

State Capacity

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Outline

- 1 Introduction
- 2 The Origins and Consequences of State Capacity
- 3 What I wish I had time to cover...

Introduction

1 Introduction

2 The Origins and Consequences of State Capacity

- Big Picture
- State Capacity and Elites' Choice (BP,2010)
- State Capacity and Military Conflict (BP,2010; GV,2015)
- State Capacity and Networks (Micro-Distribution) (AJR, 2015)
- State Capacity and Social Contract (Besley,2020)

3 What I wish I had time to cover...

Motivation

- We often take for granted the existence of central and local states with the capacity to enforce law and order, regulate economic activity, and provide public goods...
- This idea evolves along the history of political economy and development economy (even in political philosophy): Hobbes, Weber, Migdal, Besley, Persson, Acemoglu...
- I will select some distinctive **theoretical works** in recent 10 years and give a bird view to its development

State Capacity: Definition

- preliminary description: the state's ability to implement a range of policies (Besley and Persson, 2009)
- Four Dimensions (Tang, 2022):
 - ① coercive capacity: monopoly of legitimate violence so as to enforce law and order and eliminate competitors
 - ② fiscal capacity: tax and regulate economic activity (resources extraction)
 - ③ administrative capacity: rational/autonomous bureaucracy-sustain governance (law system; routine affairs; market rules...)
 - ④ information and leadership capacity: information and decision making
- resources: ideology/culture and natural resources
- mediator (Mann, 1993): infrastrutural and despotic power

The Origins and Consequences of State Capacity

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Big Picture

- State Capacity as explained variables:
 - ① elite investment
 - ② war makes state capacity
 - ③ historical path dependence
- State Capacity as explanatory variables:
 - ① political outcomes: conflicts and regime resilience
 - ② economic outcomes: public goods, fiscal extraction and market support
 - ③ administrative outcomes

State Capacity and Elites' Choice

- Insights: state-building (fiscal and legal capacity) is the outcome of elites' rational choice of investment (Besley and Persson, 2009; 2010)
 - ① taxes and market-supporting policies are constrained by the state's fiscal and legal capacity
 - ② expansion of these capacities is viewed as forward-looking investments under uncertainty

State Capacity and Elites' Choice: Setup

- two period $s = 1, 2$ and two long-lived groups I_s, O_s
in $s = 2$ regime change may happen as nature goes with $p = \gamma$
- incumbent sets a tax t^J_s , legal support p^J_s and public goods investment G_s
incumbent also earns natural rents $R_s \sim \{R_H, \rho; R_L, 1 - \rho\}$
- market income: $\omega^J_s = \omega(p^J_s)$
- individual utility $\alpha_s G_s + c^J_s = \alpha_s G_s + (1 - t^J_s) w(p^J_s)$
- $\alpha_s \sim \{\alpha_H, \phi; \alpha_L, 1 - \phi\}$, $\alpha_H > 2 > \alpha_L$
specific interpretation: external conflicts
 - ① taxes and market-supporting policies are constrained by the state's fiscal and legal capacity
 - ② expansion of these capacities is viewed as forward-looking investments under uncertainty

State Capacity and Elites' Choice: Setup

- state capacity: $0 \leq p^{J_s} \leq \pi_s$ and $t^{J_s} \leq \tau_s$

fiscal infrastructure $F(\tau_2 - \tau_1)$ and legal infrastructure $L(\pi_2 - \pi_1)$

- government budget constraint:

$$0 \leq \sum_{J_s \in \{I_s, O_s\}} \frac{t^{J_s} w^{J_s}}{2} - G_s + R_s - \begin{cases} L(\pi_2 - \pi_1) - F(\tau_2 - \tau_1), & \text{if } s = 1 \\ 0, & \text{if } s = 2 \end{cases}$$

- Timing:

- Stage 1. The initial conditions are $\{\tau_s, \pi_s\}$ and the identity of last period's incumbent is I_{s-1} .
- Stage 2. The values of public goods α_s and natural resource rents R_s are realized.
- Stage 3. Group I_{s-1} remains in office with probability $1 - \gamma$.
- Stage 4. The new incumbent I_s determines a vector of tax rates, legal support, and spending on public goods: $\{\{t^{J_s}, p^{J_s}\}_{J_s \in \{I_s, O_s\}}, G_s\}$. The period-1 incumbent also chooses state capacities π_2 for the next period τ_2 .
- Stage 5. Payoffs for period s are realized and consumption takes place.

