

Political Economy

Lecture 2: Political agency and electoral control

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2015-2016, Fall semester
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1 Introduction

A principal-agent framework

Asymmetric information

A principal-agent framework

- We analyzed how voting might help to aggregate heterogeneous preferences.
- In democracies, policies are implemented by elected politicians.
- Once elected, politicians have an informational advantage over citizens.
- Models of “political agency” where politicians are *agents* and voters are *principals*.

Asymmetric information

- Issues due to asymmetric information:
 - Politicians' characteristics, i.e. **adverse selection**: As quality is unobserved, how to ensure that the “best” politicians are selected?
 - Politicians' behavior, i.e. **moral hazard**: As effort is unobserved, how to ensure that elected politicians implement policies that are consistent with voters' preferences?
- Elections are a way for voters to punish a politician who would have not implemented satisfying policies.

2 Canonical model of political agency

Setup of the model

Optimal decisions

Implications for the quality of government

Setup of the model

- A very simple agency framework that includes adverse selection and moral hazard, and allows to investigate how election mitigate (or not) these issues.

└ Canonical model of political agency

└ Setup of the model

- Two time periods: $t \in \{1, 2\}$.
- In each period, two possible states of the world may occur: $s_t = \{0, 1\}$. Each state occurs with probability $\frac{1}{2}$.
- The state of the world is not observed by voters, it is only observed by the incumbent politician.
- In each period, the elected politician takes a single decision $e_t \in \{0, 1\}$.
- The politician's action is not directly observed by voters.
- Voters' payoff U_t^V is Δ if $e_t = s_t$ and 0 if $e_t \neq s_t$.
- Both voters and politicians discount the future at rate $\beta < 1$.

- Canonical model of political agency

- Setup of the model

- Politicians get a payoff $E > 0$ from being in power (ego rent or wage).
- Politicians can be congruent or dissonant: $i \in \{C, D\}$. The probability that a randomly picked politician is congruent is π .
- Congruent politicians share voters' preferences, i.e.:

$$U_t^C = \begin{cases} E + \Delta, & \text{if } e_t = s_t, \\ E + 0, & \text{if } e_t \neq s_t. \end{cases}$$

- Dissonant politicians get (private) benefit from taking decisions that are not favorable to citizens, i.e.:

$$U_t^D = \begin{cases} E + 0, & \text{if } e_t = s_t, \\ E + r_t, & \text{if } e_t \neq s_t, \end{cases}$$

where $r_t \in [0, R]$, the dissonance rent, is drawn at each period from a cumulative distribution function $G(r)$ with mean μ .

- Politicians' type is unobserved by voters.

Timing

- 1 Nature determines the state of the world s_1 and the type of the incumbent politician.
- 2 If the incumbent politician is dissonant, r_1 is drawn from $G(r)$.
- 3 The incumbent politician chooses e_1 .
- 4 Voters observe their payoff U_1^V .
- 5 Voters decide whether or not to reelect the incumbent against a randomly chosen challenger.
- 6 Nature determines the state of the world s_2 .
- 7 If the incumbent politician is dissonant, r_2 is drawn from $G(r)$.
- 8 The incumbent politician chooses e_2 .
- 9 Voters observe their payoff U_2^V .

Equilibrium

- Let us denote the incumbent' decision as:

$$e_t(s, i), \text{ with } s \in \{0, 1\} \text{ and } i \in \{C, D\}.$$

- Optimal decisions in period 2:

$$\begin{aligned} e_2(s, C) &= s_2, \\ e_2(s, D) &= 1 - s_2. \end{aligned}$$

- Optimal decisions in period 1:
 - A congruent incumbent always chooses $e_1(s, C) = s_1$.
 - Optimal decision by dissonant politicians depends on the electoral best-response by voters between the two periods.

- Electoral best-response depends on how voters update their beliefs about politicians' type.
- Voters only observe Δ or 0. What do they learn from this observation about politicians' type?
- Assume voters observe Δ at the end of period 1:

$$P(i = C | U^V = \Delta) = \frac{P(i = C) \times P(\Delta | i = C)}{P(\Delta)} = \frac{\pi \times 1}{\pi + (1 - \pi)\lambda},$$

where λ is the probability that a dissonant incumbent takes a congruent decision in period 1.

