Economics 270c
Graduate Development Economics

Professor Ted Miguel

Department of Economics

University of California, Berkeley

Economics 270c
Graduate Development Economics

Lecture 4 – February 10, 2009

Lecture 4: Economics 270c

- Lecturer: Prof. Ted Miguel
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  Extra office hours: To be arranged with Jonas

Macroeconomic growth empirics
Lecture 1: Global patterns of economic growth and development (1/20)
Lecture 2: Inequality and growth (1/27)
The political economy of development
Lecture 3: History and institutions (2/3)
Lecture 4: Corruption (2/10)
Lecture 5: Patronage politics (2/17)
Lecture 6: Democracy and development (2/24)
Lecture 7: Economic Theories of Conflict (3/3) – Guest lecture by Gerard Padro
Lecture 8: War and Economic Development (3/10)
Human resources
Lecture 9: Human capital and income growth (3/17)
Lecture 10: Increasing human capital (3/31)
Lecture 11: Labor markets and migration (4/7)
Lecture 12: Health and nutrition (4/14)
Lecture 13: The demand for health (4/21)
Other topics
Lecture 14: Environment and development (4/28)
Lecture 15: Resource allocation and firm productivity (5/5)
Additional topics for the development economics field exam
-- Ethnic and social divisions
-- The Economics of HIV/AIDS

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Additional topics for the development economics field exam

-- Ethnic and social divisions

-- The Economics of HIV/AIDS

- Prerequisites: Graduate microeconomics, econometrics

- Grading:
  Four referee reports – 40%
  → First referee report passed back today
  → Second referee report due next week, Feb. 17, 2009

  Two problem sets – 20%
  Research proposal – 30%
  Class participation – 10%
  No final exam

- All readings are available online (see syllabus)

- Additional references on syllabus

Lecture 4 outline

(1) Corruption and economic development

(2) Measuring corruption, Fisman (2001), Reinikka and Svensson (2004)

(3) Controlling corruption, Becker and Stigler (1974) and Olken (2007)

(4) Extra time: cultures of corruption, Fisman and Miguel (2007)

(1) What is corruption?

- Corruption comes in many forms
- Transparency International (TI) and others: the abuse of public office for private gain

- Bribes, theft, nepotism
- Red tape as the means to extract bribes

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- Corruption comes in many forms
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forensic economics

- Bribes, theft, nepotism
- Red tape as the means to extract bribes

- Where does corruption flourish? In settings with weak "institutions", primarily legal

- Data is a key constraint: if bribe-takers and givers are doing a decent job, there's (usually) no paper trail

(1) Does corruption stifle economic growth?

- Do more corrupt countries have less investment and slower economic growth?

- Mauro (1995, *QJE*) focuses on “bureaucratic efficiency” (BE) related to corruption, red tape

- Countries with greater BE have more investment and faster economic growth in the cross-section