State Capacity and Elites' Choice: Analysis

- $$V^J_s = w(p^J_s)(1 - t^J_s) + \alpha_s \left[\frac{t^J_s w(p^J_s) + t^{O_s} w(p^{O_s})}{2} + z_s \right]$$

$$G_s \geq 0, t^J_s \leq \tau_s, \text{ and } p^J_s \leq \pi_s$$

$$\text{where } z_s = R_s - \begin{cases} L(\pi_2 - \pi_1) - F(\tau_2 - \tau_1), & \text{if } s = 1 \\ 0, & \text{if } s = 2 \end{cases}$$

equilibrium policy

A linear programming problem: $p^J_s = \pi_s$ and $t^{O_s} = \tau_s$

- $\alpha = \alpha_H > 2$ - full taxation and public goods provision (the common-interest state) -
 $G_s = \tau w(\pi_s) + z_s$ and $t^J_s = \tau_s$
- $\alpha = \alpha_L$ - redistributive policy and no public goods provision (the redistributive state) -
 $G_s = 0$ and $-t^J_s = \tau_s + 2(z_s / (w(\pi_s)))$

- $\max E[V^I(\pi_2, \tau_2)] - \lambda_1 [L(\pi_2 - \pi_1) + F(\tau_2 - \tau_1)]$
 $E[V^I(\pi_2, \tau_2)] = w(\pi_2)(1 - \tau_2) + E(\lambda_2)[\tau_2 w(\pi_2) + E(z_2)]$
 $E(\lambda_2) = \phi\alpha_H + (1 - \phi)(1 - \gamma)2$
- complementary-slackness conditions:
 - ① $w_p(\pi_2)\{1 + \tau_2[E(\lambda_2) - 1]\} \leq \lambda_1 L_\pi(\pi_2 - \pi_1)$
 - ② $w(\pi_2)[E(\lambda_2) - 1] \leq \lambda_1 F_\tau(\tau_2 - \tau_1)$

equilibrium state capacity

Investments in both legal and fiscal capacity increase with:

- ① wages (for given π)
- ② the share of national income not generated by natural resources
- ③ the expected value of public goods (risk of external conflict)
- ④ the level of political stability
- ⑤ lower costs in either type of investment (for given π and τ)

State Capacity and Elites' Choice: Interpretations

- ① taxation and property-rights protection are both positively correlated with income across countries
- ② war is important for building fiscal capacity, but extends it to legal capacity
- ③ higher political stability to induce more developed economic institutions
- ④ If some form of legal origin, such as the common-law tradition, makes it cheaper to facilitate private contracting, then we would expect this to promote investments in the legal system (complementarity matters)
- ⑤ higher growth is generated solely by having higher legal capacity and hence better support for private markets (financial development)

State Capacity and Internal Conflict: Analysis

- modification: military power $\delta^{J_{s-1}}$, wage $\omega^{J_{s-1}}$ and success function $\gamma(\delta^{O_{s-1}}, \delta^{I_{s-1}}) \in [0, 1]$
- Remark:
 - ① military power are both discrete choice $\delta^{J_{s-1}} \in \{0, A^J\}$
 - ② internal conflict instead of external conflict
 - ③ the incumbent uses the government budget to finance its army, whereas the opposition uses its private resources
 - ④ Stage 3 in the timing is replaced by the following sequence: opponent chooses military power \Rightarrow incumbant chooses \Rightarrow contest outcome realized

Extensions: State Capacity and Internal Conflict

State Capacity and Internal Conflict: Analysis

- ① no conflict in common-interest state
 - ② in redistributive state: the ratio of total government revenue per capita to the real wage matters - civil conflict \Rightarrow repressive \Rightarrow peace
-
- Investment in State Capacity: two new effects
 - ① one channel is increasing political instability
 - ② another channel is real market wage paying and reluctance to raise legal capacity

State Capacity and External Conflict: Setup

- Bellicist State: “states made war, and war made states” (Tilly,1990):
 - ① the ability to finance war was key for survival, armed conflict forced monarchs to create effective fiscal infrastructures
 - ② winning builds legitimacy and conscription builds organization and mobilization ability
- Empirically, countries with a belligerent past have greater fiscal capacity today (Besley and Persson,2009)
- But there remains some problems unsolved, Gennaioli and Voth,2019) proposes a model to solve these problems:
 - ① frequent warfare exists along the whole history vs capacity growth only after 1600
 - ② uneven capacity growth
 - ③ war as a common-interest public good?
 - ④ endogenous wars

