

ECON4921 Lecture 13: Corruption

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Introduction

- ▶ Corruption empirics is lagging behind theory, in part because corruption is hard to measure (and causality is, as always, hard to establish).
- ▶ This lecture:
 - ▶ Fisman and Miguel (2007) on parking ticket violations in New York, and;
 - ▶ Fisman et al. (2014) on private returns to public office in India.
- ▶ Both use objective measures of some sort.

Fisman and Miguel (2007): Corruption, Norms and Legal Enforcement: Evidence from Diplomatic Parking Tickets

- ▶ Does home-country corruption predict corruptive acts in another cultural/legal setting?
- ▶ What matters: Culture and social norms or legal enforcement?
- ▶ Is there convergence towards (zero)-enforcement or towards norms?
- ▶ Contribution: novel and objective measure of corruption, and disentangling of enforcement and norms.

Why do we care?

- ▶ Most researchers (and policymakers): “Corruption is bad” (e.g Shleifer and Vishny (1993))
- ▶ Understanding corruptive behavior → better anti-corruption policies.
- ▶ More generally, we learn about persistence of culture and social norms.

Background

- ▶ Natural experiment: Diplomats to UN missions in New York City have immunity against prosecution/lawsuits in the US.
- ▶ Protects diplomats against (politically motivated) mistreatment. But now: “best free parking pass in town” (BBC News 1998).
- ▶ Fisman and Miguel argue that parking illegally and not paying the fine is corruption, i.e. by Transparency International definition: **“the abuse of entrusted power for private gain”**.
- ▶ The unpaid violations are used as a *proxy* for corruptive behavior.

Discuss for two minutes

1. Is this a measure of corruption?
2. If $\text{cov}(\text{unpaid tickets, corruption index}) = 0$: Which do you trust?

Top and bottom PTV countries

TABLE 1
AVERAGE UNPAID ANNUAL NEW YORK CITY PARKING VIOLATIONS PER DIPLOMAT, NOVEMBER 1997 TO NOVEMBER 2005

Parking Violations Rank	Country Name	Violations per Diplomat, Pre-enforcement (11/1997-11/2002)	Violations per Diplomat, Postenforcement (11/2002-11/2005)	UN Mission Diplomats in 1998	Corruption Index, 1998	Country Code
1	Kuwait	249.4	.15	9	-1.07	KWT
2	Egypt	141.4	.33	24	.25	EGY
3	Chad	125.9	.00	2	.84	TCD
4	Sudan	120.6	.37	7	.75	SDN
5	Bulgaria	119.0	1.64	6	.50	BGR
6	Mozambique	112.1	.07	5	.77	MOZ
7	Albania	85.5	1.85	3	.92	ALB
8	Angola	82.7	1.71	9	1.05	AGO
9	Senegal	80.2	.21	11	.45	SEN
10	Pakistan	70.3	1.21	13	.76	PAK
11	Ivory Coast	68.0	.46	10	.35	CIV
12	Zambia	61.2	.15	9	.56	ZMB
13	Morocco	60.8	.40	17	.10	MAR
14	Ethiopia	60.4	.62	10	.25	ETH
15	Nigeria	59.4	.44	25	1.01	NGA
16	Syria	53.3	1.36	12	.58	SYR
17	Benin	50.4	6.50	8	.76	BEN
18	Zimbabwe	46.2	.86	14	.13	ZWE
19	Cameroon	44.1	2.86	8	1.11	CMR
20	Montenegro and Serbia	38.5	.05	6	.97	YUG
21	Bahrain	38.2	.65	7	-.41	BHR
22	Burundi	38.2	.11	3	.80	BDI

TABLE 1
(Continued)

Parking Violations Rank	Country Name	Violations per Diplomat, Pre-enforcement (11/1997-11/2002)	Violations per Diplomat, Postenforcement (11/2002-11/2005)	UN Mission Diplomats in 1998	Corruption Index, 1998	Country Code
143	Japan	.0	.01	47	-1.16	JPN
144	Latvia	.0	.00	5	.10	LVA
145	Norway	.0	.00	12	-2.35	NOR
146	Oman	.0	.26	5	-.89	OMN
147	Panama	.0	.00	8	-.28	PAN
148	Sweden	.0	.00	19	-2.55	SWE
149	Turkey	.0	.00	25	.01	TUR

NOTE.—The corruption index is from Kaufmann et al. (2005). A higher score in the corruption index denotes more corruption.

