Political Economics III
Spring 2010

I. Political Institutions, Policy, and Development
Lecture 1

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Pick up the theme from Lectures **7-8** in Pol **II**

deepen analysis: discriminate between mechanisms

broaden analysis: extend to other topics and institutions

Two examples today...

A. Build bridge to political science

B. Build bridge to development economics

...and two in next lecture

C. Dynamic interplay of democracy and development

D. Heterogeneous effects of democracy

A. Build bridge to political science

Evidence on electoral rules (**Pol II**, Lecture **8**)

PR systems spend more (5% of GDP)

Underlying theory

(the one in **Pol II**, Lecture **7** did not have this prediction)
incentive effects, structure of representation given

Traditional research in political science

electoral rule ⇒ party structure ⇒ government type
theory: cut chain before policy outcomes as spending
empirics: strong patterns in the data

Empirical support for government type ⇒ spending

but little theory and government type exogenous

Alternative explanation for higher spending under PR

indirect effect via political outcomes – in parl democracy

Direct or indirect effects?

earlier results unhelpful – only on "reduced form"

formal modeling would facilitate design of test

but this (i) is difficult, (ii) falls in crack between two disciplines

Agenda – part **A**

1. Simple model of policy and voting
2. Single party vs. coalition governments
3. Electoral rules and party structures
4. Data
5. Evidence

1. Simple model of policy and voting

Static setup

equal-sized economic groups $J = 1, .., 4$

$$V^J(\mathbf{g}) = 1 - \tau + H(g^J)$$

$\mathbf{g} = [\tau, \{g^J\}]$ non-targeted tax, targeted spending

set by incumbent government, that faces (re-)election

Government budget constraint

$$4\tau = \sum_J g^J$$

"social optimum": $H_g(g^*) = 1$, all J

4 groups of representatives, one per J

exogenous party structure (relax this in **3.** below)

Two parties – $N = II$

$P = 12, 34$

only single-party governments $G = S$

Three parties – $N = III$

$P = 12, 3, 4$ or $1, 2, 34$

single-party, or coalition government $G = S, C$

Four parties – $N = IV$

$P = 1, 2, 3, 4$

only coalition governments $G = C$

Lexicographic probabilistic voting

voter i in J always rewards incumbent government if

$$V^J(\mathbf{g}) \geq V^{*J} + \sigma^i + \delta$$

if not, punish incumbent and vote for the opposition

V^{*J} equilibrium value of $V^J(\mathbf{g})$

σ^i uniform on $[-\frac{1}{2\phi}, \frac{1}{2\phi}]$, δ uniform on $[-\frac{1}{2\psi}, \frac{1}{2\psi}]$

Party/group attachments if $N > II$

vote for own party if $P = J$ in govt and $i \in J$ "pleased"

randomize vote 50/50 across parties on other side, $P \neq J$, if

if $P = J$ in govt and $i \in J$ not pleased,

or $P \neq J$ in govt and i pleased

Conflict inside government only in $G = C$

voters cannot discriminate between groups if $G = S$

2. Single party vs. coalition governments

Party objectives

maximize expected seat share $E(s_G^P)$

electoral system translates votes to seats

Single-party government $G = S$, say 12

no conflict between groups in ruling party

$P = 12$ sets $\{g^J\}$ to maximize $E(s_S^P)$

τ residual

Coalition government: $G = C$, say $1 + 2$

conflict in government (each party faces separate rewards)

$P = 1, 2$ agree on g^J, for J not in government

assume each party $P = J$ sets its own g^J to maximize $E(s_C^P)$

τ residually decided

a. Proportional elections

Single national district

seat share $s^P = v^P$ vote share, *independently* of N

Large P in S

v^P average fraction of pleased voters across groups

$$v_S^P = \frac{1}{4}\sum_{J=1}^{4} F(V^J(\mathbf{g}) - V^{*J} - \delta)$$

random incumbent popularity (δ) creates electoral uncertainty

but expected seat share is

$$E(s_S^P) = E(v_S^P) = \frac{1}{2} + \frac{\phi}{4}\sum_{J=1}^{4}(V^J(\mathbf{g}) - V^{*J})$$

i.e., all J get equal weight

Small P in C

$$E(s_C^P) = \frac{1}{4} + \frac{\phi}{4}\{(V^P(\mathbf{g}) - V^{*P}) + \frac{1}{2}\sum_{J=3}^{4}(V^J(\mathbf{g}) - V^{*J})\}$$

