Borrower and Lender Resilience

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IMF-ARC, November 2019

Post-crisis regulation

- After financial crisis new regulatory tools
- Mostly focused on ensuring lenders' resilience
- Objective: avoid a credit crunch
- At the same time growing evidence that borrowers' balance sheets matter (Jorda, Shularik and Taylor, 2017, Mian, Sufi, Verner, 2017)
- Should regulation worry about both credit demand and credit supply?

Borrower and lender tools

Table: IMF Macroprudential Survey

Country	Borrower tool used	Lender tool used
Australia	No	Yes
Austria	No	Yes
Belgium	No	Yes
Canada	Yes	Yes
Denmark	No	Yes
Finland	No	Yes
Germany	No	No
Ireland	Yes	Yes
Israel	Yes	Yes
Italy	No	Yes
Japan	No	Yes
Korea	Yes	Yes
Luxembourg	No	Yes
Netherlands	Yes	Yes
New Zealand	No	Yes
Norway	Yes	Yes
Spain	No	Yes
Sweden	No	Yes
Switzerland	Yes	Yes
United Kingdom	Yes	Yes
United States	No	Yes

This paper

- Build a model where lenders' and borrowers' balance sheets both matter
- Identify externalities that justifies macro regulation
- Study effect of policies working on lenders' and borrowers' side
- Study optimal policy

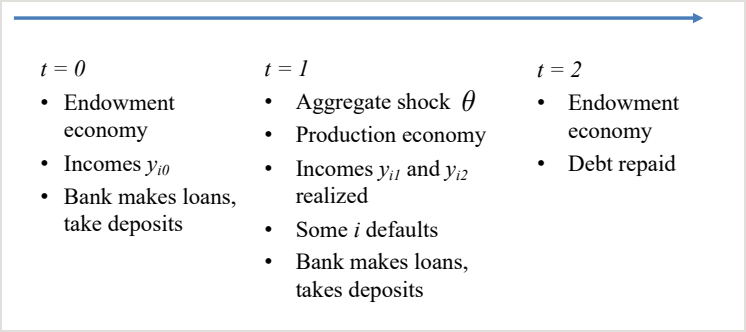
Model

- Three periods $t = 0, 1, 2$
- Consumers' preferences:

$$E\left[u\left(c_{i0}\right) + u\left(c_{i1}\right) + c_{i2}\right],$$

- Consumers borrow or lend depending on shocks
- Banks intermediate between borrowing and lending consumers

Timeline


t = 0
• Endowment economy
• Incomes y_{i0}
• Bank makes loans, take deposits
t = 1
• Aggregate shock θ
• Production economy
• Incomes y_{i1} and y_{i2} realized
• Some i defaults
• Bank makes loans, takes deposits
t = 2
• Endowment economy
• Debt repaid

Friction 1: Incomplete markets/default

- Consumers hit by idiosyncratic income shocks
- Consumer balance sheet at date 1
- Present value of resources

$$a_1 + y_1 + p_1 y_2$$

- If smaller than $\underline{c}$ default
- Bank writes down debt so consumers don't default

Friction 2: Banks' moral hazard

- Banks' balance sheet: N_1 depends on value of loans issued at 0
- Budget constraint

$$p_1 L_2 = N_1 + q_1 D_2$$

- If banks' shirk, they make low quality loans
- No shirking constraint

$$D_2 \leq \phi L_2$$

- If banks' have low intermediation capacity $p_1 < q_1$ (spread)

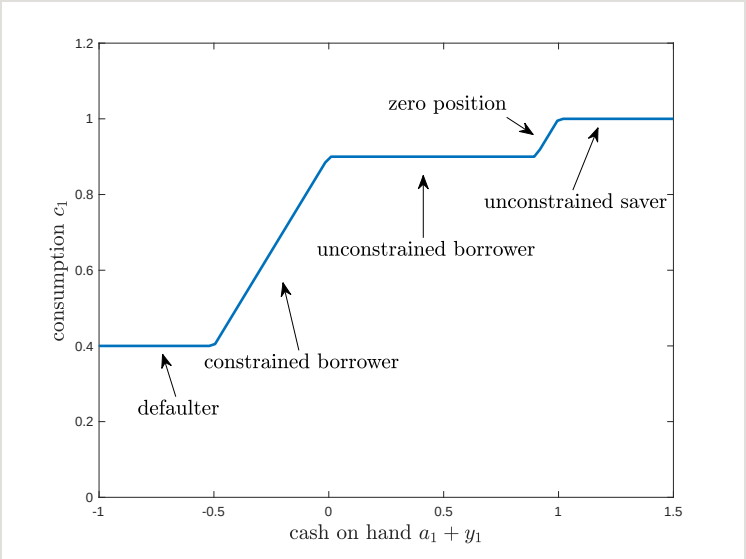
Friction 3: Sticky nominal wages (and ZLB)