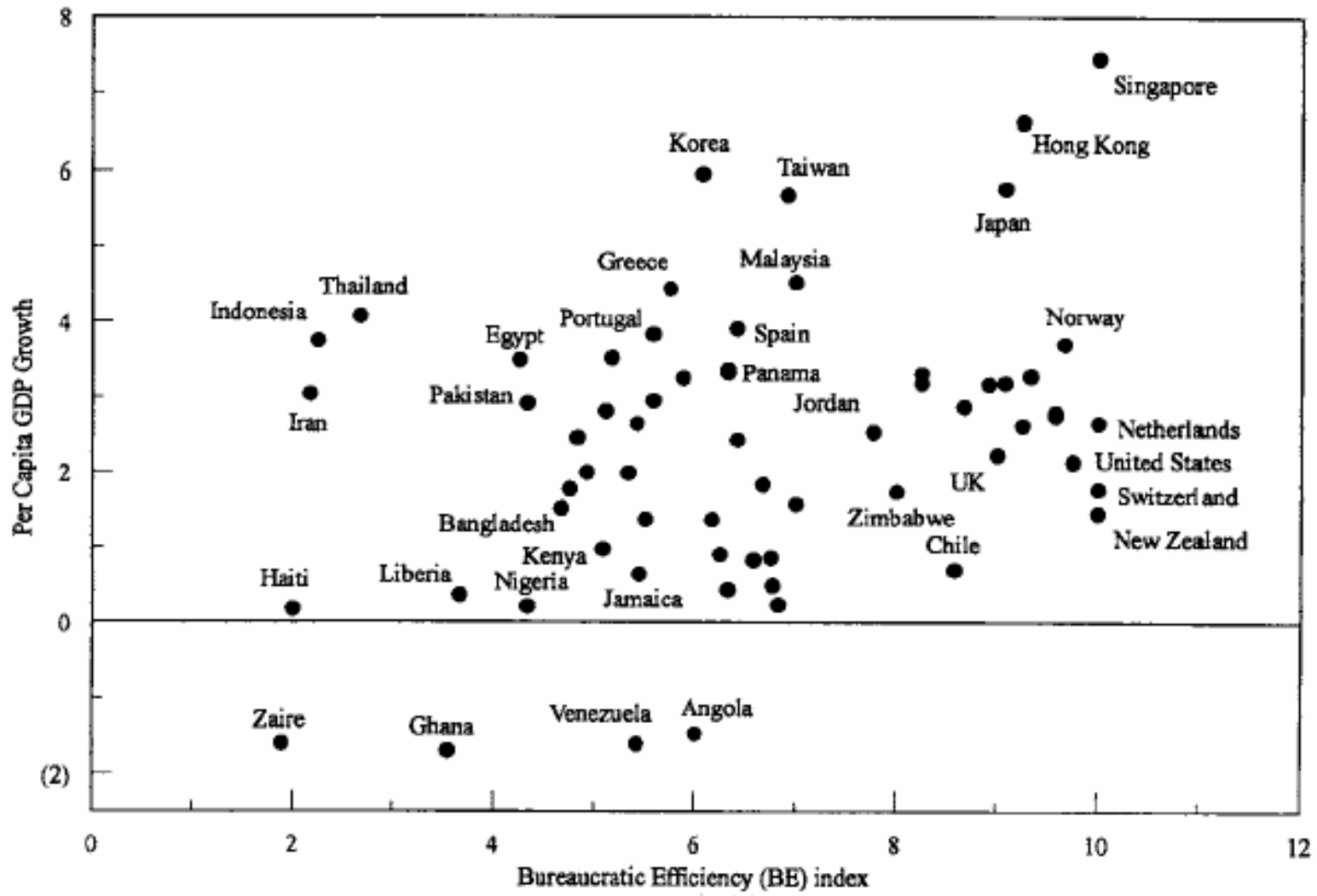

FIGURE III

Growth and Bureaucratic Efficiency

BE index is 1980–1983 average of BI indices of corruption, red tape, and judiciary.

Average GDP per capita growth 1960–1985 from Summers and Heston [1988]. 67 countries, $r = 0.32$.

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- Mauro (1995, *QJE*) focuses on "bureaucratic efficiency" (BE) related to corruption, red tape

- Countries with greater BE have more investment and faster economic growth in the cross-section

Easterly + Levine ('97) QJE

- But is this causal? Endogeneity, omitted variables

  -- An early use of IV in cross-country growth work: ethno-linguistic fractionalization (ELF) as an IV for corruption

(1) Does corruption stifle economic growth?

- Estimating the economic growth consequences of corruption has been a challenge: measuring corruption is hard, as is dealing with identification challenges

- Many reasons to think corruption can hurt growth:

  (1) restricts government's ability to conduct effective public policy / provide public goods

  (2) imposes a tax burden on HHs and businesses

  (3) distortions due to secretive behavior

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  (3) distortions due to secretive behavior

Lagunes ?

- Others disagree: Huntington (1968, *Political Order in Changing Societies)* argues that corruption allows those with high private valuations - e.g., for a permit - to bid for it and circumvent burdensome regulations

(2) Fisman (2001)

- Most existing work relies on what people say in surveys
- Corruption perceptions data (TI, WB): surveys of businesspeople, or country experts
- E.g., what is the typical bribe a firm like yours has to pay each month to the electricity company to get power?

(2) Fisman (2001)

- Most existing work relies on what people say in surveys
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- E.g., what is the typical bribe a firm like yours has to pay each month to the electricity company to get power?

- An alternative approach: measure what people *do*, revealed preference measures

- How much do markets value (presumably corrupt) political connections? A study of Suharto's Indonesia, which was ranked as among the world's most corrupt countries at the time

(2) Fisman (2001)

- *Event studies* estimate how stock prices react to news
- If stock markets are efficient, the change in a firm's value reflects how the firm's profits were affected by the news
- E.g., an FDA announcement unexpectedly rejecting a new drug sends a pharmaceutical company price falling

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- The "news" in Indonesia: rumors about Suharto's poor health during 1995-1997

  -- Lexis/Nexus search on "Suharto, health, Indonesia & (stock or financial)" turned up six episodes

(2) Fisman (2001)

- Suharto's health shocks could lead to political instability and a general drop in stock prices

  -- But his loss of power would be particularly important for his "cronies", including his children, all of whom were "successful" industrialists (E.g., his son "Tommy")

- A local economic consulting firm had created a "Suharto dependency index" (POL_i) for 79 large firms, seen as a critical determinant of future profitability

  -- Values from 1 (long-time opponents) to 5 (family)

(2) Fisman (2001)

- Event study methodology

  -- A firm i's return during the event window (typically plus/minus a few days) is $R_{i,e}$

- For each of the six events, run the following regression:

  $$R_{i,e} = \alpha_e + \beta_e POL_i + \mu_{i,e}$$

- The finding that $\beta < 0$ is consistent with Suharto-connected firms being hurt more by the threat of his health problems (and possible demise)

