ECON 3510: Poverty and Economic Development
Lecture 11: Politicians I

Instructor: Weizheng Lai

Bowdoin College

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Jones and Olken (2009)

- A very big question: role of political leaders in shaping a country's trajectory.
- Difficult to estimate the causal effect: who becomes a leader is endogenous to various factors.
- Jones and Olken (2009) approach the big question by asking: What is the consequence of the successful assassinations of national leaders as opposed to the failed assassinations?
- Why compare successful assassinations to failed ones, rather than to cases with no assassinations at all?
  - Whether an assassination occurs is endogenous. Assassinations often occur during turbulent times.
  - Whether an assassination succeeds may depend on more idiosyncratic factors.

Data

- **National leader:** uniquely defined for a country in a year; the most powerful person.
  - Archigos v2.5: 2,440 leaders from 187 countries between 1875–2004.
- **Assassinations:**
  - Collected from New York Times, Washington Post, and Wall Street Journal;
  - Restricted to “serious attempts” in which some weapons were discharged.
- **Outcomes:**
  - Polity IV: democracy/autocracy measures;
  - Archigos: leader transitions; regular vs. irregular (i.e., through coup);
  - Correlates of War (COW) dataset: armed conflicts with over 1,000 battle deaths from 1816–2002;
  - PRIO/Upssala Armed Conflict dataset: all armed conflicts with over 25 battle deaths since 1946.

Summary Statistics

TABLE 2—ASSASSINATION ATTEMPTS: SUMMARY STATISTICS

	Observations	Percentage	Probability leader killed		Bystander casualties	
			All attempts	Serious attempts	Mean killed	Mean wounded
Type of weapon						
Gun	161	55%	28%	31%	1.0	2.2
Explosive device	91	31%	5%	7%	5.8	18.2
Knife	23	8%	13%	21%	0.3	0.4
Other	19	6%	16%	18%	1.1	0.3
Unknown	10	3%	40%	44%	2.0	1.3
Location						
Abroad	12	4%	25%	30%	3.6	6.5
At home	286	96%	20%	23%	2.4	6.7
Number of attackers						
Solo	132	59%	24%	29%	0.4	2.5
Group	92	41%	22%	26%	5.6	11.0
Total attempts	298	n/a	20%	24%	2.4	6.7

Successful vs. Failed Assassinations

- Main specification:

$$y_i = \alpha + \beta \cdot SUCCESS_i + \boldsymbol{\gamma}\mathbf{X}_i + \varepsilon_i.$$

  i indexes a country-year in which an assassination was attempted.

- **Identification assumption:** $SUCCESS_i$ is exogenous conditional on controls $\mathbf{X}_i$, i.e., $E(\varepsilon_i \mid SUCCESS_i, \mathbf{X}_i) = 0$.

$$\beta = E[y_i \mid SUCCESS_i = 1, \mathbf{X}_i] - E[y_i \mid SUCCESS_i = 0, \mathbf{X}_i].$$

- **Interpretation:** β captures the mean *difference* between successful and failed assassinations.
  - The difference can be due to (i) success, (ii) failure, or (iii) both.
  - The authors provide some suggestive evidence to clarify which channel is more important.
  - Nonetheless, rejecting $\beta = 0$ would indicate that the outcome of the assassination matters, and thus national leaders matter.

- **Statistical inference:** two approaches.
  - Parametric: OLS robust standard errors, clustered at the country level.
  - (Not Required) Nonparametric: intuitively, test whether the outcomes of two groups have the same distributions; better small sample properties.

Correlates of Assassination Successes

Variable	Success	Failure	Difference	p-val on difference
Panel A: Pairwise t-tests of sample balance				
Democracy dummy	0.362	0.344	0.018	0.80
	(0.064)	(0.035)	(0.072)	
Change in democracy dummy	−0.036	−0.022	−0.013	0.67
	(0.025)	(0.019)	(0.032)	
War dummy	0.263	0.318	−0.055	0.42
	(0.059)	(0.034)	(0.068)	
Change in war	0.036	0.011	0.025	0.71
	(0.058)	(0.034)	(0.067)	
Log energy use per capita	−1.589	−1.740	0.152	0.69
	(0.338)	(0.180)	(0.383)	
Log population	9.034	9.526	−0.492	0.05*
	(0.219)	(0.117)	(0.248)	
Age of leader	55.172	52.777	2.395	0.14
	(1.351)	(0.866)	(1.604)	
Tenure of leader	9.328	7.619	1.709	0.27
	(1.440)	(0.544)	(1.539)	
Observations	59	194		