"own group" more weight, group of coalition partner no weight

Intuition

P never rewarded by voters of coalition partner

pleased opposition voters split 50-50 between coalition members

Equilibrium policy

$G = S : g_S^J = H_g^{-1}(1) = g^*$, all J

$G = C : g_C^J = H_g^{-1}(\frac{1}{2}) > g^*$, for $J = P \in G, \quad g_C^J = g^*, J \notin G$

total spending higher under coalition government

only coalition govt has common-pool problem

b. Majoritarian elections

Large # of homogenous single-member districts

win in one district $\Longrightarrow$ win whole election

$E({}_N s_G^P) = \text{Prob}({}_N v_G^P \geq {}_N \bar{v}_G)$, ${}_N \bar{v}_G$ threshold for plurality

$\Rightarrow$ advantage of being single party in govt /opposition

Large P in S

$$E({}_N s_S^P) = \frac{1}{2} + (\frac{1}{2} - {}_N \bar{v}_S)\frac{\psi}{\phi} + \frac{\psi}{4}\sum_{J=1}^{4}(V^J(\mathbf{g}) - V^{*J})$$

absolute effect of $\frac{dV^J}{d\mathbf{g}}$ on $E(s_S^P)$ different than under PR

but *relative* effect of $\frac{dV^K}{d\mathbf{g}}$ vs. $\frac{dV^L}{d\mathbf{g}}$ is not

note: P better off if opposition split ${}_{II}\bar{v}_S = \frac{1}{2} > {}_{III}\bar{v}_S = \frac{1}{3}$

Small P in C

$$E({}_N s_C^P) = \frac{1}{4} + (\frac{1}{4} - {}_N \bar{v}_C)\frac{\psi}{\phi} + \frac{\psi}{4}\{(V^P(\mathbf{g}) - V^{*P}) + \frac{1}{2}\sum_{J=3}^{4}(V^J(\mathbf{g}) - V^{*J})\}$$

again, relative weights same as under PR

note: P worse off if opposition united $\bar{v}_C = \frac{1}{4} < {}_{III}\bar{v}_C = \frac{1}{3}$

Equilibrium policy

Same $\left\{g^J\right\}$ as with PR under both types of government

3. Electoral rules and party structure

Endogenize party and government formation

simple example, where policy game in **2**. preceded by
(1) Party formation
(2) Government formation

Party formation

allow legislators in groups 1 and 2 (3 and 4) to merge or split
$\Rightarrow N$ and P

Government formation

lottery among (viable) alternatives, given N and P

Payoffs to groups

if merge, party payoff shared equally by groups

if not, party payoffs = legislator group payoffs

Groups maximize

$$\mathsf{E}[{}_N W_G^P] = R_G + E({}_N s_G^P)$$

$E({}_N s_G^P)$ as described in **2**

R_G exogenous rent from government status, with

$$R_C > \frac{R_S}{2} > R_O = 0$$

i.e., rents to group as independent party in C $>$

rents to group as half party in S $>$

rents in opposition

Equilibrium party structure

Proportional elections

unique outcome $N = IV$, $G = C$

gain from independence, and no electoral loss if small

Majoritarian elections

can have $N = II$, $G = S$, depending on parameters

small party still has higher rents, but is electorally handicapped.

if trade-off steep enough, get two-party equilibrium

Testable predictions

Hypotheses 1

PR *and* large districts raise incidence of coalition govt,

but only indirectly, via party fragmentation $\Rightarrow$ *over id*

Hypotheses 2

PR and large districts raise spending,

but only indirectly, via incidence of coalition govts $\Rightarrow$ *over id*

4. Data

Sources

as in **Pol II**, Lecture **7**: 90s averages and 1960-panel
plus 1960-panel on constitutions and political outcomes

