A Quantitative Theory of Hard and Soft Sovereign Defaults

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EMERGING MARKETS: CAPITAL FLOWS, DEBT OVERHANG, INFLATION, AND GROWTH

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Endowments, Preferences, & Default

Endowments

▶ Tradables, Y_T, with transitory and permanent shocks

▶ Non-tradables, Y_N, deterministic growth

Households

▶ Hand-to mouth, government transfers T

▶ Consumption function $C(Y_T + T, Y_N)$

Default

▶ Default cost χY_T

▶ No transfers, $T = 0$

▶ Consumption function $C((1 - \chi)Y_T, Y_N)$

Government: Repayment, Negotiation, Default

Repayment: Transfers $T = Q(B,x)(B' - (1-\lambda)B) - \widetilde{\lambda}B$

$$V^R(B,x) = \max_{B'} u(C(Y_T + T, Y_N)) + \beta\mathbb{E}\left[\max\left\{\underbrace{V^R(B',x')}_{\text{Repay}}, \underbrace{V^N(B',x')}_{\text{Negotiate}}\right\}\right]$$

Negotiation: Government offers haircut H, lender accepts offer with probability A

$$V^N(B,x) = \max_{H} \underbrace{A(H,B,x)V^R\left((1-H)B,x\right)}_{\text{Accept}} + \underbrace{(1-A(H,B,x))V^D(B,x)}_{\text{Reject}}$$

$$A(H,B,x) = \bar{\alpha}\left(1 + \exp\left(-\frac{Q^A(H,B,x) - Q^D(B,x)}{\sigma_\alpha}\right)\right)^{-1}$$

Default

$$V^D(B,x) = u(C((1-\chi)Y_T, Y_N) + \beta\mathbb{E}\left[V^N(R^D B, x')\right]$$

Data: Hard and Soft Defaults

Harder defaults (i.e., with larger haircuts) are asociated with:

1. larger decline in output

2. longer default duration

3. larger RER depreciation

Paper's main question: How much of these effects are

1. Selection: exogenous shocks cause both harder defaults and larger gdp declines

2. Causal: harder defaults cause larger GDP declines

Causal vs selection mechanisms

Selection mechanism:

▶ Negative growth shocks cause debt to GDP to increase and remain high for a long time, leading to large haircuts

▶ Negative transitory shocks cause a smaller and less persistent increase in debt to GDP, resulting in smaller haircuts

▶ Selection explains 60-85% of the data

Causal mechanism:

▶ The causal effect in the model comes from the cost of being in default, χ

▶ Explains the reminding 15-40% of the data

Is this a good model to identify the causal effect?

Comment: *The causal effect is all about duration of default*

► Conditional on being in default at period τ, the causal effect in the model is 0%

Endowment economy

► The only margin in which GDP is *"endogenous"* is due to default cost χ

► Haircut does not affect GDP

A production economy *has s a broader scope to identify the causal effect*

Proposal: Test the selection mechanism in the data
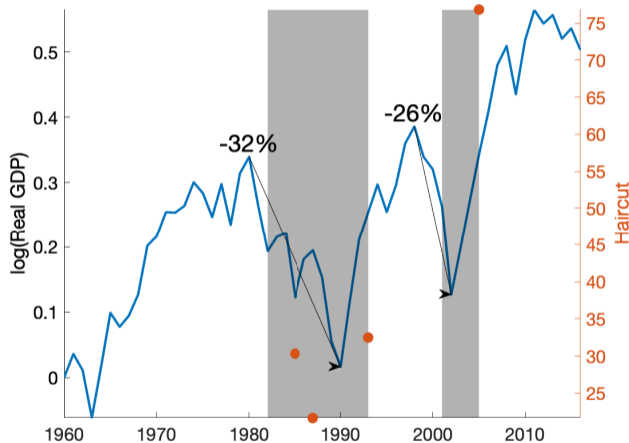
The main mechanism is that:

- ▶ growth shocks **cause** large haircuts

- ▶ transitory shocks **cause** small haircuts

Proposal: These are testable predictions, look in the data

Case study of Argentina (Trebesch and Zabel, 2017)

- ▶ '85, '87, '93: Soft defaults

- ▶ '05: Hard default

- ▶ *Do we have evidence of transitory and growth shocks, respectively?*

Argentina: Real GDP, Defaults, & Haircuts

Stylized fact: hard defaults are associated with larger decline in output and longer duration

