The Middle Income Trap, Branching Deregulation, and Political Influence

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  - Demographic dividend.
  - Technology imitation.
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- The middle income trap is an important economic issue in reality.
- Existing theories:
  - Demographic dividend.
  - Technology imitation.
- However, how can we explain difference between (Indonesia, Malaysia, Philippine) and the four Asian dragons?
Insights From This Paper

- Key: Only when the economy achieves a certain level of development, does the government have large enough incentives to design distorted policies and extract rents from the economy.

- These distorted policies reduce social welfare and hinder further development of the economy.
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- Key: Only when the economy achieves a certain level of development, does the government have large enough incentives to design distorted policies and extract rents from the economy.
- These distorted policies reduce social welfare and hinder further development of the economy.
- Key: Political rents increase disproportionately when economy develops.
- China’s recent experience: policy reversal from the middle 1990s (e.g., Huang (2008); Brandt, Tombe, and Zhu (2013)).
Contributions

- Provide a formal theory for the middle income trap from the political economy view.
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- *Endogenize government’s policy choices.*
- Provide micro-level evidence on campaign contributions from commercial banks.
An Application: Branching Restrictions

- **interstate branching**
  - Prior to 1970s, all states in U.S. forbade interstate branching.
  - State governments received fees for granting charters, and often owned shares in or levied taxes on banks.
  - So they had incentives to restrict competition among banks.
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- **intrastate branching**
  - Prior to the 1970s most states had laws restricting within state branching.
  - States would grant a charter for a specific location or limit bank branches.
  - A series of local monopolies were created from which they could extract part of the rents.
Intrastate Deregulation

Since the early 1970s, all but one of these states have relaxed restrictions on intrastate branching

- Formation of multibank holding companies (MBHC). Branching by merger and acquisition permitted.
- Full statewide branching permitted.
Interstate Deregulation

- Deregulation of interstate branching
  - Began in 1975 in Maine.
  - Federal legislators in 1982 amended the Bank Holding Company Act to allow failed banks to be acquired by any MBHCs, regardless of state laws.
  - Many states then entered regional or national reciprocal arrangements whereby their banks could be bought by any other state in the arrangement.
  - Between 1984 and 1988, 38 states joined one of these arrangements.
Deregulation of interstate branching

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- Between 1984 and 1988, 38 states joined one of these arrangements.

We focus on interstate branching deregulation, modeling it as allowing entry from out of state.
Key Features of the US Banking Industry

- Politically influenced industry: Kroszner and Strahan (1999).
- Most states deregulated their banking industry when economy was in recession. (e.g., Freeman (2002))
- Impossible to reverse.
Three players: firms in the product market, the commercial bank and the state government.
Environment

- Three players: firms in the product market, the commercial bank and the state government.
- Investment by the firm $\rightarrow RI$ revenue.
- Internal funding: $A$ (the same for all firms)
- Firms’s profitability level $R$: uniformly distributed on $[R, \bar{R}]$ with $R > 1 \rightarrow$ F.B. is to give external finance to everyone.
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- Investment by the firm → $RI$ revenue.
- Internal funding: $A$ (the same for all firms)
- Firms’s profitability level $R$: uniformly distributed on $[R, \bar{R}]$ with $R > 1$ → F.B. is to give external finance to everyone.
- Within each state there is only one incumbent bank.
- Only the incumbent bank can lobby in the fashion à la Grossman-Helpman (1994).
- The commercial bank can only charge a uniform interest on loans. (obtaining full information is costly)
Timing

- Government’s policy (regulation or not) is made.
- The commercial bank chooses an optimal interest rate.
- Some firms end up receiving no loans.
Financial Friction and Credit Rationing

- When the project is completed, the firm’s owner can run away with \((1 - \theta)RI\) as his revenue.
- The bank is willing to lend money to a firm with the profitability level \(R\) if the following condition is satisfied:

\[
(1 - \theta)RI \leq RI - (I - A)(1 + r).
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- The cutoff for receiving external funding is $R^* = \left(1 - \frac{A}{I}\right)\frac{(1+r)}{\theta}$.
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- The cutoff for receiving external funding is \(R^* = \left(1 - \frac{A}{I}\right)\left(1 + \frac{r}{\theta}\right)\).
- We assume \(R < \left(1 - \frac{A}{I}\right)\frac{1}{\theta}\) to exclude the uninteresting case (no financial friction).
- Even without political influence, we are still in the S.B. world (a world with run-away possibility).
Under regulation, the bank is a monopolist.

Normalize the bank’s marginal cost of raising funds to zero.

The bank’s objective function is

$$\max_r r (I - A)[1 - G(R^*)].$$
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The bank’s objective function is

$$\max_r r(I - A)[1 - G(R^*)].$$

The equilibrium interest rate is

$$r^*(\theta, \bar{R}) = \frac{\bar{R} - (1 - \frac{A}{I})^{\frac{1}{\theta}}}{2(1 - \frac{A}{I})^{\frac{1}{\theta}}}. $$
The tradeoff between high interest rate and low loan demand.
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- \( r^*(\theta, \bar{R}) \) increases in \( \bar{R} \) and decreases in \( \theta \).

- The cutoff for external financing:

\[
R^* = \frac{\bar{R} + \left(1 - \frac{A}{I}\right)\frac{1}{\theta}}{2}.
\]
Bertrand competition $\rightarrow r_0 = 0$.

The cutoff for external financing:

$$R_0 = \left(1 - \frac{A}{l}\right)\frac{1}{\theta}.$$
Equilibrium Interest Rate under Deregulation

- Bertrand competition $\rightarrow r_0 = 0$.
- The cutoff for external financing:

$$R_0 = \left(1 - \frac{A}{l}\right) \frac{1}{\theta}.$$  

- Obviously, $r^* > r_0$ and $R^* < R_0$. 