Cross section for 1990s

averages $\sim$ 50 parliamentary democracies

Panel since 1960

330 legislatures in $\sim$ 35 parl. democracies
exploit electoral reforms in last six legislatures

Simple cross tabulation – Table 1

conditional means consistent with model

Table 1 - Political outcomes and government spending under alternative electoral systems

	(1) Majoritarian	(2) Mixed	(3) Proportiononal
Party fragmentation	0.54 (0.17)	0.54 (0.12)	0.70 (0.09)
Coalition governments	0.24 (0.41)	0.33 (0.47)	0.55 (0.47)
Single-party governments	0.63 (0.47)	0.40 (0.50)	0.17 (0.37)
Government spending	25.94 (9.05)	33.45 (11.3)	35.12 (9.30)

Simple averages; standard deviations in parenthesis. Observations pooled across countries and legislatures.

5. Evidence

Effects on political outcomes

do **Hypotheses 1** hold up ?

Results – Table 2

signs consistent with predictions

significant estimates

cannot reject over-identifying restrictions

Table 2 - Party Structure, type of government and electoral rule

	(1) Party fragmentation	(2) Coalition government	(3) Single-party government	(4) Party fragmentation	(5) Coalition government	(6) Single-party government
Plurality rule	– 0.14***			– 0.010		
	(0.04)			(0.046)		
District magnitude	0.11**			3.46***		
	(0.05)			(1.26)		
Party fragmentation		1.90***	– 2.85***		0.78***	– 0.90***
		(0.54)	(0.50)		(0.24)	(0.28)
Sample	Cross section	Cross section	Cross section	Panel	Panel	Panel
Estimation method	OLS	2SLS	2SLS	OLS with country FE	OLS with country FE	OLS with country FE
First stage F-statistic		15.98	15.98			
Sargan-Hansen statistic (df)		2.56(1)	0.58(1)			
Observations	47	47	47	179	168	168
(Countries)				(38)	(36)	(36)
R-squared (overall)	0.63			0.128	0.034	0.107

Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. Controls in columns (1)-(3),: *Ethnolinguistic fractionalization, log of population size, UK colony*. In cols (2)-(3), *party_fragmentation* is endogenous. First-stage instruments (columns 2-3) are: *plurality rule, district magnitude* and all controls. Controls in columns (4-6): Lagged dependent variable, log of population size, polity2 score. Critical value of Sargan-Hansen statistic with 1 df at 5% significance is 3.84

Effects on government spending

do **Hypotheses 2** hold up?

Results – Table 3

signs consistent with predictions

results statistically and economically significant

again, cannot reject over-identifying restrictions

Table 3 - Government spending and type of government

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Plurality rule	– 5.34*			6.76					
	(3.18)			(7.72)					
District magnitude	11.59***				6.47				
	(3.07)				(4.60)				
Coalition government		18.30***		29.41***	12.99**	2.25**		7.20***	
		(4.59)		(11.45)	(6.23)	(0.93)		(2.57)	
Single-party government			– 16.18***				– 1.81*		– 11.32*
			(5.76)				(1.02)		(5.81)
Lag government spending						0.24**	0.25**	0.44*	0.54**
						(0.11)	(0.11)	(0.27)	(0.26)
Sample	Cross section	Cross section	Cross section	Cross section	Cross section	Panel	Panel	Panel	Panel
Estimation method	OLS	2SLS	2SLS	2SLS	2SLS	OLS with country and period FE	OLS with country and period FE	GMM with country and period FE	GMM with country and period FE
First-stage *F*-statistic		23.02	16.88	7.25	6.15				
Sargan-Hansen statistic(df)		0.98(1)	2.03(1)					4.30(5)	2.51(5)
AR2 (*p*-value)								0.63	0.11
Observations	46	46	46	46	46	140	140	105	105
(Countries)						(34)	(34)	(32)	(32)
R-squared	0.71					0.645	0.672		

Robust standard errors in brackets. *** significant at 1%, ** significant at 5%, * significant at 10% . Controls in columns (1)-(5): per-capita income, openness, population over 65, federalism, ethno-linguistic fractionalization, UK colony. Controls in columns (6)-(9) except country and period fixed effects: log population size, population share over 65, output gap, length of legislature. In columns (2)-(5) type of government is endogenous. First-stage instruments are plurality rule and district magnitude plus all controls. GMM specification (all variables in first differences) treats type of government as endogenous with one lag of this variable plus plurality rule and district magnitude as instruments.. AR(2) refers to Arellano-Bond test for absence of second order serial correlation. Critical values of the Sargan-Hansen test statistic is distributed as chi2. Critical values at 5% significance are 3.84 with 1 df and 11.07 with 5 df.

