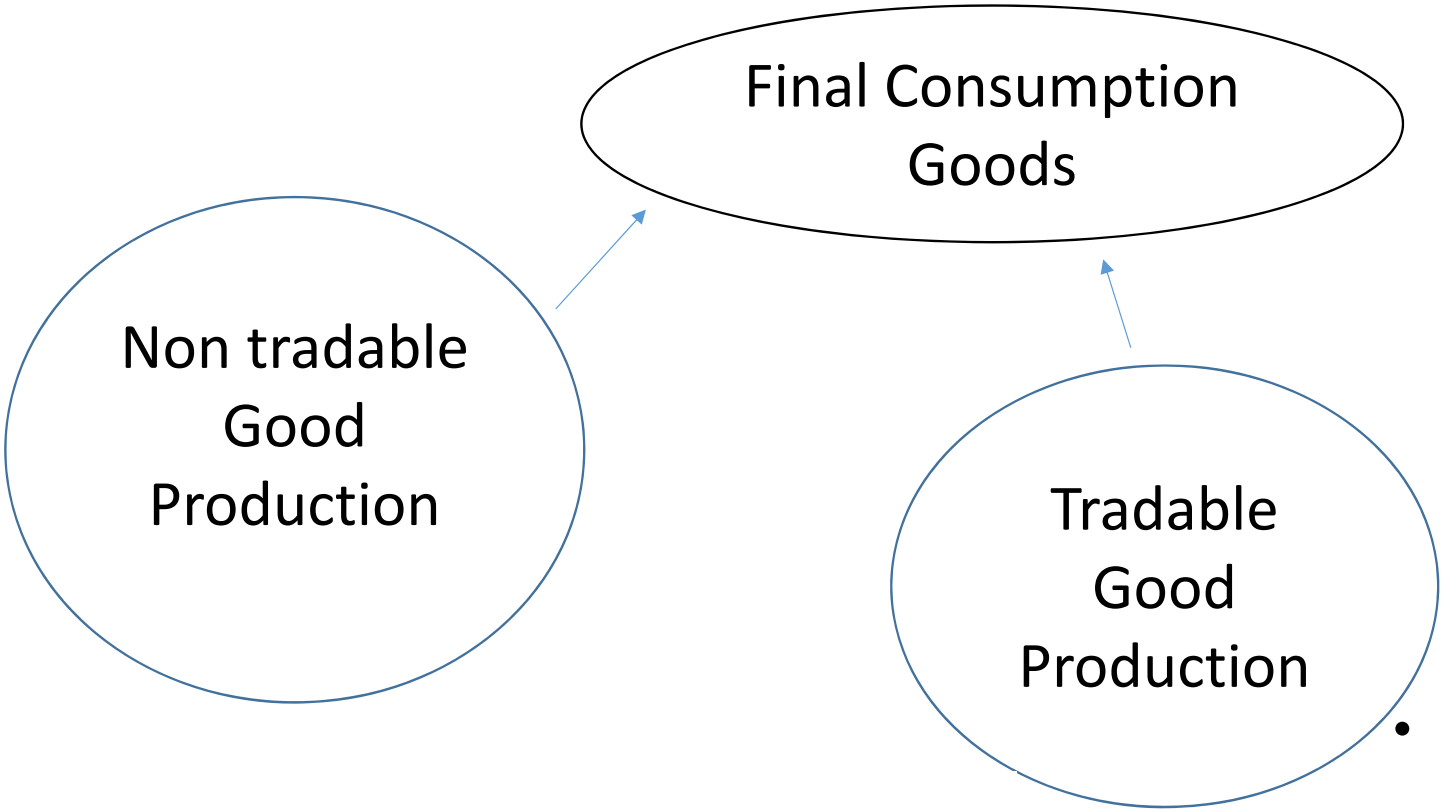
Lawrence J. Christiano

Conference of the BIS CCA Research Network on "Incorporating financial stability considerations into central bank policy models", 1/29-1/30/15


Final Consumption Goods
Non tradable Good Production
Tradable Good Production
Exports, imports



- Households supply labor to both types of firms.
- Supply savings to *NT* sector.
- Buy final consumption goods.



