

# Optimal Fiscal Policies. Long Bonds and Interest Rates under Incomplete Markets

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- In dynamic models, optimal fiscal policy and debt management should be jointly determined.
- Optimality is given by the smooth of marginal excess burden across time and across states. To smooth distortions across states does not correspond to smooth proportionate wedges across states.  
Tax smoothing (reacts to employment over the cycle) but not constant.

- Fiscal policy is decided, without debt considerations. Debt has to satisfy budget constraint every date and state. In this sense debt management is endogenous to fiscal policy (second best).
- Or debt management is not feasible and it will constrain the optimal fiscal policy (third best).
- When debt is nominal the question should be enlarged: either fiscal and monetary policy are optimally determined, and debt is endogenous to policy, or the optimal debt management is not feasible and it should constrain the choice of monetary and fiscal policy. For example if debt is exogenous to monetary and fiscal policy (cost management) then it constrains policy: FTPL.

- Lucas and Stokey (1983) without capital: optimal allocation (consumption, leisure, output, deficit, tax) depends just on the state (does not depend on time or in any other state variable, like debt in  $t$ ). The difference between debt entering the period and value of debt leaving the period depends on the state. Simpler way is to issue contingent debt - gain a time consistent solution.

- Government does not issue state contingent debt (asymmetric information?)
  - How to support the second best allocation without government state contingent real debt?
  - Chari et al (1994) state contingent capital taxation, Farhi (2005) government ownership of capital and Correia et al (2008) VAT taxes.
  - Angeletos (2002) and Buera and Nicolini (2004) , debt maturity management.

- Any of these different "instruments" implies that real state contingent debt: fluctuations in the market value of debt offsets expected future deficits.
- Angeletos (2002) and Buera and Nicolini (2004) exploit variations in the yield curve across different maturities of risk free securities. Can optimal primary deficit be accommodated with noncontingent assets? Yes, if these bond prices are enough.

- FMS as in Angeletos and Buera and Nicolini exploit time and state variations in the yield curve across different maturities of risk free securities. Findings:
  - For the optimal (second best) allocation, variation in yields is small. To replicate the contingent values of debt, positions have to be very large. Highly related with what was known from Chari et al (1991): high volatility of prices to replicate real state contingent debt declines when debt is higher.

- More important to give policy recommendations: FMS find non-stable and non robust prescriptions. Small changes in the environment even for qualitative prescription (positive or negative positions) are extremely fragile!
- Then very important to study constrained optimal fiscal policy (third best) solutions. This is the merit of FMS work.

- Not so important the case for BB: comparing with balanced budget the authors point to high values for  $R$

$$R = \frac{W_x - W_{BB}}{W_{CM} - W_{BB}}$$

- But are not denominator and numerator very small?
- This should be the reason why a very, very small transaction cost made  $W_{BB} > W_{CM+transact\ costs}$
- Recommendation : go for a BB. But should be good to have some debt?

- Maturity  $M$ 
  - Technical difficulties: sophisticated techniques to deal with reduction of state space: lagrangean plus MM (2008)  $(M+3)$  state variables! Reduction of this space. Then  $G$  shock - increases tax today - commits to decline tax at the time of payment- reasonable positions.
  - Robust recommendations, but no debt management in the sense of portfolio choice.

- Two bonds: again huge and sensitive positions - almost complete market. With the plus and minus.
  - transaction cost solution closer to one maturity.
  - Debt as a buffer.

- Welfare costs?
  - The change in the value of debt is not enough to avoid changes in the second best tax rate - third best with a higher volatility (and persistence) of tax rates. What is the cost from a second to a third best?
  - Siu (2002): normal volatility of  $G$  (gain 0.2%) versus high volatility of  $G$  (gain 1%) - approximately a linear relation between  $G$  volatility and welfare gain of contingent debt).
  - How important  $G$  volatility for business cycles?
  - Costs of business cycles?

- Positive Theory: results to data.
  - More problematic.
  - As recognized, it is a joint test of model + decision of policy + commitment + ...
  - Calibrate with actual data the slope of the yield and then derive the positions: why this slopes have are so flat? If small volatility over time and states, marginal utilities reflect insurance, but then how is financed the deficit?
  - Not sure that "successfully POSITIVE theory of debt management: focus on insurance but taking into account transaction costs, short selling constraints etc. Or arising near the fundamentals why government does not issue state contingent bonds".