Unconditional plot

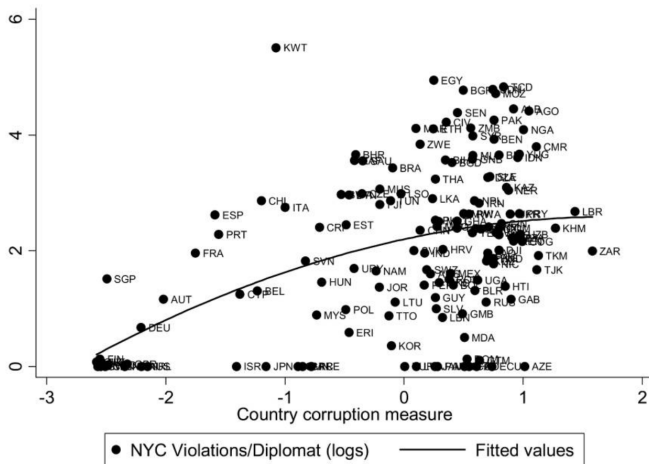


FIG. 2.—Country corruption and unpaid New York City parking violations per diplomat (in logs), pre-enforcement (November 1997 to November 2002). Country abbreviations are presented in table 1. The line is the quadratic regression fit. The y-axis is $\log(1 + \text{Annual NYC Parking Violations/Diplomat})$.

Estimation I

- ▶ Main dependent variable: total number of unpaid parking violations for country i and time period t (call it UPV_{it})
- ▶ Two time periods: before and after enforcement (2002).
- ▶ Dependent variable is a count variable. Poisson regression?
- ▶ Poisson assumes $E(y|X) = var(y|X)$.
- ▶ "[...] Poisson model can be rejected at high levels of confidence because of overdispersion of the parking tickets outcome variable [...]" (p. 1035)
- ▶ Over-dispersion: $E(y|X) < var(y|X)$

Estimation II

- ▶ OLS with $\ln(\text{UPV})$ could work, but lots of zeroes ($\ln(0)=?$).
- ▶ Solution: Use Negative Binomial Regression
 - ▶ Has problems of its own (assumptions about error term), but let's ignore it now.
- ▶ Model specification, given RHS variable vector \mathbf{Z} :

$$E[\text{UPV}_{it} | \mathbf{Z}] = \exp(\beta_1 \text{Corruption}_{it} + \beta_2 \text{Enforcement}_t + \beta_3 \text{Diplomats}_i + \mathbf{X}'_i \gamma)$$

Results

TABLE 3
COUNTRY CHARACTERISTICS AND UNPAID NEW YORK CITY PARKING VIOLATIONS,
NOVEMBER 1997 TO NOVEMBER 2005

	DEPENDENT VARIABLE: UNPAID PARKING VIOLATIONS				
	(1)	(2)	(3)	(4)	(5)
Country corruption index, 1998	.48*** (.18)	.57*** (.22)	.57*** (.21)	.56** (.28)	.57* (.30)
Postenforcement period indicator (post-11/2002)	-4.41*** (.21)	-4.41*** (.21)	-4.21*** (.13)	-4.43*** (.20)	-4.41*** (.21)
Country corruption index × postenforcement period					-.01 (.28)
Diplomats	.05** (.02)	.04** (.02)	.05*** (.02)	.05** (.02)	.04** (.02)
Log per capita income (1998 US\$)		.06 (.14)	.09 (.14)	64.2* (36.9)	.06 (.14)
Africa region indicator variable			2.86*** (.48)		
Asia region indicator variable			1.99*** (.50)		
Europe region indicator variable			2.24*** (.55)		
Latin America region indi- cator variable			1.67*** (.56)		
Middle East region indica- tor variable			3.23*** (.60)		
Oceania region indicator variable			1.51** (.64)		
Log per capita income (1998 US\$) polynomials (quadratic, cubic, quartic)					
Observations	No 298	No 298	No 298	Yes 298	No 298
Log pseudolikelihood	-1,570.21	-1,570.07	-1,547.69	-1,567.56	-1,570.07