  -- More precisely, is there a broad market perception that these ties have value

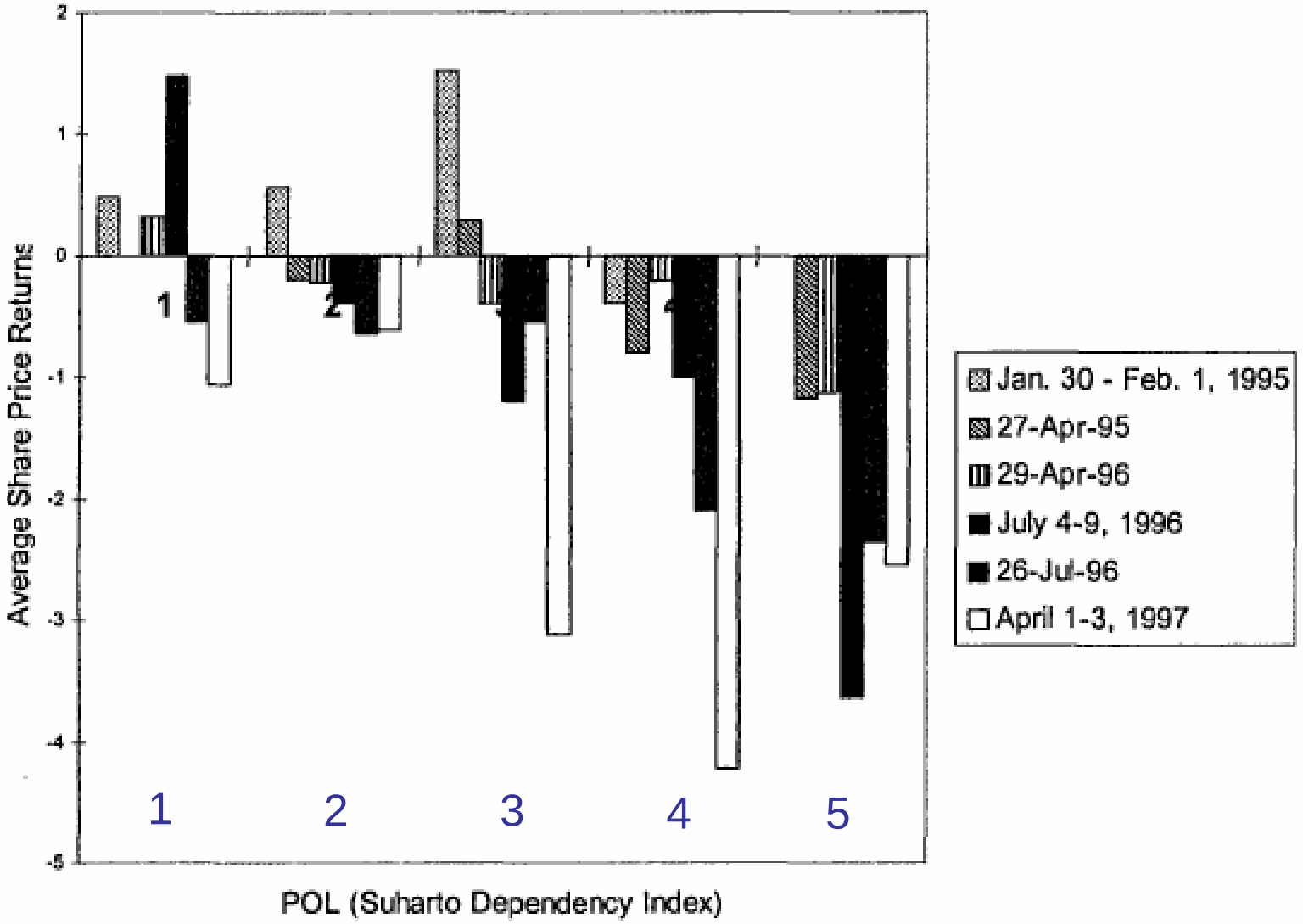


FIGURE 1. EFFECT OF POLITICAL DEPENDENCE ON SHARE PRICE RETURNS

(2) Fisman (2001)

- An alternative event study methodology, with pooled data (like difference-in-differences), where NR_e is the market return (how bad the news was overall)

$$R_{i,e} = \alpha + \beta_1 POL_i + \beta_2 NR_e + \beta_3 (POL_i * NR_e) + \mu_{i,e}$$

- The finding that $\beta_3 > 0$ is consistent with Suharto-connected firms being hurt more by the threat of his health problems (and possible demise)

→ Shleifer + Vishny QJE 1993

TABLE 3—EFFECT OF POLITICAL CONNECTIONS ON CHANGES IN SHARE PRICE

"Corruption"

	(1)	(2)
POL	−0.60** (0.11)	−0.19 (0.15)
NR(JCI)	0.25 (0.14)	−0.32 (0.28)
NR(JCI) · *POL*		0.28* (0.11)
Constant	0.88 (0.27)	0.06 (0.35)
R^2	0.066	0.078
Number of observations	455	455