- At date 1 consumers have labor supply ω_i
- Aggregate demand can be

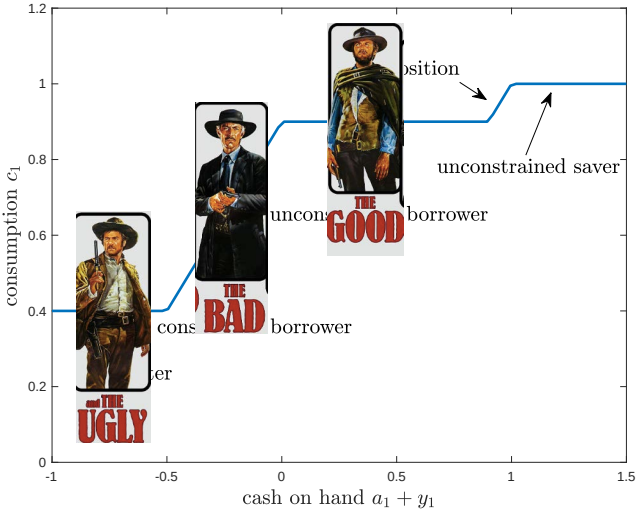
$$Y_1 < Y^* \equiv \int \omega_i di$$

  if $q_1 = 1$ (ZLB)
- Otherwise $q_1 < 1$ and $Y_1 = Y^*$
- Unemployment: if $Y < Y^*$ workers are rationed

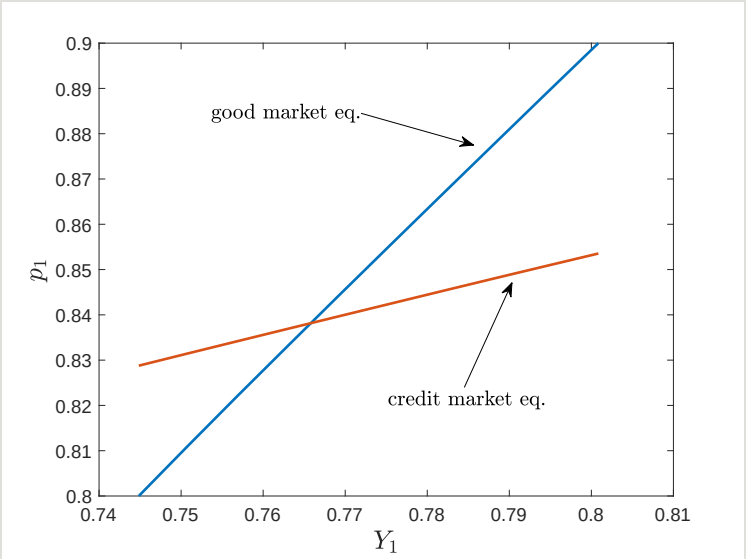
Consumption function



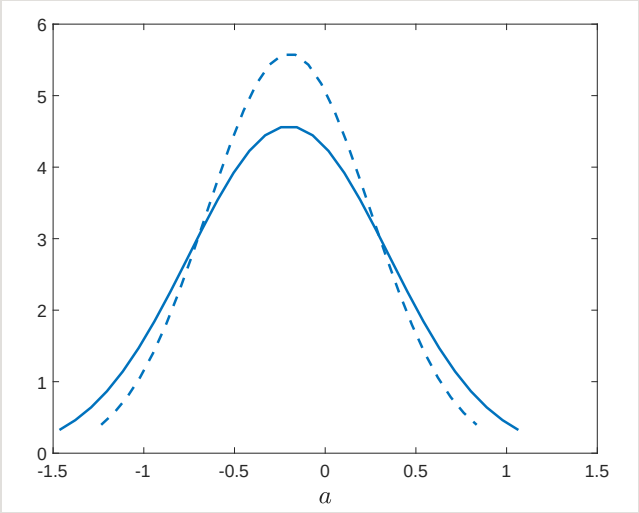
Consumption function



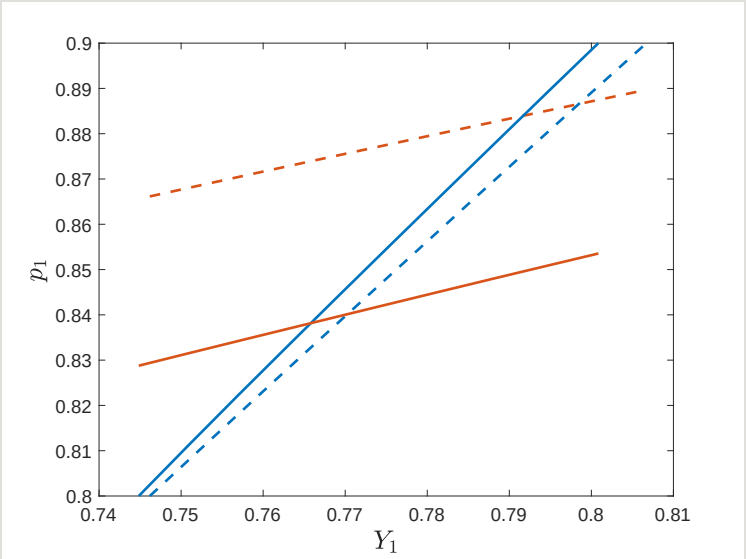
Credit and good market equilibrium



Changing asset positions at 0



Credit and good market equilibrium (with less household debt)



Externalities

- Aggregate demand externality: higher Y_1 avoids wasteful unemployment (Korinek-Simsek (2016), Farhi-Werning(2016))
- Pecuniary externality: higher p_1 better allocation of credit (Lorenzoni (2008))
- Corrective Pigouvian taxes should fall on agents that have larger GE effects on Y_1 and p_1
- In general different wedge depending on a_1