NOTE.—Negative binomial regressions. White robust standard errors are in parentheses. Disturbance terms are clustered by country (there are two observations per country: pre-enforcement and postenforcement). The omitted region category is North America/Caribbean.

* Statistically significantly different from zero at 90 percent confidence.

** Statistically significantly different from zero at 95 percent confidence.

*** Statistically significantly different from zero at 99 percent confidence.

Interpretation of coefficients I

Effect of home country corruption

- ▶ Column (1): $\beta_1 = 0.48 \implies$ A 1-point increase in corruption score \rightarrow unpaid parking violations is expected to increase by a factor of $e^{0.48} = 1.61$, or 61 %.
- ▶ Back-of-the-envelope: Going from corruption score of Nigeria (1.01) to that of Norway (-2.35) implies a change in unpaid parking violations by a factor of $e^{0.48*(-3.36)} = 0.2$, a decrease of 80 %.

Interpretation of coefficients II

Effect of enforcement

- ▶ Column (1): Enforcement from 0 to 1 (pre- to post-Nov 2002) $\implies e^{-4.41} = 0.012$, 1.2 % of the original UPV, a decrease of over 98 %.
- ▶ It seems that going from corrupt to non-corrupt has a slightly weaker effect than enforcement \implies enforcement more important than norms and culture.

Discuss for two minutes

1. Is the enforcement effect generalizable?
2. Do you think it's an upper or lower bound?

Some robustness tests

- ▶ Corruption and GDP correlated: but (log) income has no impact on UPV.
- ▶ Government wage positive effect, but doesn't change corruption coefficient.
- ▶ Far from USA = more violations, no trade effect.
- ▶ More aid from USA = less violations. Goodwill/dependence?

Norms vs Enforcement convergence I

- ▶ By tracking diplomats over time during their tenure, they can investigate convergence of norms.
- ▶ Do less corrupt diplomats conform to non-enforcement, or do high-corruption diplomats converge to host country norms?

Norms vs Enforcement convergence II

TABLE 5
UNPAID PARKING VIOLATIONS AT THE DIPLOMAT LEVEL, NOVEMBER 1997 TO
NOVEMBER 2005

	DEPENDENT VARIABLE: UNPAID PARKING VIOLA- TIONS (Monthly)	
	Negative Binomial (1)	Negative Binomial (2)
Country corruption index, 1998	.150 (.120)	.390*** (.117)
Log length of time in New York City (in months)	.084*** (.005)	.090*** (.006)
Log length of time in New York City \times coun- try corruption index		-.027*** (.006)
Month fixed effects	Yes	Yes
Observations (diplomats)	40,929 (5,338)	40,929 (5,338)
Log pseudolikelihood	-23,733	-23,621

NOTE.—White robust standard errors are in parentheses. Disturbance terms are clustered by country. Observations are at the diplomat-month level. Month fixed effects are included in all regressions (thus the postenforcement indicator is not included). The log per capita income (1998 US\$) term is included as a control in cols. 1–2 (results not shown).

* Statistically significantly different from zero at 90 percent confidence.

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*** Statistically significantly different from zero at 99 percent confidence.

Interpretation

- ▶ UPV increases with tenure (column 1), especially for diplomats from low corruption countries (column 2).
- ▶ Zero-enforcement convergence.

Potential problems, alternative explanations, etc.

- ▶ Embarrassing newspaper coverage? No.
- ▶ Early violations \implies longer/shorter stays? No.
- ▶ Democracy? No.