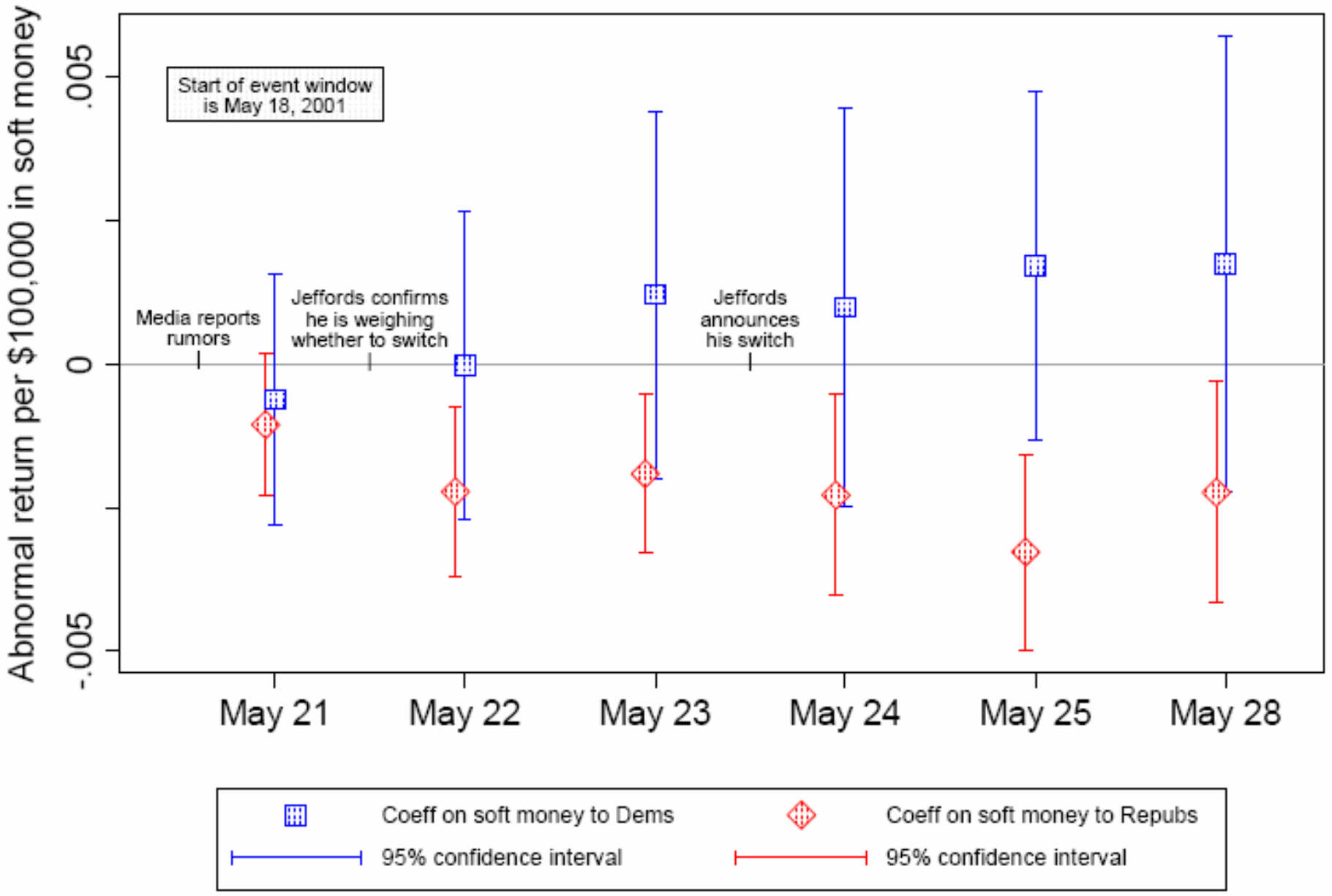
The value of political connections to Suharto? Up to 22 percent

* Ray found that Jakarta investors estimated that the JCI would drop 20% if Suharto died. The max difference in POL is 5-1=4. The coefficient is 0.28 → (-20%) x (4) x (0.28) = -22%

(2) Fisman (2001)

- Related studies from the U.S.
- Jayachandran (2006), the Jeffords Effects in the U.S. when Sen. Jim Jeffords left the Republican Party in 2001, tipping the Senate to the Democrats

  -- She finds that firms that donated “soft money” to the Republicans lost stock market value while firms that donated to Democrats gained in value


Abnormal return per $100,000 in soft money
.005
0
-.005
Start of event window is May 18, 2001
Media reports rumors
Jeffords confirms he is weighing whether to switch
Jeffords announces his switch
May 21
May 22
May 23
May 24
May 25
May 28
Coeff on soft money to Dems
95% confidence interval
Coeff on soft money to Repubs
95% confidence interval

(2) Fisman (2001)

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- Jayachandran (2006), the Jeffords Effects in the U.S. when Sen. Jim Jeffords left the Republican Party in 2001, tipping the Senate to the Democrats

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- Fisman et al (2006) on the value of ties to Dick Cheney

  -- Did Haliburton stock dip when Cheney had one of his several “heart events” since November 2000? No.

(2) Reinikka and Svensson (2004)

- Large fractions of government spending in poor countries like Uganda go to education. How much of it actually makes it to the schools?

- Use the Public Expenditure Tracking Survey (PETS) methodology developed by the World Bank: compare central government records of transfers “out” for non-wage spending (i.e., for books), to local school records to transfers “in”. How much disappears along the way, especially at the district government level?

- Note: the size of these education grants were not well-publicized to communities

(2) Reinikka and Svensson (2004)

- District governments received the money (the program tracked bank account records) but didn't pass it on

  -- Only 13% of the funding made it to the schools, and the median school got nothing

  -- Poorer communities got even less on average (perhaps due to lobbying or information?)

- Very high degree of leakage / theft. Unfortunately, they find comparable rates in several other African countries.