- Since:

$$\forall \lambda : P(i = C | U^V = \Delta) > \pi,$$

voters will always reelect an incumbent that delivers Δ .

- Assume voters observe 0 at the end of period 1:

$$P(i = C | U^V = 0) = \frac{P(i = C) \times P(0 | i = C)}{P(0)},$$

i.e.:

$$P(i = C | U^V = 0) = \frac{\pi \times 0}{\pi \times 0 + (1 - \pi)(1 - \lambda)},$$

where $1 - \lambda$ is the probability that a dissonant incumbent takes a dissonant decision in period 1.

- Since:

$$\forall \lambda : P(i = C | U^V = 0) = 0 < \pi,$$

voters will never reelect an incumbent that delivers 0.

- A dissonant incumbent will behave congruently if short-term benefits from dissonance are lower than long-term benefits of congruence:

$$E + \beta (E + \mathbb{E}(r_2)) > E + r_1 + \beta \times 0,$$

$$\Leftrightarrow r_1 < \beta(\mu + E).$$

- Thus:

$$\lambda = G(\beta(\mu + E)).$$

- Bad politicians behave well in period 1 if dissonance is sufficiently low.

Implications for the quality of government

- *Ex ante* voters' welfare is:

$$W = V_1 + \beta V_2,$$

where:

$$V_1 = \left[\underbrace{\pi}_{P(i=C)} + \underbrace{(1-\pi)}_{P(i=D)} \underbrace{\lambda}_{P(\Delta|i=D)} \right] \Delta,$$

and,

$$V_2 = \left[\underbrace{\pi}_{P(i=C)} + \underbrace{(1-\pi)}_{P(i=D)} \underbrace{(1-\lambda)}_{P(0|i=D)} \underbrace{\pi}_{P(i=C)} \right] \Delta$$

- W is increasing in π (intuitive).
- W is increasing in λ .
- But V_1 is increasing in λ , while V_2 is **decreasing** in λ :
 - Interpreting λ as politicians' discipline, more discipline improves politicians' performance in period 1 but makes harder to detect dissonant incumbents.

Model's testable predictions

- Term limit effects:
 - 1 Politicians behave differently when they can or cannot run for reelection.
 - 2 If reelection is possible, rent extraction will be higher after the reelection than before (no discipline in period 2).

3 Empirical evidence

Term limit effect and politicians' decisions

Term limit effect and corruption

Term limit effect and politicians' decisions

Timothy Besley & Anne Case, 1995. "Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits," *The Quarterly Journal of Economics*, vol. 110(3), pages 769-798, August.

- US states' governors can hold office at most twice: Is there a difference between governors' first and second term? I.e. when they can or cannot run for reelection?
- Estimation strategy:

$$\text{Policy outcome}_{s,t} = \beta_0 + \beta_1 \text{Second term}_{s,t} + \delta_t + \delta_s + \dots$$

- Policy outcomes: taxes and state government spending.

Empirical evidence

Term limit effect and politicians' decisions

	Dep var: sales taxes	Dep var: income taxes ^b	Dep var: corporate taxes	Dep var: total taxes	Dep var: state expenditure per cap	Dep var: state minimum wage ^c	Dep var: maximum weekly benefits ^d
Incumbent cannot stand for reelection	7.86 (2.58)	8.74 (2.54)	0.57 (0.67)	6.71 (1.56)	14.38 (2.10)	-0.14 (2.57)	2.25 (0.83)
<i>R</i> ²	0.8938	0.8721	0.8253	0.9170	0.9397	0.7619	0.7462
Number of observations	1728	1327	1364	1728	1728	1721	1604

Impact of term limit on policy outcomes (t-statistics in parentheses).
Source: Besley and Case (1995)

Term limit effect and corruption

Claudio Ferraz & Frederico Finan, 2011. "Electoral Accountability and Corruption: Evidence from the Audits of Local Governments," *American Economic Review*, American Economic Association, vol. 101(4), pages 1274-1311, June.