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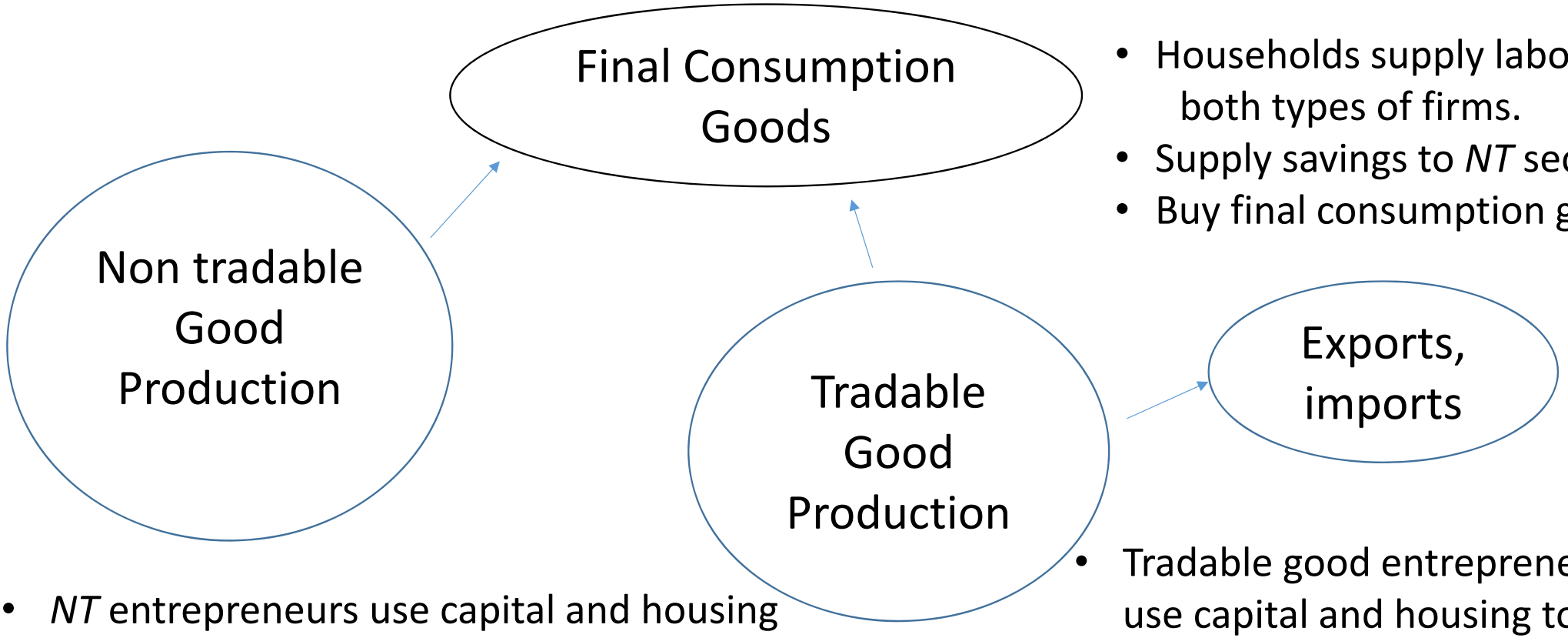
- Tradable good entrepreneurs use capital and housing to produce *T* good.
- Borrow from foreigners subject to collateral constraint in terms of capital.
- Buy final consumption goods.



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What the Paper Does

- Most of the paper explores real version of the model.
  - Nominal features introduced at the end.

- Explore
  - Dynamic effects of various shocks:
    - tradable and non-tradable technology shocks.
    - Foreign interest rate shock.
    - Effects of LTV ratios.

  - Effects on welfare and allocations of:
    - Restrictions on LTV ratios.
    - Tax on consumption of non tradable goods.

- Style of the paper is very appealing.
  - Intuition for all results carefully discussed.

Paper Still a Work in Progress

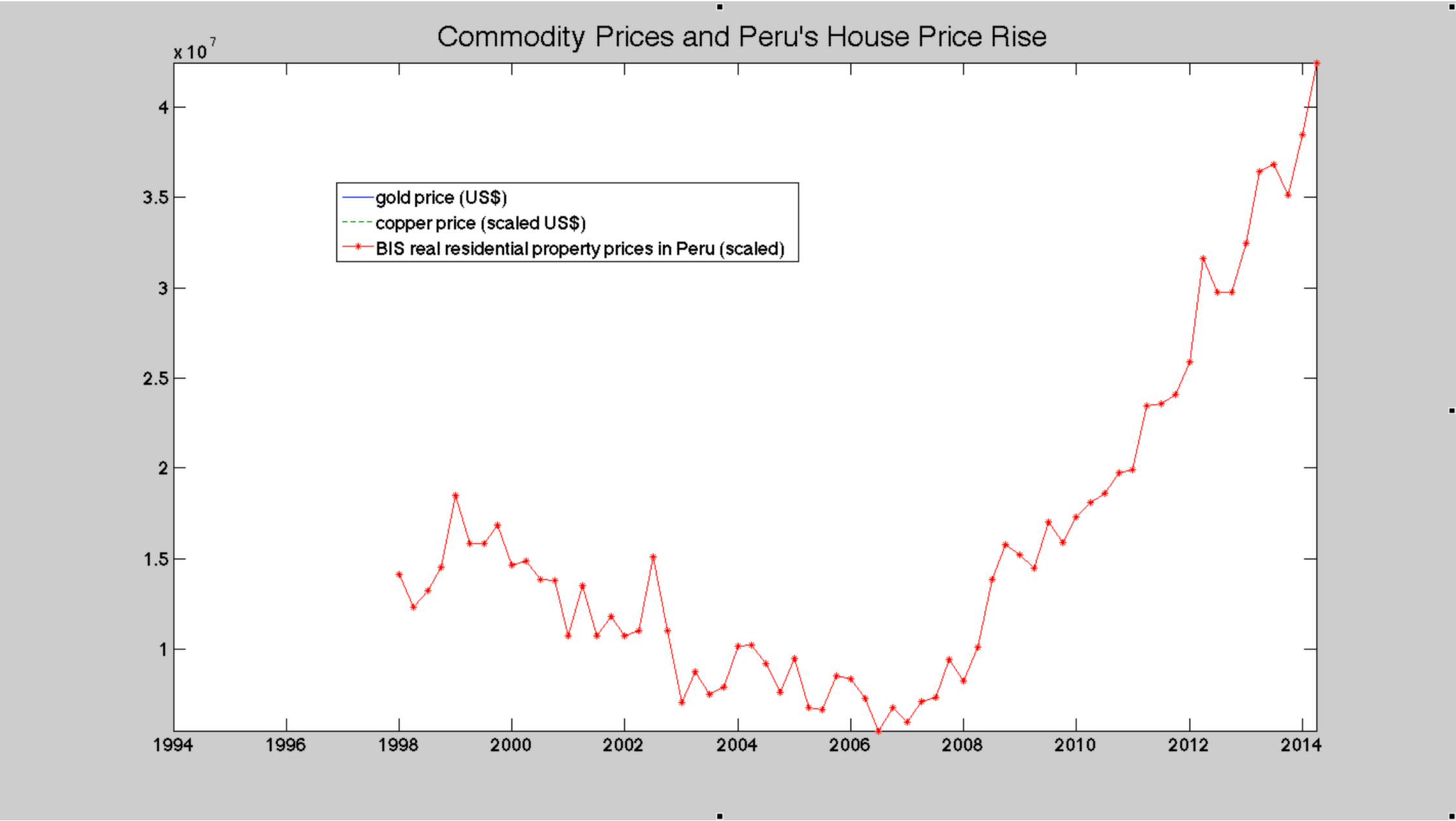
- Authors are working towards a laboratory for asking interesting policy and other questions.
- Basic finding of real analysis:
  - Positive technology shock in tradable sector.
    - Increases asset prices (especially housing prices).
    - Real exchange rate appreciates.
    - Credit to non tradable sector increases.
- When money is added to the system
  - Positive technology shock in tradable sector.
    - Virtually no impact on housing prices, capital price falls.
    - Real exchange rate appreciates by very little.
    - Credit to non tradable sector decreases.
- Would have liked to have seen more intuition about effects variation in LTV ratios
  - Why do they promote welfare when they do so?
  - Is it an inefficient crash at the end of a boom-bust cycle?