(3) Becker and Stigler (1974)

- How can we control corruption?
- Model of corruptible enforcers (police, auditors, judges)

  -- Wage *w*, outside wage *v* → rents *w* – *v*

(3) Becker and Stigler (1974)

- How can we control corruption?
- Model of corruptible enforcers (police, auditors, judges)

  -- Wage w, outside wage v → rents $w - v$

- If accept a bribe, get detected with prob. p → v

  -- Not detected with prob. $1 - p$ → $w + b$

- In equilibrium, the (benevolent) planner can set the wage so that the enforcer is indifferent between being corrupt or clean: $w = pv + (1 - p)(w+b)$

  → $w^* = v + [(1 - p) / p]b$

(3) Becker and Stigler (1974)

- Boosting enforcement (p) reduces rents to bureaucrats, and could reduce corruption (in a model extension)

- Imagine the social cost of an audit is A, so the total cost of enforcement is pA

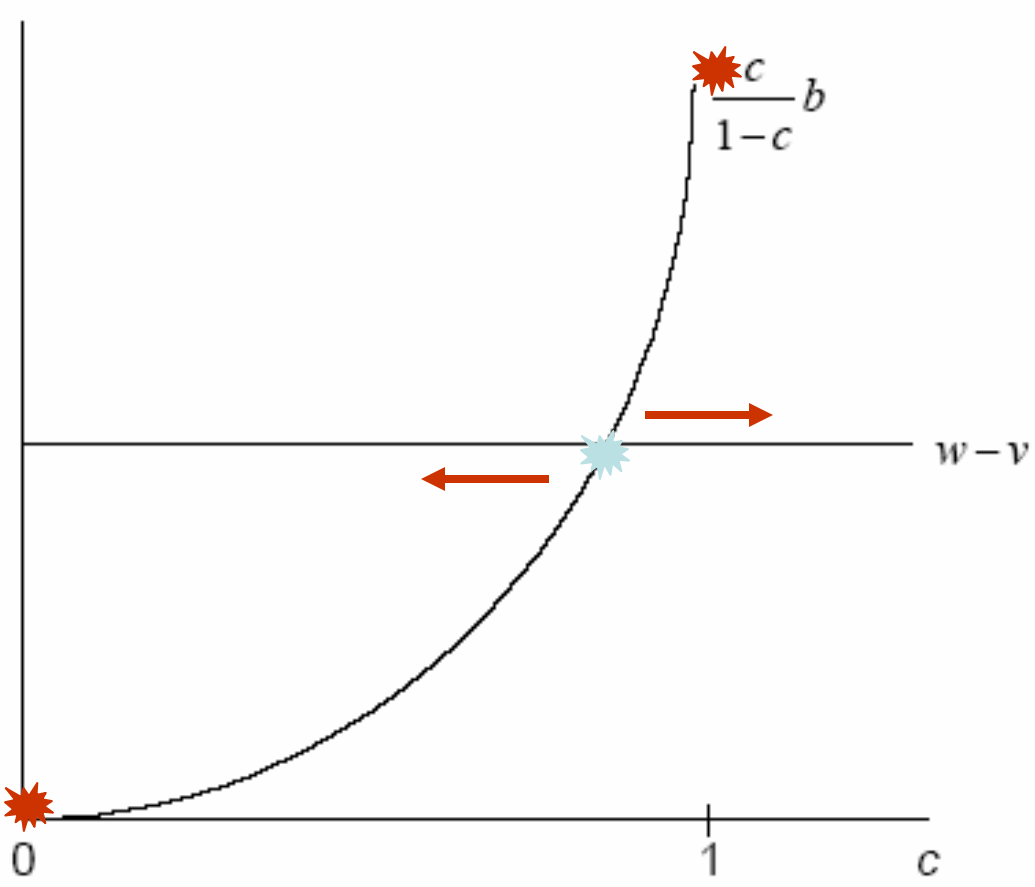
  -- The planner could more cheaply fight corruption by punishing corrupt officials ($v - \tau$) while simultaneously reducing the odds of getting caught ($p \rightarrow 0$)

(3) Becker and Stigler (1974)

- Cultures of corruption: let the wage be fixed at w, but imagine detection risk *p* depends on how many other people are corrupt, fraction *c*

  -- E.g., if everyone else is taking bribes, lower odds of getting caught. In fact there may be active pressure to be corrupt. Over time more and more corrupt types might select into the agency, reinforcing the pattern

- For simplicity let $p(c) = 1 - c$
- The equilibrium condition is now $w - v = [c / (1 - c)]b$



-- A temporary crackdown on corruption could have permanent effects in this multiple equilibrium case

-- Temporarily higher bureaucrat wages could reduce corruption

(3) Olken (2007)

- How can we control corruption?