Promising, but much to be done

theory: work out implications of heterogeneity

empirics: study other aspects of economic policy

B. Build bridge to development economics

Classic question: does democracy promote development?

- richer countries more often democratic
  - but before – after reform evidence quite weak
    - difficult to identify effect from within-country variation

Perhaps democracy too blunt a concept

- study details of democratic reforms
  - heterogeneity interesting in its own right
    - may also be source of bias when estimate ATE of democracy

Agenda – Part **B**

1. Data and econometrics
2. Economic liberalization and democracy
   draw on Giavazzi and Tabellini (2005)
3. Form of democracy
   draw on Persson (2005)
4. Expected and actual democracy
   draw on Persson and Tabellini (2009)

1. Data and econometrics

Democracy

annual panel from Polity IV data set:

$D_{i,t} = 1$ if *polity 2* > 0 ,

$D_{i,t} = 0$ otherwise

$\sim$ 120 (usable) reforms in 1960-2000

$\sim$ 250 in 1850-2000 (Section **4.** below)

Development

matching panel for GDP/capita

$y_{i,t}$ Penn World Tables 1960-2000

Maddison 1850-2000 (Section **4.**)

Auxiliary outcomes and controls

$\mathbf{x}_{i,t}$ from variety of sources

Econometric specification

$$y_{i,t} - y_{i,t-1} = \beta y_{i,t-1} + \phi D_{i,t} + \boldsymbol{\rho}\mathbf{x}_{i,t} + \alpha_i + \theta_t + \epsilon_{i,t}$$

Panel growth regression

dependent variable: growth rate not income level
purge unobserved heterogeneity s t $y_{i,t}$, $D_{i,t}$ correlated
and allow for convergence

fixed country and year effects $\Rightarrow$
difference-in-difference estimation of ϕ

Identification of ϕ

$D_{i,t}$ uncorrelated with slope of country-specific growth path $\epsilon_{i,t}$
war, and post-Berlin-Wall, indicators in $\mathbf{x}_{i,t}$
separate, non-parametric growth trends,
by continent and by socialist legal origin in $\mathbf{x}_{i,t}$

Heterogeneity of reform

Reforms differ by circumstances and institutions

$\phi_{i,t}$ rather than ϕ – why bother?
interesting in itself
estimates of ϕ biased, if $(\phi_{i,t} - \phi)$ and $D_{i,t}$ correlated
e.g., democracy introduced where it "works best"
(return to such systematic selection in Lecture **2**)

Parsimonious approach

number of reforms limited $\Rightarrow$
decompose effect of reform by *a few* observable features,
and *one set at a time*
replace $\phi D_{i,t}$ in (18) by $\sum_s \phi^s D^s_{i,t}$

2. Economic liberalization and democracy

Benchmark: does democracy raise growth ?

yes: impact effect on growth about 0.75%
implied long-run effect on GDP/capita 12.5%

But so does economic liberalization

measure by Sachs-Warner-Wacziarg-Welch index
growth effect about 1.3%

each estimate could be biased upwards
as two types of reform quite often go together

Table 1 Effects of political and economic reforms on economic growth

	(1) Growth	(2) Growth
Democracy	0.75**	
	(0.34)	
Liberalization		1.31***
		(0.39)
N. of countries	138	134
N. of observations	4338	4492

Notes: Robust standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%
Control variables: country and year fixed effects, lagged income, dummy variable for wars and lagged wars, dummy variable for former socialist countries in Central and Eastern Europe plus former Soviet Union after 1990, year dummy variables interacted with dummy variables for Latin America, Africa, Asia and Socialist legal origin

Multiple treatment effects ?