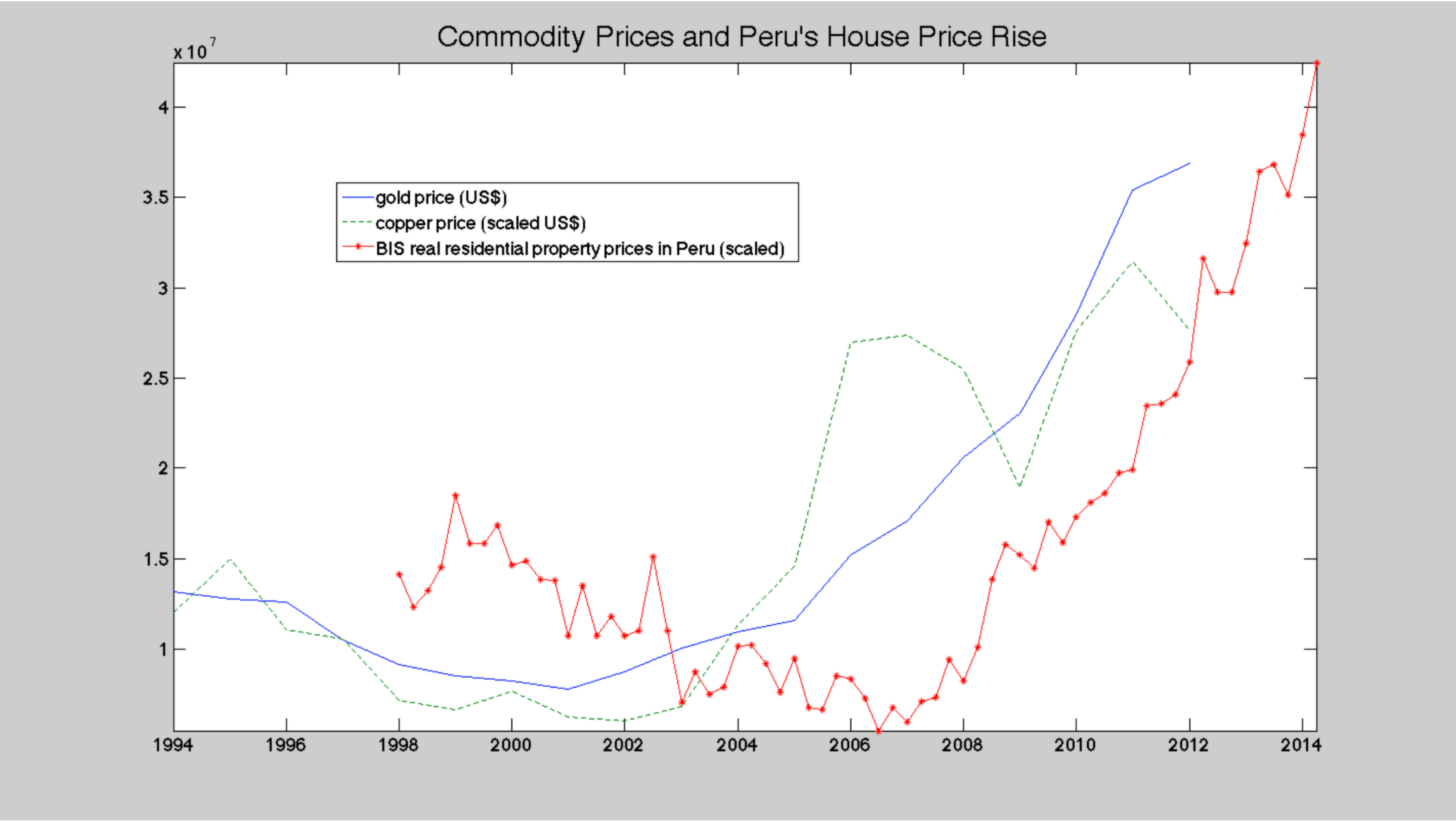
Some Observations on the Model

- Little motivation is provided in the paper for the focus on technology shocks.
  - The conclusion suggests that the authors would like to think of the technology shock in the tradable sector as a commodity price shock.
  - We could, for example, think of the recent commodity price boom as the force behind the real estate boom in (for example) Peru.