  -- A study of village road construction in Indonesia

  -- 608 villages building 1-3 km stretches of non-asphalt road in Java

- Top-down (audits) versus bottom-up (community monitoring) approaches to controlling corruption

  -- There was a 100% chance of an audit in the top-down intervention (accountants from Jakarta)

  -- Extra village meetings (meeting invitations), anonymous comment forms in the bottom-up intervention. Popular “community drive development” (CDD) approach to local public goods

TABLE 1
NUMBER OF VILLAGES IN EACH TREATMENT CATEGORY

	Control	Invitations	Invitations Plus Comment Forms	Total
Control	114	105	106	325
Audit	93	94	96	283
Total	207	199	202	608

(3) Olken (2007)

- An innovation of this study is its careful method of measuring corruption: taking road 40cm x 40cm core samples and estimating the cost, e.g., cheap sand can be substituted for expensive rocks in corrupt villages

- Comparing estimated cost to actual spending by the village government gives estimated corruption / theft

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- Comparing estimated cost to actual spending by the village government gives estimated corruption / theft

  -- 29% of funds were stolen in control villages

- Top-down audits were much more effective than the bottom-up participatory approach, reducing theft 9 percentage points, or roughly 30% - a large effect

A. *Estimating Equation*

Given the randomized nature of the experiments, estimating their effects is straightforward. I estimate an equation of the following form via ordinary least squares (OLS):

$$\begin{aligned}\text{PercentMissing}_{ijk} = \alpha_1 + \alpha_2 \text{Audit}_{jk} + \alpha_3 \text{Invitations}_{ijk} \\ + \alpha_4 \text{InvitationsandComments}_{ijk} + \epsilon_{ijk}, \qquad (1)\end{aligned}$$

where i represents a village, j represents a subdistrict, and k represents a stratum for the audits. Since the Audit treatment variable is perfectly correlated within subdistricts, the standard errors are adjusted to allow for correlation within subdistricts. As each of the 12 engineering teams may have conducted the corruption measurements slightly differently, I estimate a version of equation (1) that includes engineering team fixed effects. Finally, when investigating the audits, I estimate a version of equation (1) that includes fixed effects for each audit stratum k, and when investigating the invitations and comment forms, I estimate a version of equation (1) that includes fixed effects for each subdistrict j (i.e., the stratifying variable for the participation experiments).[18]

TABLE 4
AUDITS: MAIN THEFT RESULTS

Percent Missing[a]	Control Mean (1)	Treatment Mean: Audits (2)	No Fixed Effects: Audit Effect (3)	No Fixed Effects: p-Value (4)	Engineer Fixed Effects: Audit Effect (5)	Engineer Fixed Effects: p-Value (6)
Major items in roads ($N = 477$)	.277	.192	−.085*	.058	−.076**	.039
	(.033)	(.029)	(.044)		(.036)	
Major items in roads and ancillary projects	.291	.199	−.091**	.034	−.086**	.022
($N = 538$)	(.030)	(.030)	(.043)		(.037)	
Breakdown of roads:						
Materials	.240	.162	−.078	.143	−.063	.136
	(.038)	(.036)	(.053)		(.042)	
Unskilled labor	.312	.231	−.077	.477	−.090	.304
	(.080)	(.072)	(.108)		(.087)	

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	(.080)	(.072)	(.108)		(.087)	

TABLE 11
PARTICIPATION: MAIN THEFT RESULTS

Percent Missing[a]	Control Mean (1)	Treatment Mean (2)	No Fixed Effects: Treatment Effect (3)	No Fixed Effects: *p*-Value (4)	Engineer Fixed Effects: Treatment Effect (5)	Engineer Fixed Effects: *p*-Value (6)
			A. Invitations			
Major items in roads ($N = 477$)	.252	.230	−.021	.556	−.030	.385
	(.033)	(.033)	(.035)		(.034)	
Major items in roads and ancillary projects ($N = 538$)	.268	.236	−.030	.360	−.032	.319
	(.031)	(.031)	(.032)		(.032)	
Breakdown of roads:						
Materials ($N = 477$)	.209	.221	.014	.725	.008	.839
	(.041)	(.041)	(.038)		(.037)	
Unskilled labor ($N = 426$)	.369	.180	−.187*	.058	−.215**	.024
	(.077)	(.077)	(.098)		(.094)	

The results in this paper represent the results from a short-run intervention. If auditors are bribable, over time villages may develop repeat relationships with auditors that may make bribing auditors easier than in the one-shot case examined here. This might suggest, for example, that frequent rotation of auditors—or lower probabilities of audits combined with higher punishments—may be optimal.

(4) Fisman and Miguel (2007)

- How important is legal enforcement (like the audits in Olken 2007) versus cultural norms in driving the corruption that we see?

- Disentangling the role of social norms versus legal enforcement – the identification problem:
  - Societies that place little weight on eradicating corruption may both have weak anti-corruption social norms and weak legal enforcement
  - Need exogenous variation in both dimensions

- Foreign aid donors / policymakers want to improve "governance" in poor countries. Should they focus on:
  - Constraining opportunistic behavior (through the law)
  - Promoting positive behavior (through cultural change)

(4) Fisman and Miguel (2007)