Do both reforms raise growth ?

yes, significant and independent effects of each

But – when both reforms occur – sequence is important

liberalization before democracy $\Rightarrow$ growth up $\sim 3.5\%$
long-run income effect $> 50\%$

opposite sequence $\Rightarrow$ only marginal positive effect

South Korea and Chile *vs.* Philippines and Argentina

Table 1 Effects of political and economic reforms on economic growth

	(1) Growth	(2) Growth	(3) Growth	(4) Growth
Democracy	0.75**		0.81**	0.70*
	(0.34)		(0.33)	(0.33)
Liberalization		1.31***	0.92**	1.22***
		(0.39)	(0.39)	(0.43)
Democracy after liberalization				1.62*
				(0.86)
Liberalization after democracy				-1.71***
				(0.62)
N. of countries	138	134	130	130
N. of observations	4338	4492	4229	4229

Notes: Robust standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%
Control variables: country and year fixed effects, lagged income, dummy variable for wars and lagged wars, dummy variable for former socialist countries in Central and Eastern Europe plus former Soviet Union after 1990, year dummy variables interacted with dummy variables for Latin America, Africa, Asia and Socialist legal origin

3. Form of democracy

Does form of democracy matter? – Table 2

parliamentary vs. presidential democracy: yes !
only presidential democracy significantly boosts growth

majoritarian vs. proportional democracy: no !

Table 2 Forms of democracy, growth and economic policies (1960-2000)

	(1) Growth
Democracy	1.00** (0.51)
Parliamentary democracy	– 1.61*** (0.59)
Proportional democracy	0.16 (0.49)
N. of countries	138
N. of observations	4338

How could this be explained ?

look for systematic differences in induced policies
following the ideas in **Pol II**, Lectures **7-8**

Government spending?

measure by *total* government *consumption* (PWT)

new parliamentary democracy: spending up by 5% of GDP
vs. new presidential democracy – replicates results for *total*
spending by *central* government in cross section of democracies

proportional democracy boosts spending too, by 1% of GDP

Economic liberalization?

parliamentary and proportional democracy both raise probability
of subsequent liberalization (improductive sequence) by $\sim 10\%$

Table 2 Forms of democracy, growth and economic policies (1960-2000)

	(1) Growth	(2) Government consumption	(3) Liberalization
Democracy	1.00**	– 1.87***	– 0.07***
	(0.51)	(0.54)	(0.02)
Parliamentary democracy	– 1.61***	4.89***	0.11***
	(0.59)	(0.79)	(0.04)
Proportional democracy	0.16	1.15**	0.11***
	(0.49)	(0.49)	(0.03)
N. of countries	138	150	132
N. of observations	4338	4552	4578

4. Expected and actual democracy

Suppose democracy raises income and returns to investment

then *expected* democracy affects investment and growth
estimate of *actual* democracy could be downward biased

How estimate effect of expected democracy ?

use estimated hazard rates for each regime in growth equation
identification based on theory in Persson and Tabellini (2009)
democratic capital affects prob. of regime change, not growth
return to this concept in Lecture **2**

Results

Expected democracy within regimes – Table 3

- within democracy: higher probability of autocracy
  - significantly cuts growth (1850-2000) and investment (1960-00)
- within autocracy: expectations effect insignificant

Expected and actual democracy – across regimes

- effect of actual democracy on growth is indeed stronger when
  - expected democracy included in specification
  - long run effect on income $\sim 35\%$

Table 3 Expected and actual democracy, growth, and investment

	(1) Democracies	(2) Autocracies	(3) Full sample
Panel A Dependent variable: Growth 1850-2000			
Hazard rate out of current regime	– 20.05***	– 17.85	
	(5.51)	(11.93)	
Democracy			1.04*
			(0.62)
Probability of autocracy			0.47
			(0.73)
Prob. of autocracy in lag democracy			– 3.42
			(2.52)
N. of countries	107	117	148
N. of observations	3656	4130	8135

Heterogeneity of democracy

does play a major role for the growth effects
"the devil is in the details"

good topic for theoretical and empirical research

continue on this theme next lecture