- Are politicians less corrupt if they can run for reelection?
- Municipalities in Brazil:
 - Brazilian mayors can be reelected at most once.
 - Since 2003, the central government randomly select 60 municipalities per month to be audited. Reports are publicly available and provide an objective measure of corruption.
- Estimation strategy:

$$\text{Corruption}_i = \beta_0 + \beta_1 \text{First term}_i + \dots$$

- └ Empirical evidence

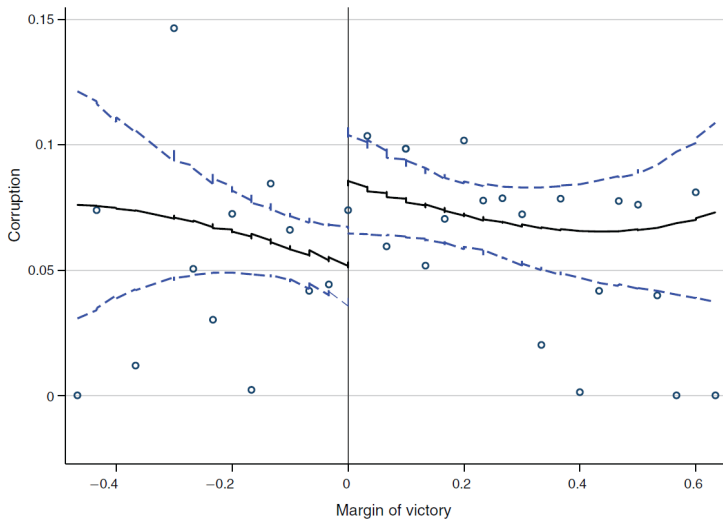
- └ Term limit effect and corruption

	Share of audited resources			Incidence of irregularities			Share of audited items		
	First term (1)	Second term (2)	Difference (3)	First term (4)	Second term (5)	Difference (6)	First term (7)	Second term (8)	Difference (9)
Diversion of funds	0.021	0.022	0.001 [0.005]	0.852	0.971	0.119 [0.103]	0.024	0.026	0.002 [0.003]
Illegal procurement	0.033	0.050	0.017 [0.007]	0.837	1.107	0.270 [0.100]	0.023	0.029	0.006 [0.003]
Overinvoicing	0.001	0.002	0.001 [0.001]	0.074	0.073	-0.001 [0.025]	0.002	0.002	0.000 [0.001]
Corruption	0.055	0.074	0.019 [0.009]	1.763	2.150	0.388 [0.157]	0.050	0.057	0.008 [0.005]

Differences in corruption by first- and second-term mayors.

Source: Ferraz and Finan (2011)

- How to ensure that being in the first or the second term is **random**?
- Alternative estimation strategy:
 - Compare new mayors who defeated the incumbent by a small margin to reelected incumbents who won the election by a small margin.



Random assignment of first- or second-term.

Source: Ferraz and Finan (2011)

- 4 Extended model accounting for clientelism and targeted policies
 - Setup of the model
 - Optimal decisions
 - Implications for the quality of government

Setup of the model

- What if politicians can set targeted policies such that rents are only extracted from some groups of citizens?

- Same assumptions as before (see slides 8–10)
- But:
 - 3 groups of voters ($g = 1, 2, 3$) of equal size $1/3$.
 - The incumbent can take different decisions $e_t^g \in \{0, 1\}$ regarding the three groups:

$$U_t^g = \begin{cases} 0, & \text{if } e_t^g \neq s_t \\ \Delta, & \text{if } e_t^g = s_t \end{cases}$$

- Voters of each group only observe their own payoff $U_t^g \in \{0, \Delta\}$.
- A dissonant politician gets $\frac{1}{3}$ of the rent $r_t \in [0, R]$ for each non-congruent targeted policy.

Equilibrium

- Optimal decisions in period 2 (no change):

$$\begin{aligned}\forall g, e_2^g(s, C) &= s_2, \\ \forall g, e_2^g(s, D) &= 1 - s_2.\end{aligned}$$

- Optimal decisions in period 1:
 - A congruent incumbent always chooses $\forall g e_1^g(s, C) = s_1$ (no change).
 - Again, optimal decision by dissonant politicians depends on the electoral best-response by voters between the two periods.