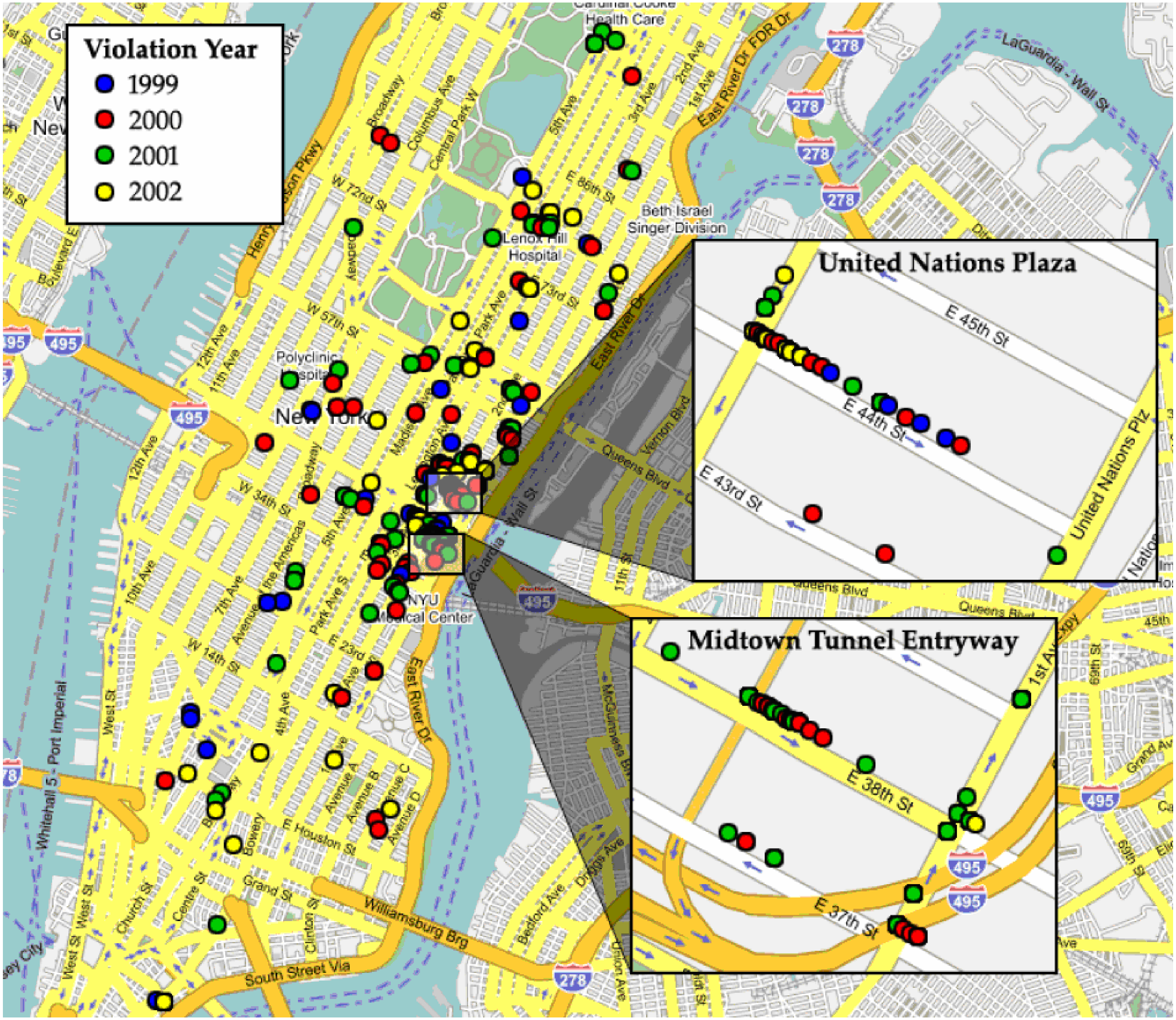
- Create a “real-world” cross-country measure of bureaucratic corruption using parking violations by diplomats in New York City
  - Diplomatic immunity means no legal enforcement – so diplomats were constrained only by norms
  - Thousands of diplomats from 149 countries, all acting in the same setting (Midtown Manhattan)

- We also exploit a policy change in New York City that dramatically increased legal enforcement against parking violations in 2002

Countries with the most unpaid violations

Table 1: Average Unpaid Annual New York City Parking Violations per Diplomat, 11/1997 to 11/2005

Parking violations rank	Country name	Violations per diplomat, Pre-enforcement (11/1997–11/2002)	Violations per diplomat, Post-enforcement (11/2002–11/2005)	U.N. Mission diplomats in 1998	Corruption index, 1998
1	KUWAIT	246.2	0.15	9	-1.07
2	EGYPT	139.6	0.33	24	0.25
3	CHAD	124.3	0.00	2	0.84
4	SUDAN	119.1	0.38	7	0.75
5	BULGARIA	117.5	1.67	6	0.50
6	MOZAMBIQUE	110.7	0.07	5	0.77
7	ALBANIA	84.5	1.89	3	0.92
8	ANGOLA	81.7	1.74	9	1.05
9	SENEGAL	79.2	0.21	11	0.45
10	PAKISTAN	69.4	1.23	13	0.76
11	IVORY COAST	67.1	0.47	10	0.35
12	ZAMBIA	60.4	0.15	9	0.56
13	MOROCCO	60.0	0.41	17	0.10
14	ETHIOPIA	59.7	0.63	10	0.25
15	NIGERIA	58.6	0.45	25	1.01
16	SYRIA	52.7	1.39	12	0.58
17	BENIN	49.8	6.63	8	0.76
18	ZIMBABWE	45.6	0.88	14	0.13


Violation Year
1999
2000
2001
2002
United Nations Plaza
E 45th St
E 44th St
E 43rd St
United Nations Plz
Midtown Tunnel Entryway
E 38th St
E 37th St
1st Ave

No unpaid violations (>5 diplomats)

