

Discussion of
Growth in the Shadow of Expropriation
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1. Theoretical Experiment

- ▶ What happens if we combine the following elements in a model?

1. An open economy
2. Capital income taxation without commitment
3. A political model of time preference in aggregate consumption

2. Explanation of Stylized Facts

- ▶ Can we jointly explain some prominent facts about investment, growth and current accounts of open economies?
- 1. Correlation between growth and the quality of political institutions
- 2. Correlation between growth and current accounts
- 3. Speed of convergence from growth regressions

China

Averages 2000-2008:

GDP growth	10%
Investment / GDP	39%
Current account / GDP	5.5%

- ▶ Why did China run a current account surplus?
- ▶ Why was the investment rate so **low**?
 - ▶ (Compared to frictionless benchmark)

Some possible explanations for low investment

1. Lower TFP

- ▶ Economies are at a steady state
- ▶ MPK is equalized

2. Imperfect international financial markets

- ▶ Closed economy is good approximation
- ▶ MPK is not equalized

3. Adjustment costs

- ▶ Explain investment but not savings rate / current account

This paper's explanation

- ▶ Proximate cause for lack of capital inflows: high taxes
- ▶ Underlying cause: time inconsistency

Capital taxation

- ▶ Timing:
 1. Capitalists choose k_t (fully mobile, but sunk for one period)
 2. Government chooses $\tau_t \leq \bar{\tau}$
- ▶ Capitalists obtain $[(1 - \tau_t)f_k(k_t, l_t) + (1 - d)]k_t$
- ▶ In equilibrium, $(1 - \tau_t)f_k(k_t, l_t) - d = r$
- ▶ Government uses revenue $\tau_t f_k(k_t, l_t)k_t$ to:
 - ▶ Redistribute towards workers
 - ▶ Service public debt

Tax rates

- ▶ What τ would equalize the after-tax MPK?
 - ▶ (Assuming same TFP)
- ▶ With Cobb-Douglas technology, the after tax MPK is

$$(1 - \tau)\alpha \frac{Y}{K}$$

- ▶ The $\frac{Y}{K}$ ratio in China is:

$$\frac{Y}{K}_{China} = \frac{Y}{K}_{US} \left(\frac{Y_{China}}{Y_{US}} \right)^{\frac{1-\alpha}{\alpha}}$$

⇒ If after tax MPK is equalized:

$$\begin{aligned}\tau_{China} &= 1 - (1 - \tau_{US}) \left(\frac{Y_{China}}{Y_{US}} \right)^{\frac{1-\alpha}{\alpha}} \\ &= 1 - 0.65 \times 0.14^2 = 0.987\end{aligned}$$

Time inconsistency

- ▶ Why are taxes so high? Lowest credible tax rate
- ▶ Suppose τ were credibly lower
- ⇒ Higher K
- ⇒ Government tempted to confiscate capital income (i.e. set $\tau = \bar{\tau}$)
- ▶ In equilibrium, government sets lowest τ that does not lead into temptation

Punishment

- ▶ Trigger strategy
 - ▶ Expect $\tau = \bar{\tau}$
 - ▶ Note:
 - ▶ Government cannot confiscate capital, just marginal product
(although $\bar{\tau}$ could be greater than 1)
 - ▶ Government cannot accumulate capital afterwards nor save in international markets $\Rightarrow$ no consumption smoothing
- so compared to other models, temptation smaller and punishment harsher

The current account

- ▶ Optimal deviation: set $\tau = \bar{\tau}$ **and** default on public debt
- ▶ Less debt $\Rightarrow$ optimal deviation less attractive
- ▶ One-to-one relation between debt level, lowest credible tax rate and k
- ▶ Growth requires current account surplus for temptation-reduction
- ▶ Back-loading incentives
- ▶ What are the source of variation for the cross sectional pattern?

Political model

- ▶ Let I_t be the indicator that a particular group is in office
- ▶ Preferences are:

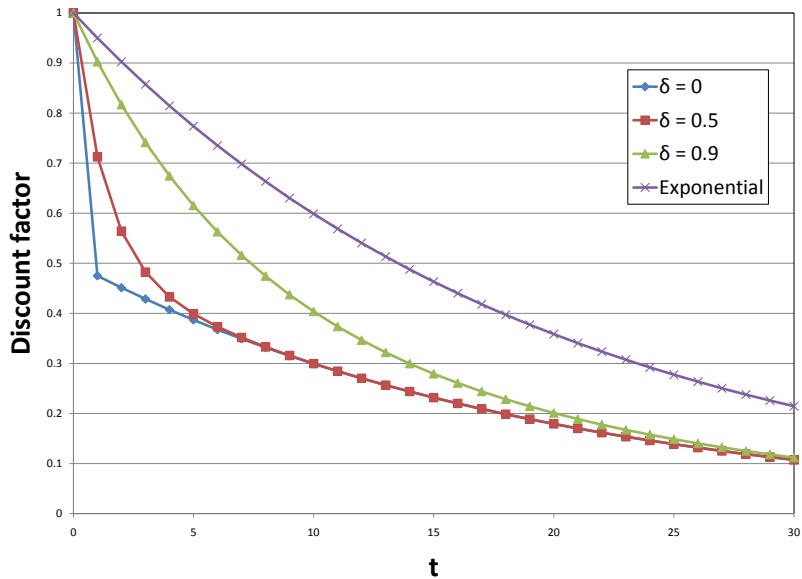
$$\mathbb{E} \sum_{t=0}^{\infty} \beta^t (1 + (\theta - 1)I_t) u(c_t)$$

- ▶ Which group is in power governed by an exogenous Markov process:

$$\delta \equiv \Pr[I_{t+1} = 1 | I_t = 1] - \Pr[I_{t+1} = 1 | I_t = 0]$$

- ▶ Quasi-hyperbolic preferences:
 - ▶ Extra discount factor from probability of losing power
 - ▶ Disappears in the long run when probability of gaining power offsets the probability of losing power
- ▶ What if $\Pr[I_{t+1} = 1 | I_t = 1]$ depended on c_t ?

Time Preference



Aside: politically state-contingent debt

- ▶ Paper assumes that debt is not contingent on who is in office
- ▶ Reality? Government contracts with favoured parties, etc.
- ▶ Government wants debt that is paid back only if they lose office
- ▶ State-contingency via defaults that don't trigger punishment
- ▶ Best equilibrium should rule this out

What difference does the political model make?

- ▶ Countervailing force to back-loading incentives: consuming while in office is special
- ▶ **Not** equivalent to lower β : the long run is still dominated by βR
- ▶ Hyperbolic preferences produce short-run impatience: slow down convergence
- ▶ Nontrivial dynamics for capital even with linear utility
- ▶ Comparative statics on political variables
 - ▶ θ : lower k_∞ (if $\beta R < 1$), slower convergence. θ can be calibrated
 - ▶ δ : higher k_∞ (if $\beta R < 1$), faster convergence (?) δ can be measured directly

What the model says about the stylized facts

1. Growth and institutions:

- ▶ Low θ means higher steady state (for $\beta R < 1$) and faster convergence.
- ▶ Just one of many possible channels

2. Growth and the current account:

- ▶ Low θ : higher growth and higher CA surplus
- ▶ Politics is one of the sources of variation that would yield this correlation
- ▶ Variation in discount rates or debt levels have the same predictions
- ▶ What's special about θ : affects growth even controlling for distance from steady state (due to speed of convergence)
- ▶ Empirically tricky because it also affects the steady state

3. Speed of convergence:

- ▶ Calibrate θ to match empirical estimates