

Update: Adding idiosyncratic risk

Anmol Bhandari, David Evans, Mikhail Golosov, Thomas J.
Sargent

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Modification

- In addition to aggregate shocks, agents face idiosyncratic shocks to productivities

$$e_t^i = e_{ag,t} + e_{pr,t}^i + e_{tr,t}^i \quad (1)$$

where the process $e_{ag,t}$, $e_{pr,t}^i$, $e_{tr,t}^i$ stand for aggregate tfp, permanent and transitory component

$$e_{ag,t} = \mu_{ag} + \sigma_{ag} w_{ag,t} \quad (2a)$$

$$e_{pr,t} = \rho e_{pr,t-1} + \sigma_{pr} w_{pr,t} \quad (2b)$$

$$e_{tr,t} = \sigma_{tr} w_{tr,t} \quad (2c)$$

- They can invest in the asset traded by the government with payoffs $P(s_t | s_{t-1})$

Findings

- ▶ Assets and productivities are positively correlated
→ *Without idiosyncratic risk the Planner engineers a negative correlation in assets and productivities*
- ▶ With aggregate risk, the invariant distribution of tax rates has a wide support.
→ *The insights of the setting without idiosyncratic risk are preserved.*
- ▶ Short run fluctuations in taxes are driven by how
 - a) payoffs P_t and,
 - b) Cross-sectional distribution of labor earnings, consumption and assetsvary over business cycles

Exercises

- ▶ Initialize with a joint distribution of assets and productivities using numbers from SCF
- ▶ Normalization: Expected transfers are zero
- ▶ Compute a “long” simulation of tax rates, Transfers and total debt with and without aggregate shocks
- ▶ Plot quantiles and cross section correlation of assets, earnings and consumption
- ▶ Plot taxes for a long sequence of either only high (or low) aggregate shocks for different P_t 's
- ▶ Plot “impulse responses” of taxes, transfers and debt for different P_t 's