- Since groups are identical and of equal size, the dissonant incumbent must choose \mathbb{N} , the number of groups too please.
- Voters know that they only observe their own payoff.
- Assume group g observe Δ at the end of period 1:

$$P(i = C | U_1^g = \Delta) = \frac{P(i = C) \times P(\Delta | i = C)}{P(U_1^g = \Delta)},$$

where:

$$P(U_1^g = \Delta) = \pi + (1 - \pi) \left[P(\mathbb{N} = 3) + \frac{2}{3} P(\mathbb{N} = 2) + \frac{1}{3} P(\mathbb{N} = 1) \right].$$

- Since $P(i = C | U_1^g = \Delta) > \pi$, a group who observe Δ will always support the incumbent.

- Knowing this, a dissonant incumbent has no interest to please all groups, nor to please only one group, so:

$$P(\mathbb{N} = 3) = P(\mathbb{N} = 1) = 0.$$

- She must decide whether 2 groups or none.
- A dissonant incumbent will behave congruently with 2 groups if and only if:

$$E + \frac{1}{3}r_1 + \beta(E + \mathbb{E}(r_2)) > E + r_1 + \beta \times 0,$$

$$\Leftrightarrow r_1 < \frac{3}{2}\beta(\mu + E).$$

- Thus:

$$P(\mathbb{N} = 2) = G\left(\frac{3}{2}\beta(\mu + E)\right) \equiv \lambda'.$$

- It follows that $\lambda' > \lambda$ (where λ is the probability from the canonical model that a dissonant incumbent behave congruently in period 1).
- Targeted policies improves discipline in period 1.

Implications for the quality of government

- *Ex ante* voters' welfare is:

$$\mathbb{W} = V_1 + \beta V_2,$$

where:

$$V_1 = [\pi + (1 - \pi) \left\{ \lambda' \frac{2}{3} \right\}] \Delta,$$

and,

$$V_2 = \pi + (1 - \pi)(1 - \lambda')\pi] \Delta.$$

- Assuming that $\beta\pi \approx 0$, *ex ante* welfare is higher under clientelism if:

$$\frac{2}{3}\lambda' > \lambda,$$

which depends on the shape of function G .

5 Extended model accounting for voters' information

Setup of the model

Optimal decisions

Implications for the quality of government

Empirical evidence

Setup of the model

- In the canonical model, voters learn immediately about the consequences of policy choices. Quite unrealistic
- How does the political equilibrium change if voters are only imperfectly informed?

- Same assumptions as before (see slides 8–10)
- But:
 - Voters imperfectly observe payoffs (0 or Δ). They observe payoffs with probability χ after the incumbent has taken her/his decision.
 - Voters get some information about the incumbent's type. They observe $i \in \{C, D\}$ with probability τ after the incumbent has taken her/his decision.
 - Assume that voters reelect the incumbent if no information is revealed.

Equilibrium

- Optimal decisions in period 2 (no change):

$$e_2(s, C) = s_2,$$

$$e_2(s, D) = 1 - s_2.$$

- Optimal decisions in period 1:
 - A congruent incumbent always chooses $e_1(s, C) = s_1$ (no change).
 - Optimal decision by dissonant politicians depends on the electoral best-response by voters between the two periods, which is now modified by available information.

- Suppose a dissonant incumbent chooses $e_1(s, D) \neq s_1$.
 - Voters will know she/he is dissonant with probability $\tau + (1 - \tau)\chi$.
 - So, the incumbent will be reelected with probability $(1 - \chi)(1 - \tau)$.
- Suppose a dissonant incumbent chooses $e_1(s, D) = s_1$.
 - Voters will know she/he is dissonant with probability τ .
 - So, the incumbent will be reelected with probability $1 - \tau$.