Argentina hard default (2001) has a smaller decline in output and shorter duration than 1982-1993

Comment: The case study of Argentina does not align with the stylized facts

Argentina: Real GDP, Defaults, & Haircuts

▶ **Comment:** The case study of Argentina does not align with the stylized facts

▶ **Resolution:** '85+'87+'93 **cumulative** haircut is 63%, maybe it is a hard default

▶ **Proposal:** Trebesch and Zabel (2017) database has less than 200 cases

    ▶ Review them manually to make sure how to treat consecutive defaults

   ▶ Brady Plan, Sturzenegger and Zettelmeyer (2008), etc.

A Monetary and Fiscal History of Latin America

"Our fundamental hypothesis is that, despite their different manifestations, all economic crises in Latin America have been the result of *poorly designed or poorly implemented macro-fiscal policies*."

– Kehoe Nicolini Sargent 2020

Sovereign default model in a production economy with domestic fiscal and monetary policies (Espino, Kozlowski, Martin, and Sanchez, 2023a,b, 2024)

Argentina 2001-2015: A commodity boom with a large fiscal expansion

$\log$ **Real GDP**

Terms of trade

Gov. Spending/GDP
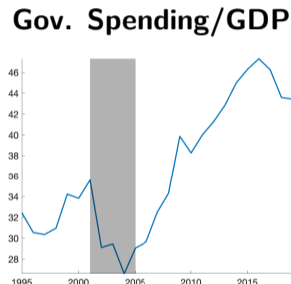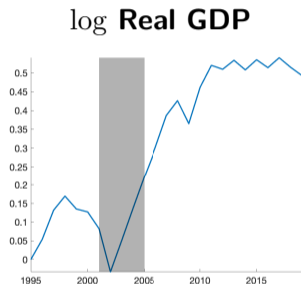
▶ Don't seem to be a "growth shock" at prima facie

Fiscal Expansion vs Terms of Trade

Real GDP

Legend:
- Benchmark
- Only terms of trade shocks
- Only fiscal expansion
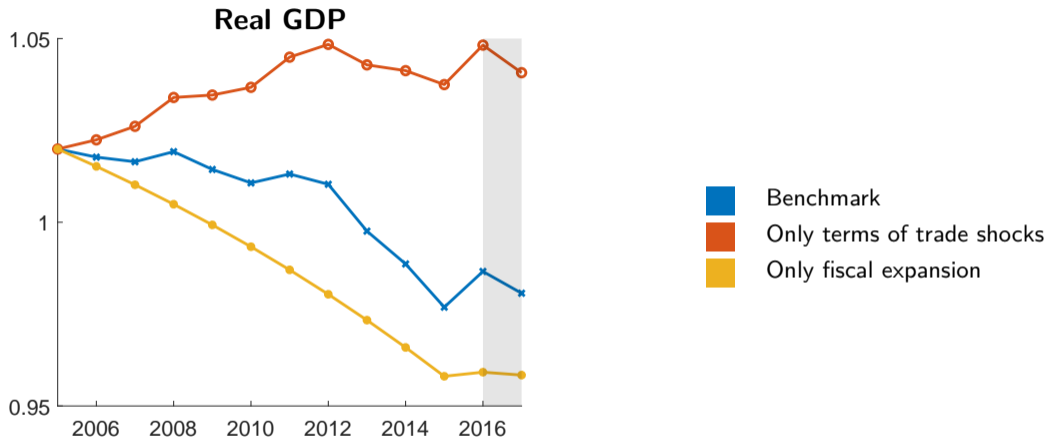
Both domestic policies and terms of trade are relevant to understand the economy

Source: Espino, Kozlowski, Martin, and Sanchez (2023a)

Model fit

1. Haircut size is 0.66 in the model, while 0.38 in the data

   ▶ Given it is a paper about haircuts I would consider this as a target

2. Correlation of haircut and duration is 0.64 in the model, while 0.31 in the data

   ▶ This is one of the main facts, can you improve the fit?

Summary

Very nice paper on a hard question:

► *Why are hard defaults characterized by worse macroeconomic outcomes?*

► Grey and Pablo make progress in our understanding of defaults and restructuring

Suggestions:

1. Review haircuts data to make sure which ones are hard vs soft

2. Test the selection mechanism in the data and for the case study of Argentina

3. Improve the fit of the model

References

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