Conclusion

1. Home country corruption related to corrupt/criminal activities (norms/culture)
2. Enforcement has strong effect (but upper bound?)
3. Diplomats get more “corrupt” the longer they stay.

Fisman et al. (2014): The Private Returns to Public Office

- ▶ What is the return premium (relative to outside option) of getting elected into State Legislature in India? and;
- ▶ How is this premium related to state-level corruption levels?
- ▶ Contribution: empirical strategy (RD) novel in this context, and (potentially) objective measure of corruption.

Why do we care?

- ▶ Excess returns (that cannot be accounted for by salaries) are indicators of rent-seeking, outright corruption or theft from public coffers.
- ▶ We don't yet know much about the extent of rent-seeking among politicians.
- ▶ Corruption/rent-seeking is bad.
- ▶ A thriving environment for rent-seeking may lead to lower quality/more corrupt politicians selecting into running for office.

Question

1. Can't we just compare the asset growth of state officials with the general population?

Background I

- ▶ State governments vs national government: near equal balance-of-power.
- ▶ State government: legislation, health, education, mineral rights, industry development.
- ▶ Elected officials work “part-time”. Ministers similar wages, but more workload, restrictions on outside work.
- ▶ 5-year terms, with possible reelection.

Background II

- ▶ All candidates running for state elections are required to disclose all their assets.
- ▶ Strict punishments for violations \implies asset data is of good quality.
- ▶ Data is limited to constituencies who have at least two elections within the period of study.

Empirical strategy I

- ▶ Compare the end-of-term assets of election winners with runners-up (while controlling for other stuff that matters) in a regression.
- ▶ Selection problem: perhaps winners are simply smarter or otherwise better than the losers, which gives them a higher probability of winning, *and* higher annual returns, irrespective of being elected?
 - ▶ \implies Loser may not be good counterfactual.
- ▶ Close elections \implies winning is as good as random \implies winners and losers comparable on average, so runners-up are candidates for *counterfactual* outcome.

Empirical strategy II

- ▶ Equation to be estimated:

$$\ln(\text{FinalNetAssets})_{ic} = \alpha_c + \beta \text{Winner}_{ic} + \delta_1 \ln(\text{InitialNetAssets})_{ic} + \delta_2' \text{Controls}_{ic} + \varepsilon_i^1$$

- ▶ β gives the excess return.

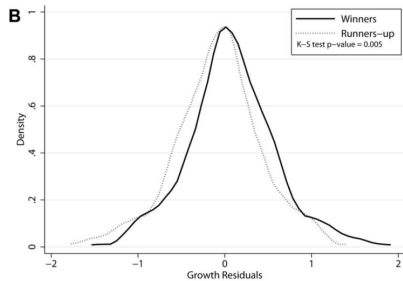
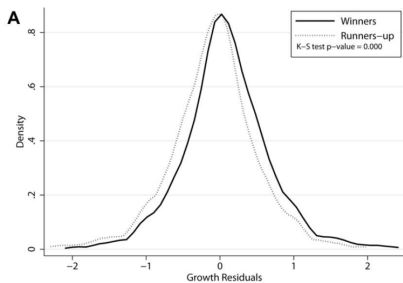
Kernel densities. A: Entire sample, B: Only close elections ($\leq 5\%$)

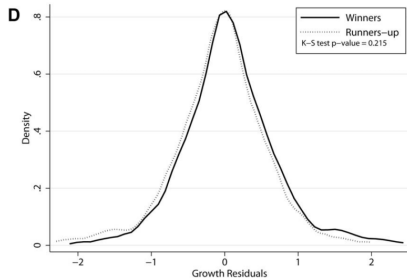
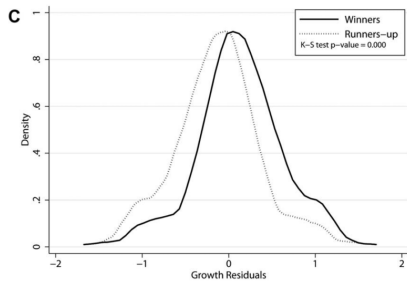
TABLE 4
 WITHIN-CONSTITUENCY EFFECTS OF WINNING THE ELECTION

