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Indebtedness of governments, firms & households: Comment

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Overview

- Two very nice papers on the history of debt
- Distinct, but complementary approaches
 - ▶ Ken: long time series of aggregate data on booms & crises
→ comovement in aggregate time series
 - ▶ Atif: disaggregated regional data on a boom bust episode
→ comovement in cross section of regions
- Common themes
 - ▶ bad shocks hit borrowers harder if lots of debt
 - ▶ persistent effects of debt overhang, default
- Discussion
 - ▶ debt = claim denominated in a risky unit of account
 - ▶ how does the unit of account matter & how is it chosen?

Debt denominated in a risky unit of account

- Debt as a safe asset
 - ▶ literature on debt as an optimal contract
 - ★ identifies ex ante benefits from claims with no/few/costly contingencies
 - ▶ macroeconomic applications
 - ★ leverage amplifies shocks since debt offers no/few/costly contingencies
 - ▶ models of economies with one good
- With many goods, what is debt?
 - ▶ still a *promise* with few/costly contingencies
 - ▶ but promise denominated in *unit of account* (e.g. dollar)
 - ▶ *debt revaluation* if relative price of unit of account changes
 - *redistribution* between borrowers & lenders
- Questions
 - ▶ role of revaluation & redistribution for given unit of account?
 - ▶ how is the unit of account chosen?

Nominal debt

- Modern economies: government debt = dominant unit of account
 - ▶ inflation changes real value of nominal debt
 - ▶ wealth effects: good for borrowers, bad for lenders
- Revaluation shocks
 - ▶ unanticipated increase in nominal price level (Fisher)
 - ★ same % drop in real value for all positions
 - ▶ unanticipated news about future price level increase
 - ★ nominal yield curve shifts up; bond prices, value of future promises fall
 - ★ long term fixed rate positions devalued more in % terms
- With government debt as dominant unit of account
 - ▶ inflation not just a cheap way for government to add contingencies
 - ▶ also redistribution effects via private contracts!

Nominal positions: scope for revaluation & redistribution

- Integrate sectoral accounts & household surveys
 - ▶ US: Doepke-Schneider 06
- Net positions by sector
 - ▶ moderate due to offsetting asset & liability positions:
 - ★ intermediary balance sheets, government debt & pension funds
 - ★ households' indirect debt via business ownership
 - ▶ after consolidation: rest of the world lends to government
- Household sector: small net position, but large gross positions
 - ▶ old rich lend to young middle class.
- Example: announce 5% more inflation per year over 10 years, in 2014
 - ▶ government gains 10% of GDP at expense of ROW, households ≈ 0
 - ▶ winning coalition of households gains 25% of GDP
- Similar orders of magnitude for other countries
 - ▶ Canada: Meh-Terajima 11, Eurozone: Adam-Zhu 15

Revaluation & redistribution with nominal debt

- Measuring exposures to inflation and nominal interest rate risk
 - ▶ government debt Bohn 88 90, Persson-Persson-Svensson 98, Sims 01, Burnside-Eichenbaum-Rebelo 06, Aizenmann-Marion 09, Hilscher-Raviv-Reis 17
 - ▶ interest rate risk in financial institutions Begenau-Piazzesi-Schneider 16, Haddad-Sraer 17, Drechsler-Savov-Schnabl 17
- Short run response to revaluation shocks
 - ▶ interest rate changes & inequality Coibion-Gorodnichenko-Kueng-Silvia 16, DiMaggio-Kermani-Keys-Piskorski-Ramcharan-Seru 17, Auclert 18, Wong 18
 - ▶ inflation expectations: Bachmann-Berg-Sims 15, D'Acunto-Hoang-Weber 15
 - ▶ exchange rate movements & foreign currency debt: Gyongosi-Verner 18
- Aggregate effects of revaluation in quantitative models
 - ▶ household debt Iacoviello 05, Doepke-Schneider 06, Algan-Challe-Ragot 09, Sterk-TenreYRO 16, Doepke-Schneider-Selezneva 17, Garriga-Kydland-Sustek 18
 - ▶ firm debt Christiano-Motto-Rostangno 10, Fernandez-Villaverde 10, DeFiore-Teles-Tristani 11, Gomes-Jermann-Schmid 16
- Price level & nominal income targeting? Meh-Rios-Rull-Terajima 10, Sheedy 14

What determines the unit of account?

- Unit of account = medium of exchange?
 - ▶ today government debt typically serves both roles
 - ▶ but historically often disconnected!
- Accounting currencies
 - ▶ distinct from any existing medium of exchange
 - ▶ Livre Tournois in medieval France
 - ▶ ECU in 1990s Europe
- Common unit of account in areas with intensive trade/borrowing
 - ▶ many currencies used for payment/settlement; contracts mostly in one
 - ▶ Prussian Vereinsthaler in 19th century Northern Germany
 - ▶ US dollar today
- Government debt as unit of account
 - ▶ more common recently as governments borrowed more...
 - ▶ ... but not when value too uncertain (dollarization)

Why a dominant unit of account?

- Doepke-Schneider 17
 - ▶ environment with contracting frictions & multiple goods
 - ▶ candidates for unit of account: goods or assets traded in spot markets
 - ▶ characterize 2nd best network of contracts
- Three features of modern economies lead to dominant unit of account
 1. benefit from noncontingent promises & costly default
 - unit of account comoves with borrower income to avoid default
 - ★ "if income in kronas, borrow in kronas (not in pesos)"
 2. gains from trade along credit chains (as in Kiyotaki-Moore 97)
 - common unit of account in chain avoids mismatch of assets & liabilities
 - ★ "if lending to Swedes, borrow in kronas"
 3. credit chains formed by random matching
 - dominant unit of account in economy minimizes cost of mismatches
 - ★ "if lending could be to either Swedes or Mexicans, borrow in unit with lowest expected costs of mismatch (not necessarily krona or peso)"

What does dominant unit of account look like?

- Minimize expected cost of mismatch of assets/income & liabilities
- Optimal unit depends on matching risk & relative price risk
 - comoves with assets/income of *likely* borrowers
 - has low price volatility

⇒ When choose government debt?

- ▶ government a prominent borrower & government debt not too volatile
- ▶ what matters is debt, not whether debt used as medium of exchange

⇒ Choice of common unit in areas of intensive trade/borrowing

- ▶ expect currencies of large countries if not too volatile (Prussia, US)

⇒ Use of dominant unit more valuable if economy more complex

- ▶ longer chains, more mixing of heterogeneous agents

- Recent evidence & theory on dollar as worldwide unit of account

Gopinath 15, Ivashina-Scharfstein-Stein 15, Gopinath-Stein 18, Drenik-Kirpalani-Perez 18,
Neiman-Maggiore-Schreger 18