- Commodity prices important shock for many countries.
  - But, probably not best captured by a technology shock in tradable sector.
  - Could be a foreign demand shock for a tradable good which gives rise to terms of trade effects.
    - This might work for shorter-run analysis, but in longer run non-renewable aspect of many commodities (gold, copper, oil) would need to be taken into account.

- But, commodity price shocks don’t seem to be the key behind recent real estate boom in Peru.


Commodity Prices and Peru's House Price Rise
x 10^7
4
3.5
3
2.5
2
1.5
1
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
gold price (US$)
copper price (scaled US$)
BIS real residential property prices in Peru (scaled)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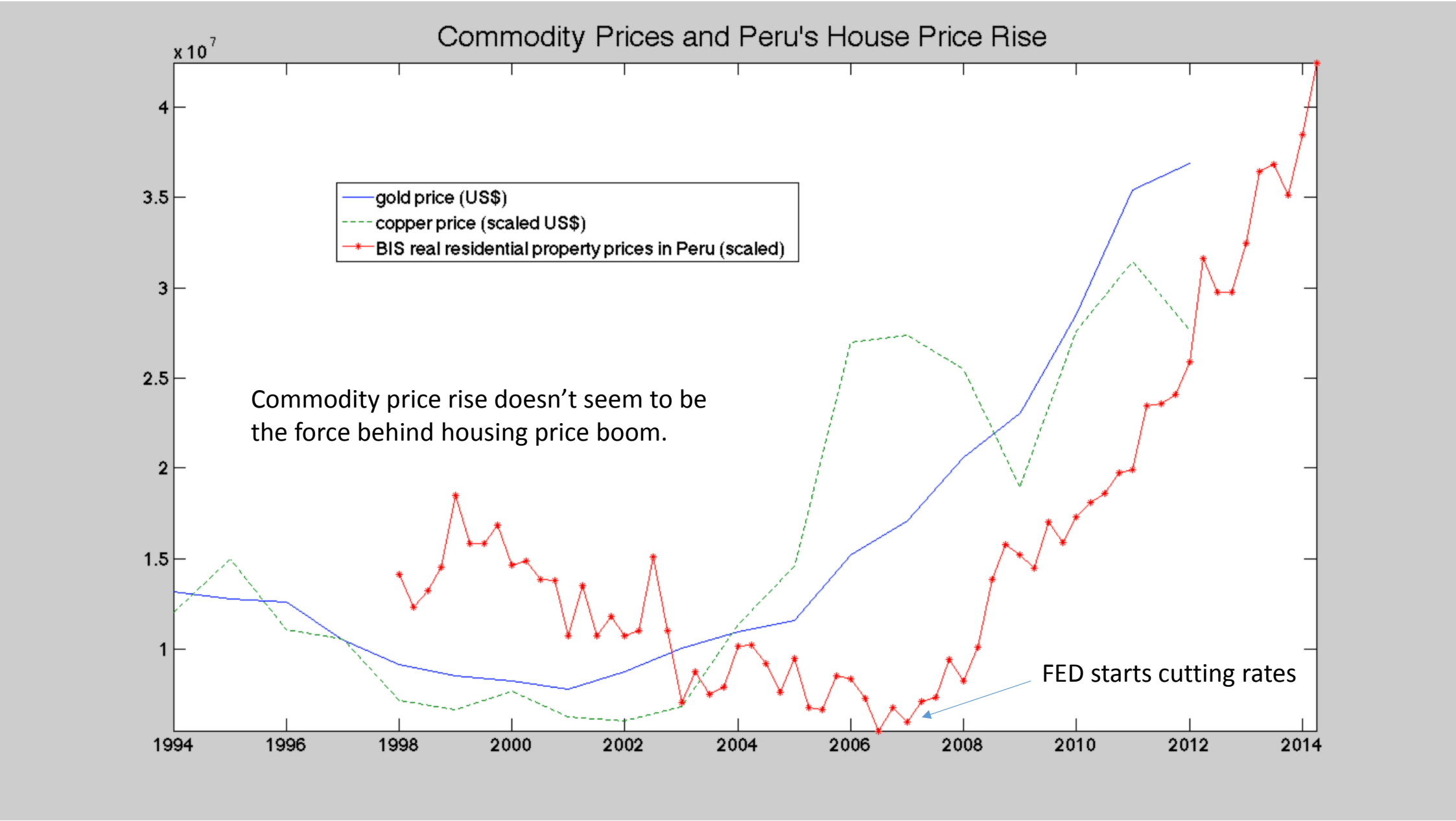
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BIS real residential property prices in Peru (scaled)
Commodity price rise doesn't seem to be the force behind housing price boom.
FED starts cutting rates

Foreign Interest Rates and US 'Lift Off'

- What will happen to emerging market economies when US (hopefully!) experiences lift off?
  - Would be an interesting policy question for the model to address.