State Capacity and External Conflict: Setup

- Insights: War's impact on state-building in our model depends on two factors — the importance of money for military success and initial fragmentation
 - ① money is unimportant to military success: no incentive to raise fiscal capacity
 - ② important: centralization country attacks divided, causing race and divergence
- the role of the “Military Revolution”, a sequence of technological innovations that transformed armed conflict, matters in Tilly's viewpoint

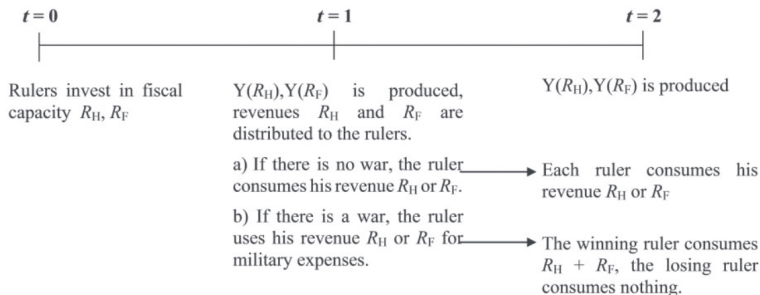
State Capacity and External Conflict: Setup

- $t = 0, 1, 2$, home(h), local (l) or market (m) production ($A_h < A_l < A_m$)
- production $Y = A_h n_h + A_l n_l + A_m n_m$, $n_h + n_l + n_m = 1$
- taxation and state building
 - ① centralized: $\tau_l^* \geq \frac{A_l - A_h}{A_l}$, $\tau_m^* = \frac{A_m - A_h}{A_m}$, $n_m = 1$
 - ② decentralized: $\tau_{l,d} = (A_l - A_h) / A_l$, $\tau_{m,d} > 1 - (A_l + A_h) / 2A_m$, $n_l = 1$
 - ③ intermediary (κ -centralized): $Y(\kappa) = A_l \cdot (1 - \kappa) + A_m \cdot \kappa$ and $R(\kappa) = (A_m - A_h) \cdot \kappa$
- Remark: canonical feudalism or federalism: non-cooperative taxation
- at $t = 0$, the ruler chooses the level of centralization – cost $2\beta_i(A_l - A_h)$,
 $\beta_i \sim_u [0, B]$ in district $i \Rightarrow C(R) = B \cdot \frac{(A_l - A_h)}{(A_m - A_h)^2} \cdot R^2 \equiv c \cdot R^2$
- the ruler's problem: $\max 2R - cR^2 \Rightarrow R_{aut} = \min \left[\frac{1}{B} \frac{(A_m - A_h)^2}{(A_l - A_h)}, (A_m - A_h) \right]$

State Capacity and External Conflict: Analysis

- For simplicity, here we assume exogenous external conflict (θ)
- two countries (H and F) $L_H^\alpha R_H^\lambda$, $L_F^\alpha R_F^\lambda$ military force
- success function $p(R_H, R_F) = \frac{L_H^\alpha R_H^\lambda}{L_H^\alpha R_H^\lambda + L_F^\alpha R_F^\lambda}$
fiscal capacity and war: $|p_J| = \lambda \cdot \frac{p(1-p)}{R_J}$

Timeline:



State Capacity and External Conflict: Analysis

- agents' problems:

- $$\begin{aligned} \text{H: } \max_{R_H} \theta \cdot \{p(R_H, R_F)(R_H + R_F) - 2R_H\} + 2R_H - c_H \cdot R_H^2 \\ \text{L: } \max_{R_F} \theta \cdot \{[1 - p(R_H, R_F)](R_H + R_F) - 2R_F\} + 2R_F - c_F \cdot R_F^2 \end{aligned}$$

- Remark: θ : the share of loss

- FOC:

- $$c_H \cdot R_H = 1 + (\theta/2) [p_H(R_H + R_F) - (1 - p) - 1]$$

- $$c_F \cdot R_F = 1 + (\theta/2) [-p_F(R_H + R_F) - p - 1]$$

- three effects of war:

- war boosts the incentive to centralize
- war lowers the benefit of centralization by creating the risk that fiscal revenues are lost because of enemy conquest
- the resource cost of war, which absorbs fiscal revenues at $t = 1$, also reduces the benefit of centralization