- A dissonant incumbent will behave congruently if short-term benefits from dissonance are lower than long-term benefits of congruence:

$$E + (1 - \tau) \times \beta (E + \mathbb{E}(r_2)) > E + r_1 + (1 - \chi)(1 - \tau) \times \beta \times (E + \mathbb{E}(r_2)),$$

$$\Leftrightarrow r_1 < \chi(1 - \tau)\beta(\mu + E).$$

- Thus:

$$\lambda = G(\chi(1 - \tau)\beta(\mu + E)).$$

- Discipline is increasing in χ (quality of voters' information) but decreasing in τ (reduced incentive to take congruent decisions).

Implications for the quality of government

- *Ex ante* voters' welfare is:

$$\mathbb{W} = V_1 + \beta V_2,$$

where V_1 is the same as before, but:

$$V_2 = [\pi + (1 - \pi) \{(1 - \lambda)((1 - (1 - \chi)(1 - \tau)) Z + \lambda\tau Z)\}] \Delta,$$

where Z is the probability that the action is congruent during a politician's first term:

$$Z = \pi + (1 - \pi)\lambda$$

- χ and τ affect \mathbb{W} both directly and indirectly (via λ).
- χ always increases λ , and hence \mathbb{W} .
- τ has an ambiguous effect. Higher quality information increases chances of selecting a congruent politician in period 2, but reduces discipline in period 1. The second effect dominates if π is low.

Empirical evidence

Timothy Besley & Robin Burgess, 2002. "The Political Economy of Government Responsiveness: Theory and Evidence from India," *The Quarterly Journal of Economics*, Oxford University Press, vol. 117(4), pages 1415-1451.

- Is government more responsive to citizens' needs when voters are better informed?
- Examine how Indian state governments react to falls in food production and crop food damage depending on newspaper circulation.

- Estimation strategy:

$$\begin{aligned} \text{Government's reaction}_{s,t} = & \beta_0 + \beta_1 \text{Shock}_{s,t} + \beta_2 \text{Newspaper}_{s,t} \\ & + \beta_3 \text{Newspaper}_{s,t} \times \text{Shock}_{s,t} \\ & + \delta_s + \delta_t + \dots \end{aligned}$$

- Shocks: Drought and flood.
- Policy reactions: Calamity relief expenditure and public food distribution.

Extended model accounting for voters' information

Empirical evidence

	Public food distribution		Calamity relief expenditure	
	(1)	(4)	(5)	(7)
Food grain production	0.019 (0.98)	0.011 (0.56)		
Flood damage			0.063 (2.58)	0.085 (2.95)
Newspaper circulation	146.84 (4.52)		19.41 (1.31)	
Newspaper circulation * food grain production	-0.444 (3.11)			
Newspaper circulation * flood damage			1.677 (2.83)	
English newspaper circulation		91.63 (0.68)		47.76 (0.96)
Hindi newspaper circulation		-157.43 (1.18)		-19.33 (0.52)
Other newspaper circulation		168.02 (3.88)		20.35 (1.35)
English newspaper circulation * food grain production		-0.229 (0.36)		
Hindi newspaper circulation * food grain production		0.542 (1.09)		
Other newspaper circulation * food grain production		-0.605 (2.84)		
English newspaper circulation * flood damage				-5.683 (1.70)
Hindi newspaper circulation * flood damage				2.410 (1.29)
Other newspaper circulation * flood damage				1.964 (3.16)
Number of observations	471	467	486	482
Adjusted R^2	0.77	0.77	0.30	0.30

Newspaper circulation and government responsiveness (t-statistics in parentheses).
Source: Besley and Burgess (2002)

6 Conclusion

Conclusion

- Other issues (not covered):
 - Once elected, **politicians might have better information than voters** about what is good or bad for the country. Yet, reelection concerns might push politicians to take non-optimal decisions (from the social welfare point of view) to get reelected since voters are wrong about what should be done.
 - If politicians can hold office more than twice, dissonant politicians are **less disciplined as time goes**. The idea is that they have more to lose as they can stay longer in office by behaving cooperatively. Need repeated games to model such situations.
 - Wages offered to politicians can allow for **endogenous quality of candidates**. Same thing for the information structure.

End of lecture.

Lectures of this course are inspired from those taught by D. Acemoglu, Y. Algan, R. Durante, and B. Olken.