VARIABLE	LOG(Final Net Assets)				
	(1)	(2)	Margin ≤ 10 (3)	Margin ≤ 5 (4)	Margin ≤ 3 (5)
Winner	.167*** (.049)	.164*** (.052)	.187*** (.056)	.160** (.067)	.209** (.085)
Log(Initial Net Assets)	.722*** (.031)	.710*** (.034)	.715*** (.038)	.693*** (.047)	.674*** (.058)
Log(Years of Education)		-.057 (.117)			
Criminal Record		.061 (.089)			
Female		-.293 (.181)			
Age		-.012 (.028)			
Age ²		1.07E-04 (.000)			
Incumbent		.081 (.062)			
Constant	5.021*** (.469)	5.651*** (.894)	5.108*** (.569)	5.432*** (.704)	5.704*** (.873)
Observations	1,140	1,099	768	450	274
R ²	.833	.841	.848	.861	.868
Annual growth premium (%):					
Winner	3.40	3.35	3.81	3.27	4.26

Mechanisms I

Holding office for 5 years seems to boost private asset growth.
What are the mechanisms?

Kernel densities. C: BIMARU states, D: Non-BIMARU states



Growth premium is higher in BIMARU (corrupt) states.

TABLE 5
WINNER PREMIUM AND STATE-LEVEL CORRUPTION

VARIABLE	Log(Final Net Assets)				
	BIMARU (1)	Non-BIMARU (2)	(3)	(4)	(5)
Winner	.257*** (.026)	.122** (.051)	.121** (.051)	.104* (.054)	.188*** (.045)
Log(Initial Net Assets)	.681*** (.022)	.743*** (.040)	.721*** (.029)	.720*** (.030)	.718*** (.031)
Winner × BIMARU			.136**		
Winner × BIMAROU				.156*** (.059)	
Winner × TI Corruption					.063** (.027)
Constant	5.697*** (.324)	4.672*** (.612)	5.033*** (.450)	5.051*** (.454)	5.080*** (.471)
Observations	386	754	1,140	1,140	998
R ²	.842	.83	.833	.834	.833
Annual growth premium (%):					
Winner	5.24	2.49	2.4	2.12	3.82
Winner × BIMARU			2.77		
Winner × BIMAROU				3.17	
Winner × TI Corruption					1.28

Mechanisms II

If excess return because of rent-seeking/corruption, should expect that rent-seeking potential is higher for:

1. Officials belonging to state ruling party
2. Higher level officials (ministers)

TABLE 6
THE EFFECT OF POTENTIAL INFLUENCE IN GOVERNMENT
ON THE RETURNS TO OFFICE

VARIABLE	LOG(Final Net Assets)		
	(1)	(2)	(3)
Winner	-.121 (.142)	.083 (.051)	-.096 (.139)
Log(Initial Net Assets)	.729*** (.031)	.715*** (.031)	.721*** (.031)
Government	-.217 (.172)		-.181 (.167)
Government \times Winner	.606* (.316)		.416 (.304)
Minister		.602*** (.152)	.534*** (.159)
Constant	4.986*** (.469)	5.125*** (.467)	5.097*** (.468)
Observations	1,140	1,140	1,140
R^2	.835	.838	.839
Annual growth premium (%):			
Winner	-2.47	1.70	-1.96
Government	-4.43		-3.69
Winner \times Government	12.36		8.48
Minister		12.27	10.88

Discuss for two minutes

1. Are these results generalizable to other contexts?

Minister's are higher quality?