Correlates of Assassination Successes: Probit Regression

- Probit regression:

$$\Pr(SUCCESS_a = 1 \mid X_a) = \Phi(\gamma_0 + \gamma_1 X_a).$$

	(1)	(2)	(3)	(4)
Panel B: Multivariate regressions				
Democracy dummy	0.068	0.063	0.071	0.070
	(0.068)	(0.066)	(0.070)	(0.067)
Change in democracy dummy	−0.039	−0.050	−0.033	−0.036
	(0.100)	(0.103)	(0.104)	(0.109)
War dummy	0.057	0.063	0.061	0.067
	(0.069)	(0.065)	(0.070)	(0.065)
Change in war	−0.024	−0.017	−0.025	−0.013
	(0.077)	(0.083)	(0.076)	(0.083)
Log energy use per capita	0.002	0.001	0.008	0.009
	(0.014)	(0.014)	(0.015)	(0.015)
Log population	−0.027	−0.025	−0.028	−0.032
	(0.021)	(0.021)	(0.021)	(0.020)
Age of leader	0.003	0.003	0.002	0.002
	(0.003)	(0.003)	(0.003)	(0.003)
Tenure of leader	0.004	0.004	0.005	0.004
	(0.003)	(0.003)	(0.003)	(0.003)
Weapon FE	N	Y	N	Y
Region FE	N	N	Y	Y
Observations	208	208	208	208
p-value of F-test on all listed variables	0.46	0.49	0.46	0.40
p-value of F-test on all listed variables and fixed effects	0.46	0.06*	0.59	0.01***

Effects on Institutions

	Absolute change in POLITY2 dummy (1)	Directional change in POLITY2 dummy (2)	Percentage of "regular" leader transitions in next 20 years (3)
Panel A: Average effects			
Success	0.091	0.079	0.111
	(0.047)	(0.051)	(0.057)
Parm. p-value	0.06*	0.12	0.06*
Nonparm. p-value	0.03**	0.02**	0.18
Observations	221	221	138
Data source	Polity IV	Polity IV	Archigos
Panel B: Split by regime type in year before attempt			
Success × autocracy		0.131	0.191
		(0.055)	(0.085)
Success × democracy		−0.012	0.034
		(0.083)	(0.043)
Autocracy—parm. p		0.02**	0.03**
Autocracy—nonparm. p		0.01***	0.05**
Democracy—parm. p		0.89	0.43
Democracy—nonparm. p		0.13	0.96
Observations		221	133
Data source	Polity IV	Polity IV	Archigos

- Col 1 & 2: look at institutional change from $t-1$ to $t+1$.
  - Col 1: any change from autocracy to democracy or from democracy to autocracy.
  - Col 2: $=1$ if democratization; $=-1$ if autocratization; $=0$ if no change.
- Successful assassinations of autocrats produce sustained moves toward democracy.

Effects on Institutions by Leader Tenure: Directional Change

	All leaders			Autocrats only		
	All	Tenure ≤ 10	Tenure > 10	All	Tenure ≤ 10	Tenure > 10
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Directional change in POLITY2 dummy						
1 year out	0.079	0.058	0.129	0.130	0.088	0.214
	(0.051)	(0.051)	(0.125)	(0.057)	(0.069)	(0.110)
Parm. p-value	0.12	0.26	0.31	0.03**	0.21	0.06*
Nonparm. p-value	0.02**	0.31	0.01***	0.01***	0.13	0.02**
10 years out	0.046	0.013	0.092	0.190	0.226	0.169
	(0.062)	(0.075)	(0.146)	(0.079)	(0.108)	(0.132)
Parm. p-value	0.46	0.86	0.53	0.02**	0.04**	0.21
Nonparm. p-value	0.01**	0.12	0.03**	0.05**	0.22	0.08*
20 years out	−0.003	−0.006	0.001	0.023	0.091	0.013
	(0.091)	(0.116)	(0.154)	(0.090)	(0.117)	(0.157)
Parm. p-value	0.98	0.96	0.99	0.80	0.44	0.94
Nonparm. p-value	0.86	0.78	0.72	0.59	0.75	0.60