State Capacity and External Conflict: Analysis

- concave optimization with $\lambda \geq 1$

The Key Role of the Military Technology

- ① symmetric: $R_H^* = R_F^* = \left(\frac{1}{c}\right) \left[1 + \frac{\theta}{4}(\lambda - 3)\right] < R_{AUT}$
- ② asymmetric:
 - ① the unique equilibrium assigns higher revenue to the more cohesive country
 - ② revenue drops in own domestic divisions c_J
 - ③ revenue increases in domestic divisions abroad c_{-J} if and only if country J is the less cohesive

- Interpretations:

- ① warfare becomes more reliant on making large technological and organizational investments \Rightarrow a stronger incentive to centralize to boost their revenues and predate on their competitor
- ② low $\lambda \Rightarrow$ even the richest ruler becomes a prey with high probability, which reduces his incentive to centralize
- ③ Domestic divisions are also important
- ④ the ruler of the cohesive country centralizes less when his divided opponent centralizes more

- What happens when money sensitivity is high?

- ① symmetric: $R_H^* = R_F^* = \left(\frac{1}{c}\right) \left[1 + \frac{\theta}{4}(\lambda - 3)\right] < R_{AUT}$ conventional wisdom - external war causes state-building to go up
- ② stronger centralization by the divided ruler increases the incentive of the cohesive ruler to centralize

- summary: the military technology is critical in determining the effect of external wars on statebuilding across countries
 - ① low: military conflict causes a race to the bottom reducing state-building in all countries, and strategic interactions among reforms dampen inequality in state-building across countries
 - ② high: military conflict causes a race to the top and great divergence emerges
- endogenous wars create an additional force towards convergence or divergence:
 - ① low: each ruler has little incentive to centralize + war redistributes revenues from larger countries to smaller ones, fostering fragmentation
 - ② high: strong incentive + war redistributes fiscal revenues and territories from smaller countries to larger ones, increasing concentration

State Capacity and Networks

- infrastructure power (Mann,1993) - the local state capacity (the presence of state functionaries and agencies) presence matters
- the determination of state capacity as a network game between municipalities and the national government
- network game + structural estimation
- mechanism:
 - ① strategic substitutes: free-ride on their neighbors' investments
 - ② strategic complementarities: voters' demand and no-spillover effects

State Capacity, Reciprocity and the Social Contract

- government as a reciprocal social contract: citizens pay their taxes and the state provides public goods
- this paper considers a repeated interaction between elites/governors and people, where civic culture evolves over time according to the relative payoff of civic-minded and materialist citizens
- evolutionary game + BP's framework
- mechanism:
 - ① institutional cohesiveness and civic culture are complements: direct benefits in the form of more public good provision may be accompanied by indirect benefits if the incentive to build civic culture is also enhanced
 - ② the structure of common interests shapes how civic culture and fiscal capacity: the Hintze-Tilly hypothesis

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- ① many distinguished empirical papers:
 - ① Aneja, Abhay, and Guo Xu. Strengthening State Capacity: Postal Reform and Innovation during the Gilded Age. NBER, 2022 (Information Transmission and Bureaucracy Functioning)
 - ② Balán, Pablo, Augustin Bergeron, Gabriel Tourek, and Jonathan L. Weigel. Local Elites as State Capacity: How City Chiefs Use Local Information to Increase Tax Compliance in the Democratic Republic of the Congo. AER 2022
 - ③ Dell, Melissa, Nathan Lane, and Pablo Querubin. State Capacity, Local Governance, and Economic Development in Vietnam

What I wish I had time to cover...

① omitted theoretical papers:

- ① Acemoglu, Daron, Giuseppe De Feo, and Giacomo Davide De Luca. Weak States: Causes and Consequences of the Sicilian Mafia. RES,2019
- ② Besley, Timothy, and Torsten Persson. The Origins of State Capacity: Property Rights, Taxation, and Politics. AER,2009

② China Politics:

- ① Ma, Debin, and Jared Rubin. The Paradox of Power: Principal-Agent Problems and Administrative Capacity in Imperial China (and Other Absolutist Regimes). JCE 2019
- ② Li, Weijia, Gérard Roland, and Yang Xie. Erosion of State Power, Corruption Control and Fiscal Capacity. EJ,2022
- ③ Li, Weijia, Gérard Roland, and Yang Xie. Crony Capitalism, the Party-State, and the Political Boundaries of Corruption. JCE,2022

Future?

- ① violence monopolist (Max Weber)
- ② ideology power (Michael Mann)
- ③ information and logistics (Hayek, Michael Mann)
- ④ administrative structure and state power (Williamson)
- ⑤ firm capacity? – the concern of organization economics
- ⑥ a unified/tidy model/framework! (micro theory taste)