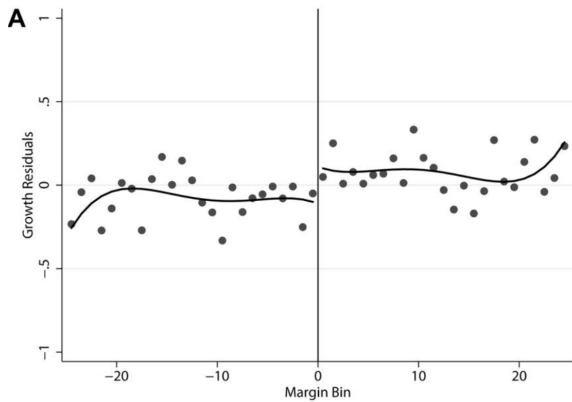
- ▶ What if the minister-effect is due to higher outside options for ministers? (Asset growth may be due to income from private sector.)
- ▶ Compare current period ministers to non-ministers who were ministers in previous period.

TABLE 7
 RETURNS OF PAST AND PRESENT MINISTERS AND ASSET GROWTH DECOMPOSITION

VARIABLE	LOG(Final Net Assets)			Minister Quality (4)	LOG(Final Movable Assets) (5)	LOG(Final Immovable Assets) (6)
	(1)	(2)	(3)			
Winner	.057 (.099)	.060 (.099)	-.117 (.172)		.305*** (.063)	.070 (.065)
Minister	.312*** (.083)	.343*** (.088)	.439** (.176)	.236*** (.090)	.311* (.165)	.372** (.162)
Incumbent		.085 (.079)	.058 (.151)	.068 (.075)		
Log(Initial Net Assets)	.694*** (.027)	.692*** (.027)	.736*** (.051)	.659*** (.030)		
Log(Initial Movable Assets)					.629*** (.034)	
Log(Initial Immovable Assets)						.645*** (.039)
Constant	5.461*** (.429)	5.407*** (.436)	4.818*** (.804)	6.057*** (.497)	5.929*** (.452)	6.127*** (.576)
Observations	514	514	514	378	1,114	1,070
Fixed effects	State	State	District	State	Constituency	Constituency
R ²	.731	.732	.887	.785	.799	.792
Annual growth premium (%):						
Winner	1.16	1.22	-2.38		6.21	1.42
Minister	6.36	6.99	8.96	4.82	6.34	7.59
Incumbent		1.73	1.19	1.39		

Regression discontinuity design

- ▶ RD is similar to regressions with only close elections, but more flexible.
- ▶ $\bar{R}_i = \alpha + \tau D_i + \beta f(\text{Margin}_i) + \eta D_i f(\text{Margin}_i) + \varepsilon_i$
- ▶ \bar{R}_i is the residual from a regression of final assets on controls.
- ▶ τ is the effect we're after (predicted difference in \bar{R}_i when $\text{Margin}=0$).



Natural experiment: Bihar hung assembly

- ▶ We might still worry that winners and losers are different in some unobserved way.
- ▶ Bihar legislative assembly election in February 2005 gave no party majority.
- ▶ Unsuccessful attempts at forming coalitions. Result: new election in October 2005.
- ▶ New election: many of the previous winners lost, and vice versa.
- ▶ Natural experiment! First election winners = counterfactual, and can be used as control group.

TABLE 13
 EVIDENCE FROM BIHAR'S HUNG ASSEMBLY (February 2005):
 ANNUAL NET ASSET GROWTH OF "SWITCHERS"

	(1)	(2)
Winner	.289	.195
Runner-up	.161	.137
Difference	.128**	.058
	(.064)	(.073)

NOTE.—In this table, we show the annual net asset growth of candidates whose status as winner/runner-up switched as a result of the hung assembly (Winner indicates election winners in the October election). In col. 1, we include all such candidates whose winner status shifted between these two 2005 elections, and in col. 2, we limit our analysis to the constituency-matched sample. Standard errors of differences are reported in parentheses.

** Statistically significant at the 5 percent level.

Conclusion

1. Elected officials have higher asset growth than runners-up.
2. Effect seems to be higher in corrupt states.
3. Effect is higher for ministers, and for officials of ruling party.
4. Rent-seeking potential increases with power: ministers have more power.

References I

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