Effects on Institutions by Leader Tenure: Regular Transitions

Panel B: Percentage of transitions by "regular" means						
1–10 years out	0.099	0.126	0.087	0.186	0.197	0.102
	(0.077)	(0.089)	(0.243)	(0.113)	(0.145)	(0.255)
Parm. *p*-value	0.21	0.16	0.73	0.11	0.18	0.70
Nonparm. *p*-value	0.35	0.18	0.53	0.16	0.25	0.28
1–20 years out	0.111	0.116	0.274	0.165	0.147	0.306
	(0.057)	(0.063)	(0.181)	(0.095)	(0.113)	(0.227)
Parm. *p*-value	0.06*	0.07*	0.15	0.09*	0.20	0.20
Nonparm. *p*-value	0.18	0.23	0.03	0.05**	0.15	0.03**
11–20 years out	0.119	0.1	0.368	0.208	0.181	0.422
	(0.068)	(0.072)	(0.246)	(0.107)	(0.110)	(0.275)
Parm. *p*-value	0.09*	0.17	0.16	0.06*	0.11	0.15
Nonparm. *p*-value	0.25	0.59	0.04	0.03**	0.16	0.05**

Effects on Wars

	Gleditsch-COW dataset 1875–2002 (1)	Gleditsch-COW dataset 1946–2002 (2)	PRIO/Uppsala dataset 1946–2002 (3)
Panel A: Average effects			
Success	−0.072	0.041	0.162
	(0.068)	(0.093)	(0.071)
Parm. *p*-value	0.29	0.66	0.02**
Nonparm. *p*-value	0.57	0.83	0.03**
Observations	223	116	116
Data source	Gleditsch	Gleditsch	PRIO
Panel B: Split by war status in year before attempt			
Success × intense war	−0.255	−0.103	−0.110
	(0.144)	(0.257)	(0.294)
Success × moderate war			0.334
			(0.163)
Success × not at war	−0.024	0.020	0.070
	(0.068)	(0.086)	(0.057)
Intense war—parm. *p*-value	0.08*	0.69	0.71
Intense war—nonparm. *p*-value	0.13	1.00	0.69
Moderate war—parm. *p*-value	N/A	N/A	0.05**
Moderate war—nonparm. *p*-value	N/A	N/A	0.13
Not at war—parm. *p*-value	0.73	0.82	0.22
Not at war—nonparm. *p*-value	0.62	0.71	0.21
Observations	222	116	116
Data source	Gleditsch	Gleditsch	PRIO

Successes or Failures?

- Previous results are for the differences between successful and failed assassinations.
- The authors explore whether successes or failures play a bigger role.
- To do so, they have to compare country-years with successful/failed cases with those where there were no assassinations at all.
- The key challenge is that assassinations occurred endogenously. To partially deal with this, they use propensity score matching (PSM) to select comparable country-years without assassinations.
- Procedures:
  - Estimate a Probit model $\Pr(ATTEMPT_{ct} = 1 \mid \mathbf{X}_{ct}) = \Phi(\boldsymbol{\rho}\mathbf{X}_{ct})$. Obtain predicted attempt probability $\hat{p}_{ct} = \Phi(\hat{\boldsymbol{\rho}}\mathbf{X}_{ct})$
  - Block observations with similar $\hat{p}_{ct}$.
  - Estimate

$$y_{ib} = \underbrace{\alpha_b}_{\text{block FE}} + \beta_s \cdot SUCCESS_{ib} + \beta_f FAILURE_{ib} + \boldsymbol{\gamma}\mathbf{X}_{ib} + \varepsilon_{ib}.$$

  With α_b, it exploits within-block variation where countries have similar $\hat{p}_{ct}$.

Correlates of Attempts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Democracy dummy	−0.007*							−0.0002
	(0.004)							(0.0034)
Change in democracy dummy		−0.012*						−0.009
		(0.007)						(0.007)
War dummy			0.028***					0.025***
			(0.006)					(0.007)
Change in war				0.004				−0.007
				(0.006)				(0.005)
Log energy use per capita					−0.003***			−0.002***
					(0.001)			(0.001)
Log population						0.005***		0.004***
						(0.001)		(0.001)
Age of leader							−0.00022*	−0.0003**
							(0.00012)	(0.0001)
Tenure of leader								−0.0001
								(0.0002)
Observations	11,171	10,763	11,671	11,258	9,664	10,607	12,019	8,904
p-value of regression	0.08*	0.07*	0.00***	0.47	0.00***	0.00***	0.08*	0.00***

Effects on Institutions: Successes vs. Failures

	Absolute change in POLITY2 dummy		Directional change in POLITY2 dummy		Percent regular leader transitions 1–20 years out	
	No controls (1)	Adding controls and propensity score stratification (2)	No controls (3)	Adding controls and propensity score stratification (4)	No controls (5)	Adding controls and propensity score stratification (6)
Panel A: Average effects						
Success	0.098	0.100	0.066	0.060	0.071	0.112
	(0.042)	(0.042)	(0.047)	(0.045)	(0.040)	(0.042)
Failure	0.006	0.005	−0.017	−0.021	−0.071	−0.040
	(0.018)	(0.017)	(0.019)	(0.019)	(0.041)	(0.024)
Success *p*-value	0.02**	0.02**	0.17	0.18	0.08*	0.01***
Failure *p*-value	0.72	0.76	0.39	0.33	0.08*	0.10*
Observations	10,932	10,932	10,932	10,932	5,979	5,979
Data source	Polity IV	Polity IV	Polity IV	Polity IV	Archigos	Archigos