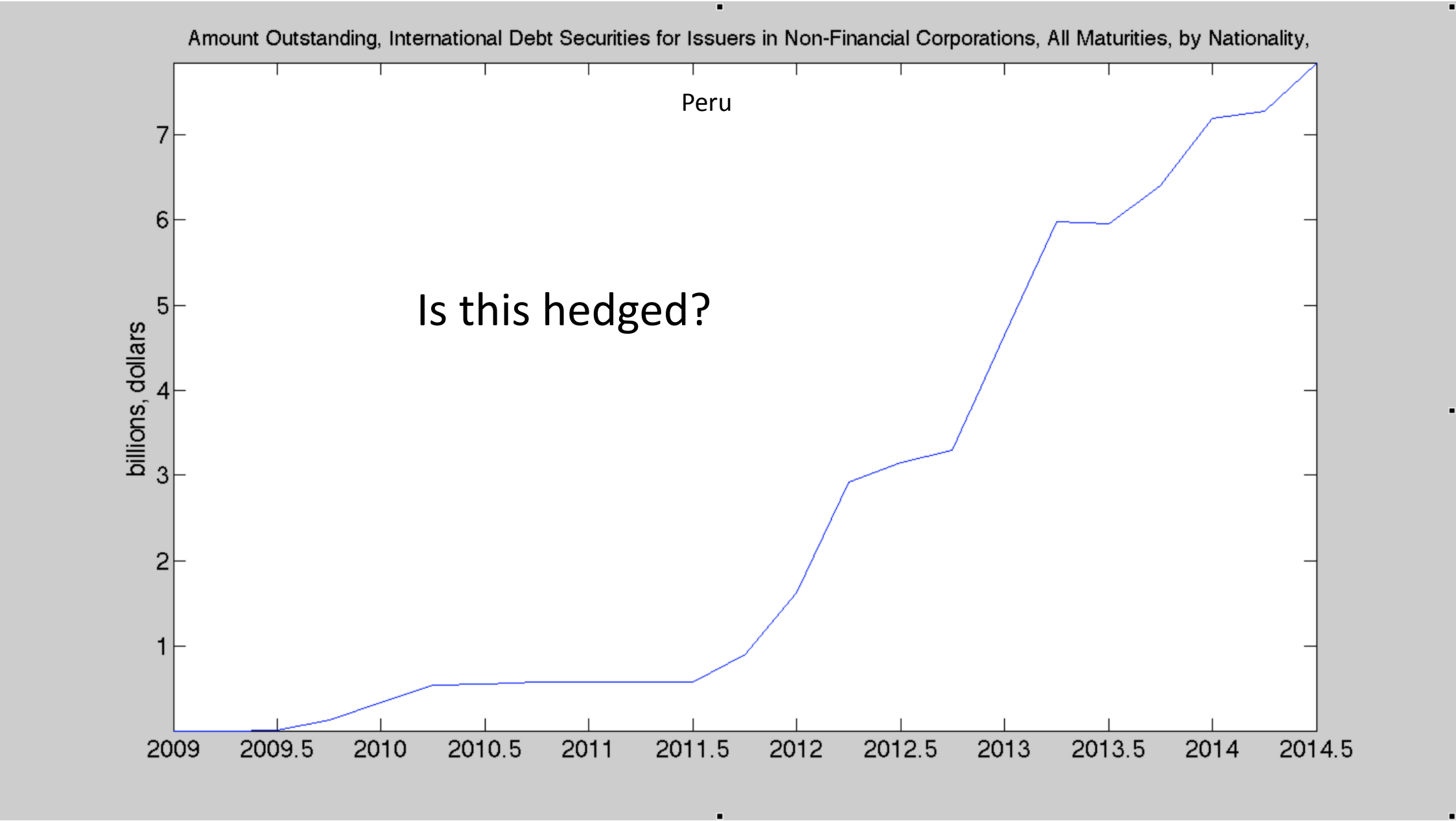
- But, I wonder whether foreign interest rates are captured in the best way in CCOV model.
  - In the model, no one is simultaneously in both the domestic and foreign currency markets, so the usual uncovered parity (UIP) relation does not hold.
  - Authors separate financial markets to promote comovement, but lower elasticity of substitution between *T* and *NT* might accomplish the same.

- More familiar transmission involves UIP
  - With UIP 'standard' story might expect rise in foreign interest rate to depreciate exchange rate and expand output via rise in net exports.
  - Mundell-Fleming model (incorporated into NK open economy models).

Foreign Interest Rates and US 'Lift Off'

- Rise in foreign interest rate *could* collapse economy.
  - If domestic residents had a lot of unhedged foreign currency debt, depreciation on occasion of rise in foreign interest rates could trigger currency mismatch problem.
  - But, agents in CCOV model are fully hedged, so this kind of mechanism is ruled out.

- Could adapt a New Keynesian small open economy model so that there *is* unhedged foreign borrowing (Mihai Copaciu, Romanian central bank).
  - In that model, foreign interest rate rise can have serious negative effects on a small open economy.
  - Depends on extent of currency mismatch (this seems to be important in several eastern European economies).


Amount Outstanding, International Debt Securities for Issuers in Non-Financial Corporations, All Maturities, by Nationality,
Peru
billions, dollars
1
2
3
4
5
6
7
2009
2009.5
2010
2010.5
2011
2011.5
2012
2012.5
2013
2013.5
2014
2014.5
Is this hedged?

International Debt in Brazil

- Brazil international debt is up to 8 percent of GDP
- Is it hedged?