Government’s Objective Function

- Government’s objective function is

\[(1 - \lambda_0)\Pi(i) + \lambda_0 C(i).\]

- \(\Pi(i)\): the sum of the commercial bank’s profit and the firms’ profit or the social welfare.

- \(C(i)\): contribution based on the policy choice \(i\).
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- \(i = 1\): branching regulation and \(i = 0\): branching deregulation.
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- \(i = 1\): branching regulation and \(i = 0\): branching deregulation.
- \(\lambda_0\): the weight the government puts on contribution.
- Assume generalized Nash bargaining between government and incumbent bank.

The above equation can be transformed into

\[(1 - \lambda)\Pi(i) + \lambda \Pi_B(i).\]
Equilibrium Policy

If the government regulates the banking sector (i.e., entrants are not allowed.)

\[ \Pi(1) = \frac{I}{R - \bar{R}} \left[ \left( \frac{\bar{R}^2}{2} - \bar{R} \right) - \left( \frac{R^*}{2} - R^* \right) \right] \]

and

\[ \Pi_B(1) = \frac{I}{4\theta(R - \bar{R})} \left[ \theta \bar{R} - \left( 1 - \frac{A}{I} \right) \right]^2. \]
Equilibrium Policy

- If the government regulates the banking sector (i.e., entrants are not allowed.)

\[
\Pi(1) = \frac{l}{R - \bar{R}} \left[ \left( \frac{\bar{R}^2}{2} - \bar{R} \right) - \left( \frac{R^*}{2} - R^* \right) \right]
\]

and

\[
\Pi_B(1) = \frac{l}{4\theta(\bar{R} - R)} \left[ \theta \bar{R} - \left( 1 - \frac{A}{l} \right) \right]^2.
\]

- If the government deregulates the banking sector

\[
\Pi(0) = \frac{l}{R - \bar{R}} \left[ \left( \frac{\bar{R}^2}{2} - \bar{R} \right) - \left( \frac{R_0^2}{2} - R_0 \right) \right]
\]

and

\[
\Pi_B(0) = 0.
\]
Recession and Deregulation

- The government deregulates the banking industry iff.

\[ L(\theta, \bar{R}) \equiv \frac{4\theta(1 - \lambda)\left[\left(\frac{R^*}{2} - R^*\right) - \left(\frac{R_0^2}{2} - R_0\right)\right]}{\lambda\left[\theta\bar{R} - \left(1 - \frac{A}{I}\right)\right]^2} \geq 1. \]

- Simple calculation shows \( \frac{\partial L(\theta, \bar{R})}{\partial \bar{R}} < 0. \)

- \( \frac{\partial L(\theta, \bar{R})}{\partial \bar{R}} = 0 \) is due to the specific distributional assumption.
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This means in recessions (presumably low \( \bar{R} \)), government is more likely to deregulate the banking industry (supported by Freeman (2002)).
Key: in the case of branching regulation, the share of the commercial bank’s profit in total social welfare increases when the economy moves from a recession to a boom:

\[
\frac{\Pi_B(1)}{\Pi(1)} = \frac{2\theta[\bar{R} - R_0]}{3\bar{R} + R_0 - 4},
\]

which is increasing in \(\bar{R}\).
Key: in the case of branching regulation, the share of the commercial bank’s profit in total social welfare increases when the economy moves from a recession to a boom:

$$\frac{\Pi_B(1)}{\Pi(1)} = \frac{2\theta[\bar{R} - R_0]}{3\bar{R} + R_0 - 4},$$

which is increasing in $\bar{R}$.

Implications for middle income trap hypothesis.
Evidence One

- States are more likely to deregulate their banking industry when economy is in recession (implication of model).
  - China’s recent experience? (e.g., Huang (2008); Brandt, Tombe, and Zhu (2013))
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- Discussions:
  - Banking deregulation policies were irreversible.
Evidence Two

- Profit of the commercial banking sector positively co-moves with GDP at the state level, and is more volatile than GDP (implication of model).
- Data source: US Bureau of Economic Analysis.
Profit of Banking Sector: More Volatile than State-level GDP

Table 1: Growth Rate of Bank Profit and GDP at the State-Level

<table>
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<td>6.343**</td>
<td>5.378**</td>
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<td>(2.58)</td>
<td>(2.23)</td>
<td>(2.54)</td>
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<td>Y</td>
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<td>Year F.E.</td>
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<td>Y</td>
<td>Y</td>
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<td>918</td>
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\textit{GrowBank}: annual growth rate of deflated profit of banks.  
\textit{GrowGDP}: annual growth rate of real GDP.  
t statistics in parentheses.
Deregulation reduced commercial banks’ profit (implication of model).

Data source: Bank-level data from Bank Regulatory data set of WRDS which comes from FDIC call reports.
### Table 2: Deregulation and Profit in the Banking Industry

<table>
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<td>NIM</td>
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Standard errors are clustered at the bank level.

*t statistics in parentheses

* p < 0.05. ** p < 0.01, *** p < 0.001
Elasticity of the banking sector’s political contributions with respect to its profit is one (implication of G-H bargaining model).

Data source: Political Action Committees registered at the Federal Election Commission.
Elasticity of Political contributions w.r.t. Banks’ Profit is One

Estimated coefficients are not statistically significant from one.
Conclusion

- Political influence is key to understanding middle income trap.
- Endogenous formation and dynamics of policies in developing countries.