Effects on Institutions: Successes vs. Failures

Panel B: Split by regime type in year before attempt						
Success × autocracy	—	—	0.125	0.125	0.155	0.212
	—	—	(0.057)	(0.056)	(0.059)	(0.054)
Failure × autocracy	—	—	−0.013	−0.009	−0.074	−0.052
	—	—	(0.016)	(0.016)	(0.052)	(0.040)
Success × democracy	—	—	−0.051	−0.054	0.023	0.007
	—	—	(0.066)	(0.063)	(0.034)	(0.042)
Failure × democracy	—	—	−0.042	−0.039	−0.025	−0.028
	—	—	(0.042)	(0.042)	(0.038)	(0.032)
Autocracy *p*-value—success	—	—	0.03**	0.03**	0.01**	0.00***
Autocracy *p*-value—failure	—	—	0.42	0.59	0.16	0.20
Democracy *p*-value—success	—	—	0.44	0.39	0.50	0.87
Democracy *p*-value—failure	—	—	0.32	0.36	0.51	0.38
Observations			10,932	10,932	5,573	5,573
Data source			Polity IV	Polity IV	Archigos	Archigos

Effects on Conflict: Successes vs. Failures

TABLE 11—SEPARATING IMPACTS OF SUCCESSES AND FAILURES ON CONFLICT

	Gleditsch-COW dataset 1875–2002		Gleditsch-COW dataset 1946–2002		PRIO/Uppsala dataset 1946–2002	
	No controls (1)	Adding controls and propensity score stratification (2)	No controls (3)	Adding controls and propensity score stratification (4)	No controls (5)	Adding controls and propensity score stratification (6)
Panel A: Average effects						
Success	−0.069	−0.024	0.035	0.019	0.080	0.076
	(0.060)	(0.049)	(0.075)	(0.068)	(0.062)	(0.061)
Failure	0.001	0.054	−0.022	0.004	−0.056	−0.042
	(0.038)	(0.034)	(0.047)	(0.042)	(0.037)	(0.038)
Success *p*-value	0.25	0.63	0.64	0.79	0.20	0.21
Failure *p*-value	0.98	0.12	0.65	0.92	0.13	0.27
Observations	11,286	11,286	7,183	7,183	7,183	7,183
Data source	Gleditsch	Gleditsch	Gleditsch	Gleditsch	PRIO	PRIO

Effects on Conflict: Successes vs. Failures

Panel B: Split by war status in year before attempt						
Success × intense war	−0.248	−0.249	−0.095	−0.106	−0.044	−0.038
	(0.125)	(0.123)	(0.219)	(0.226)	(0.272)	(0.295)
Failure × intense war	0.006	0.011	−0.042	−0.028	0.059	0.071
	(0.063)	(0.060)	(0.081)	(0.084)	(0.072)	(0.075)
Success × moderate war					0.208	0.201
					(0.137)	(0.144)
Failure × moderate war					−0.091	−0.094
					(0.074)	(0.067)
Success × not at war	0.066	0.056	0.074	0.044	0.070	0.043
	(0.051)	(0.050)	(0.066)	(0.067)	(0.055)	(0.056)
Failure × not at war	0.104	0.072	0.049	0.016	0.036	0.007
	(0.043)	(0.039)	(0.041)	(0.040)	(0.035)	(0.035)
Intense war *p*-value—success	0.05**	0.04**	0.67	0.64	0.87	0.90
Intense war *p*-value—failure	0.93	0.85	0.60	0.74	0.42	0.34
Moderate war *p*-value—success					0.13	0.16
Moderate war *p*-value—failure					0.22	0.16
No war *p*-value—success	0.20	0.27	0.27	0.52	0.21	0.44
No war *p*-value—failure	0.02**	0.07*	0.23	0.70	0.32	0.83
Observations	11,286	11,286	7,183	7,183	7,183	7,183
Data source	Gleditsch	Gleditsch	Gleditsch	Gleditsch	PRIO	PRIO

References I

Jones, Benjamin F and Benjamin A Olken (2009). “Hit or miss? The effect of assassinations on institutions and war”. *American Economic Journal: Macroeconomics* 1.2, pp. 55–87.