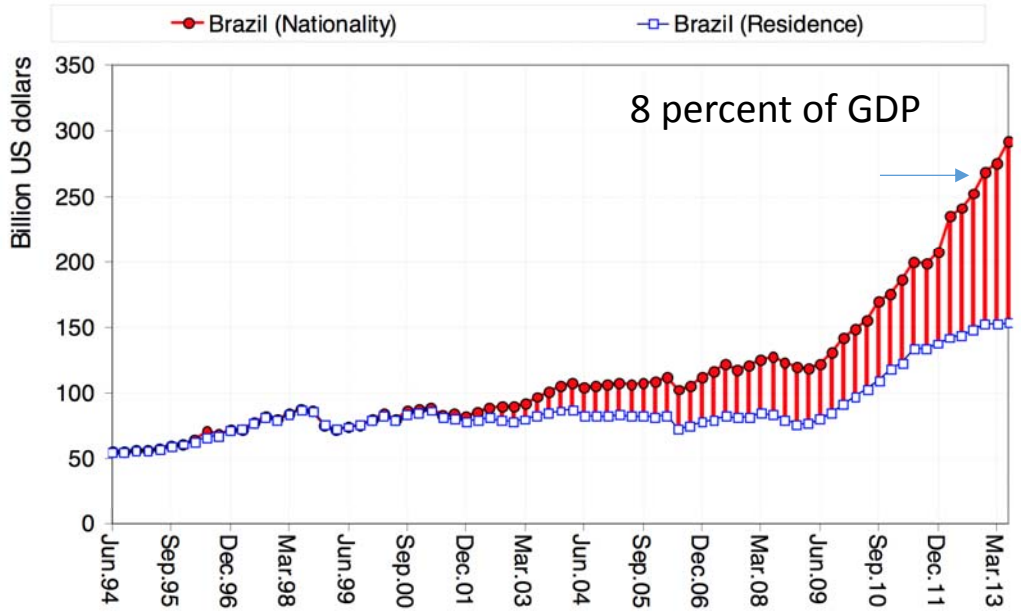
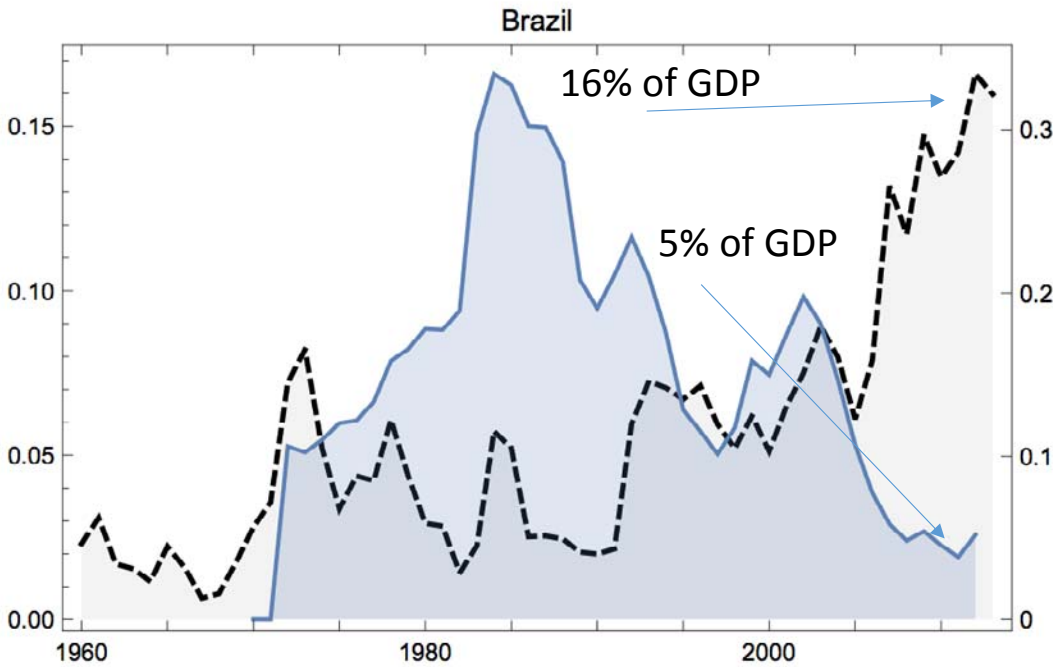


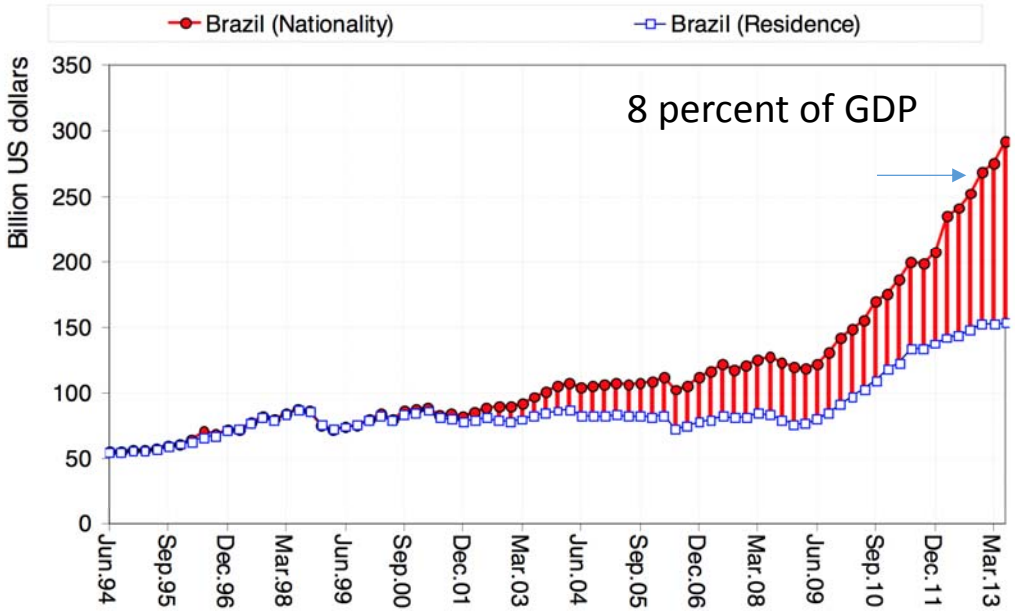
Figure 5. International debt securities outstanding (all borrowers) from Brazil by nationality and by residence (Source: BIS Debt Securities Statistics, Table 11A and 12A)

