Collateral, liquidity and debt sustainability

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Model

- ∞ horizon model with repre HH and government,
- gvt has endo spending g_t, linear income tax τ_t and debt b_t,
- government debt the only asset in the economy,
- each period has 2 subperiods:
  1. labor used to produce output, financial friction - needs to be paid in advance, gvt debt b_t needed as *collateral*,
  2. free lunch - (no-risk) investment opportunity, financial friction - need gvt debt to finance it, b_t provides *liquidity*,
- gvt can commit to policies within a period, but not across $\Rightarrow$ focus on Markov perfect equilibria,
- analyze economies with and without default.

Default

- Default happens at the beginning of period t by way of a haircut, i.e. a fraction of b_t can still be used as collateral, but none as liquid asset.
- Temporary exclusion from bond market (gvt can still sell "loans" - can only be used as collateral).
- Why default:
  - $+$ reduce distortions from taxation (Chari, Kehoe, JET, 1993),
  - – reduce output in both subperiods.
- Main results:
  - Fiscal limit - default when $b_t > \bar{b}$.
  - Haircut $\in (0, 1)$.
- Which result is more interesting?

Big Picture

Why do governments issue debt?

- Intergenerational conflict (SSZ, Econometrica, 2012),
- business cycles - procyclical revenues, countercyclical expenditure,
- ...
- This paper:
  1. to provide a medium of exchange,
  2. to provide a store of value.
- Gvt debt looks a lot like money!

Comments

- To support your story:
  - What fraction of collateral is gvt bonds?
  - How important are gvt bonds as a provider of liquidity?
- Solve the model with one more asset (capital, money, storage, land?) and check that results are robust. Simplify the model elsewhere if needed.
- Quantitative analysis could/should be made stronger.

Comments on Theory - Future Work?

- More tax instruments - would it matter?
- Shocks:
  - aggregate (default in CE),
  - idiosyncratic (could study distributional consequences of defaults - very exciting, I think).

Comments on Quantitative Analysis - Future Work?

- Could look at historical default episodes, calibrate the model to the respective countries and compare the debt levels and haircuts when default happened.
- That would be very interesting and would add credibility to your mechanism.

Conclusions

- Very interesting research topic and paper.
- Applied theory - new theoretical mechanism which is evaluated quantitatively - great!
- The paper is well written and quite complete, though both parts could be improved a little bit.

Additional Comments

Comments - Miscellaneous

- Related lit reads a bit like a list of papers, the relation to your paper often not very clear.
- In particular - what does your paper do better?

Comments - Environment

- Reiterating: Gvt debt the only asset ...
- Why call default 'outright' default?
- Is the fact that gvt does not default on all debt (haircut) worth emphasizing more?
- Why index HH with j when it is a repre HH anyways?
- Firms cannot pledge funds to workers and 'outside creditors', but can to banks? Why? What makes banks special? What if you allow for direct lending?
- Maybe mention more explicitly what the first best allocation looks like in subper. 1 and subper. 2?
- Say a bit earlier that investment X_t^j is made in the form of consumption.
- Table 1 is very useful, add s.t. (9) is satisfied in 3.?

Could be a bit more formal and clearer (for outsiders).

- Define your variables a bit more properly, example: u'_c, $(\hat{c}, \hat{n}, \hat{b})$ is a mapping from ... to ...
- Formal definition of the (private-sector) equilibrium would probably be useful.
- $\widetilde{V}$ is not a function of current τ, g, B, but of the whole sequence (as you mention), so this dependence should probably be dropped (price sequences not included as arguments of $\widetilde{V}$ either). Maybe I am missing something ...
- Mention that eq. (11) is an *implementability* constraint?
- r needs to be defined earlier (in equation (16)).
- State and formally prove a proposition like: If an allocation satisfies feasibility and IC, then $\exists$ prices and taxes that implement it as an equilibrium ...
- Intuition after Prop. 2 could be clearer. Maybe discussing what happens at $b = 0$ would be useful.

Comments - Section 4

- Mention right away the timing - when does the gvt decide about default?
- I like the symmetric treatment of post-default with loans (they can also be defaulted on)!
- The exclusion from 'liquidity market', but not 'collateral market' upon default seems arbitrary and is not justified - footnote 11 doesn't really do it. Can you justify this better?
- Maybe be a bit more explicit about what happens in the 2 subperiods when ρ is declared.
- $\underline{b}$ is the lowest level of debt that maximizes post-default welfare. Are there multiple? If so, why choose the minimum?
- Would make sense to add the definition of MPE in the paper.
- What is $\mathbb{B}$? Is it $\mathbb{R}$, $\mathbb{R}_+$?
- 'Reputational costs' a bit confusing. Maybe define it when first mentioned.

General Comments on Theory

- Why focus only on MPE? Other equilibria completely irrelevant?
- Existence of MPE? See Maskin-Mayerson, Livshits and others.
- Uniqueness of MPE?
- Uniqueness of steady state? Convergence?

- If this was a pure theory paper, it should be a bit tighter.
- But this is an applied theory paper ...

Comments - Quantitative Analysis

- Calibration should be more serious:
  - Which country is the model calibrated too? Be explicit and consistent about it.
  - Fin. frictions parameterizations 'suggestive'. Don't say that ...
  - You don't hit the calibration targets exactly. Why? What is the loss function you are minimizing?
  - Divide parameters into 2 groups - those set without solving for the SS of the model, those that are *calibrated* to hit certain SS statistics. Design tables accordingly (Table 3 not very useful).
  - Justify the choices of targets using data.
  - Elasticity of u w.r.t. g empirically plausible? Why?
  - Frisch labor supply elast. > 4 seems high (I get that number).
- Is the tax set to clear SS budget?
- Model performance on important untargetted moments?
- Mark the regions in the pictures.
- Evaluate welfare in consumption equivalent units.

General Comments on Quantitative Analysis

- In general, if this was a purely quantitative paper, the quantitative analysis should be more thorough.
- But this is an applied theory paper ...