International Debt in Brazil

- Brazil international debt is up to 8 percent of GDP
- Is it hedged?
- Maybe not, on expectation of bailout.



Dashed black line: central bank foreign reserves/GDP
Solid line: external government debt/GDP



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Quantitative Modeling Especially Useful When Weighing Importance of Contradictory Forces

- ‘Lift off’ is an example.
- Mundell-Fleming Effect: lift-off will pull economies up.
- Currency mismatch: lift-off may drag economies down.
- Which forces are stronger?

Conclusion

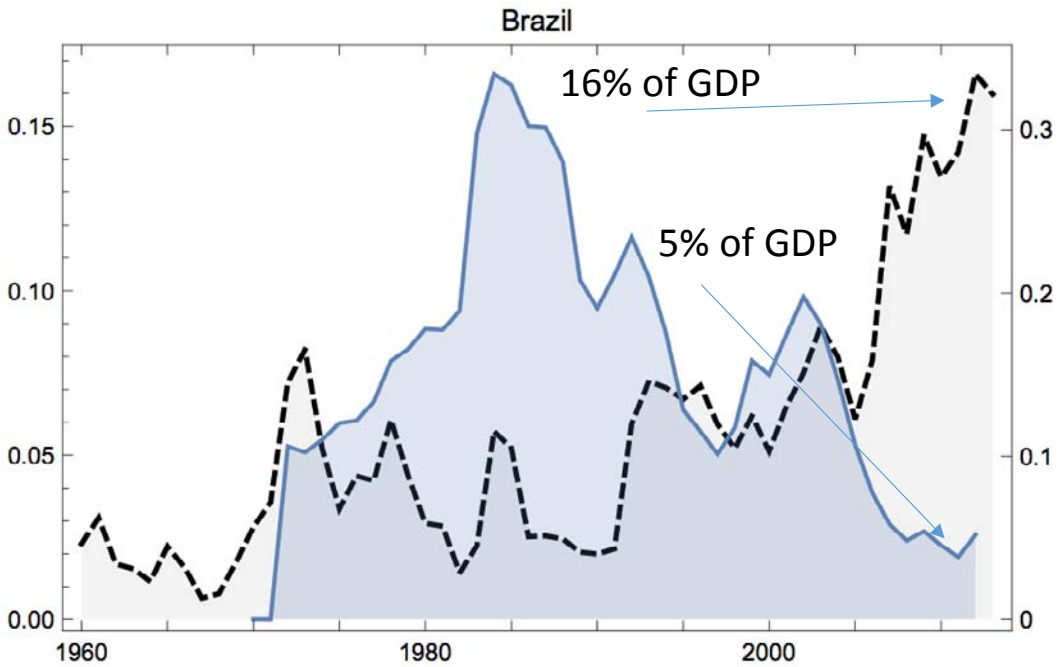
- I learned a lot reading this paper.

- The authors are right to stress intuition at every turn.

- The paper is part of a larger project.
  - There are important questions to be addressed
  - I look forward to hearing the authors' answers!

Bailout Scenario

- Brazil international debt is up to 8 percent of GDP, while government debt is down.Ex ante, buyers and sellers of EME bonds may reason as follows: "…the government will be forced to bail us out if there is a substantial depreciation, so we can apply (perhaps a small) discount to that state of affairs."



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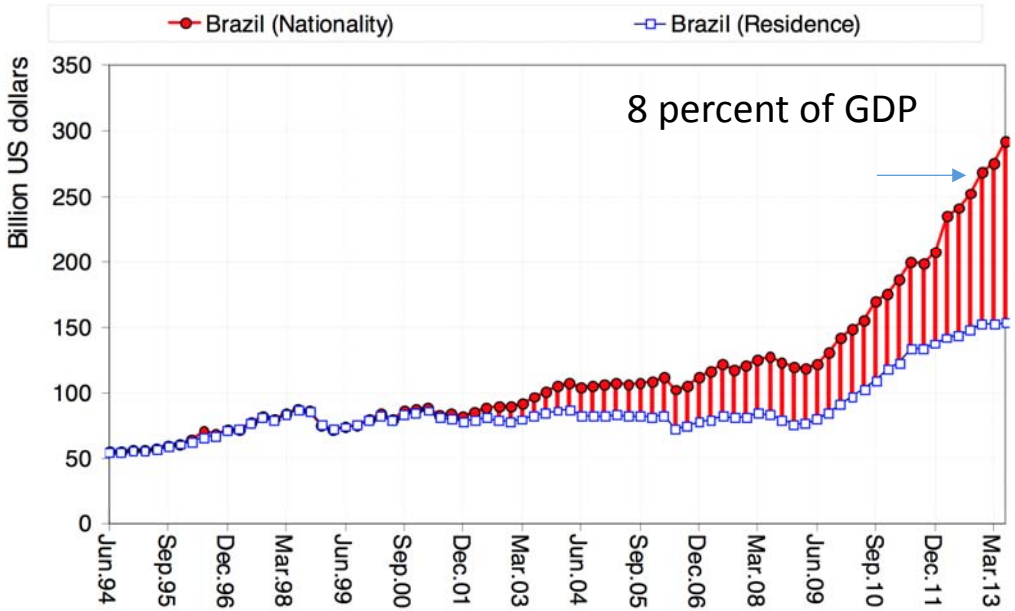

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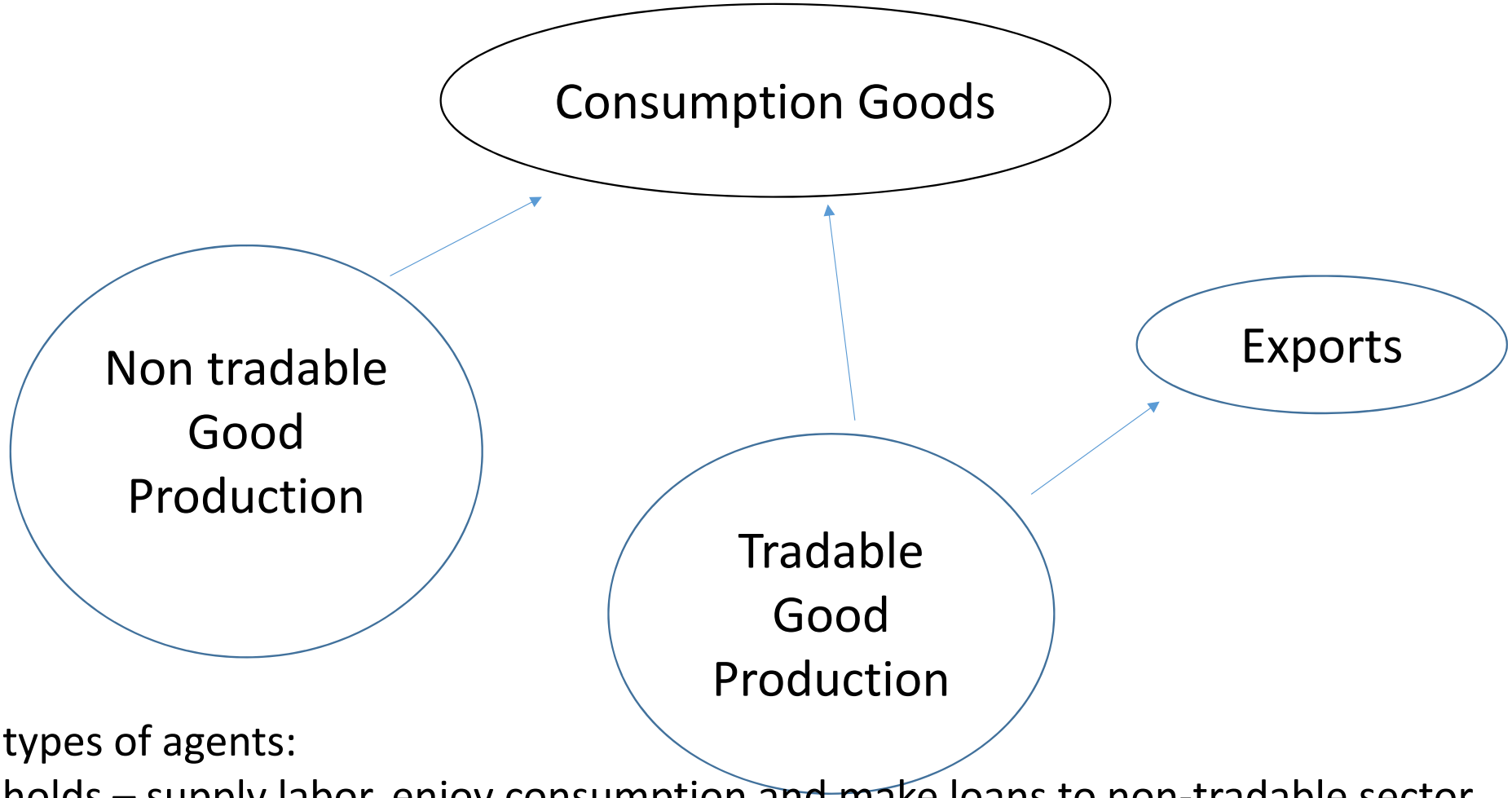

Three types of agents:
Households – supply labor, enjoy consumption and make loans to non-tradable sector.
Non-tradable entrepreneurs – produce NT good, enjoy consumption, borrow from households.
Tradable entrepreneurs – produce T good, enjoy consumption, borrow from foreigners.

Overview

- Small open economy model with traded good and non-traded good sector.
  - Both sectors use production functions using ‘capital’, ‘housing’ and labor.
  - Domestic consumption uses CES function of traded and non-traded goods.
  - Tradable good same as imported good.
  - Capital and housing fixed.

- Three agents:
  - Tradable sector entrepreneurs borrow in international markets, subject to collateral constraint on capital.
  - Non-tradable sector entrepreneurs borrow in domestic markets, subject to collateral constraint in housing.
  - Households work and save into domestic financial market.