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128	UNITED KINGDOM	0.0	0.01	31	-2.33
129	NETHERLANDS	0.0	0.10	17	-2.48
130	UNITED ARAB EMIRATES	0.0	0.00	3	-0.78
131	AUSTRALIA	0.0	0.03	12	-2.21
135	CANADA	0.0	0.00	24	-2.51
136	COLOMBIA	0.0	0.00	16	0.61
137	DENMARK	0.0	0.02	17	-2.57
138	ECUADOR	0.0	0.00	9	0.74
139	GREECE	0.0	0.11	21	-0.85
140	IRELAND	0.0	0.07	10	-2.15
141	ISRAEL	0.0	0.09	15	-1.41
142	JAMAICA	0.0	0.00	9	0.26
143	JAPAN	0.0	0.01	47	-1.16
145	NORWAY	0.0	0.00	12	-2.35
147	PANAMA	0.0	0.00	8	0.28
148	SWEDEN	0.0	0.00	19	-2.55
149	TURKEY	0.0	0.00	25	0.01

Parking violations are well within bounds

- Diplomats may be issued parking tickets but cannot be legally subpoenaed to pay them

- *"Diplomatic immunity is most commonly viewed as the best 'free parking' coupon in town…diplomats can park as they please"* (BBC)
  - Diplomatic parking violations are a worldwide problem (New York, London, Paris, Seoul…)

Identifying the effect of culture/norms

Local Enforcement

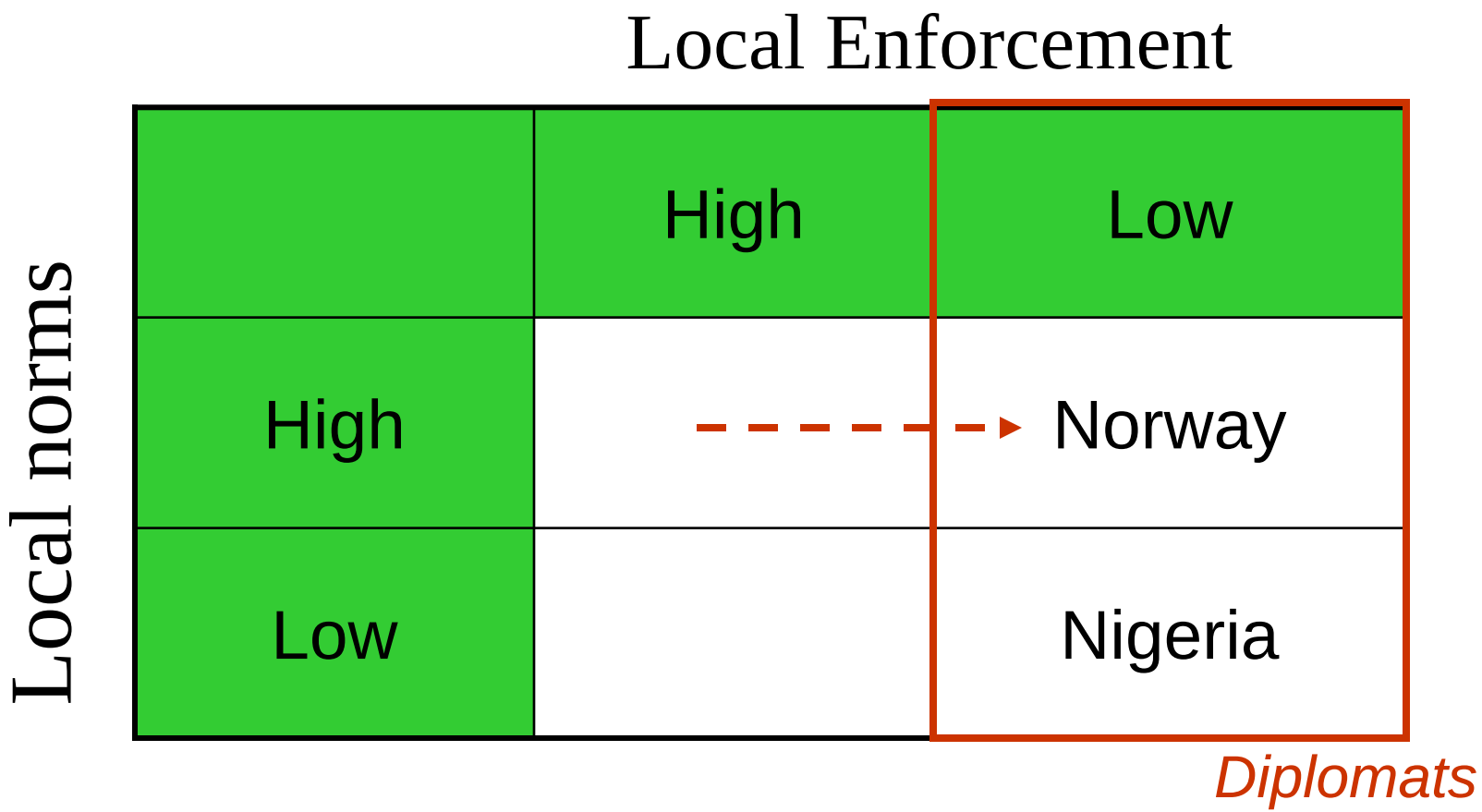
Local norms	High	Low
High	Clean	?
Low	?	Corrupt

Identifying the effect of culture/norms

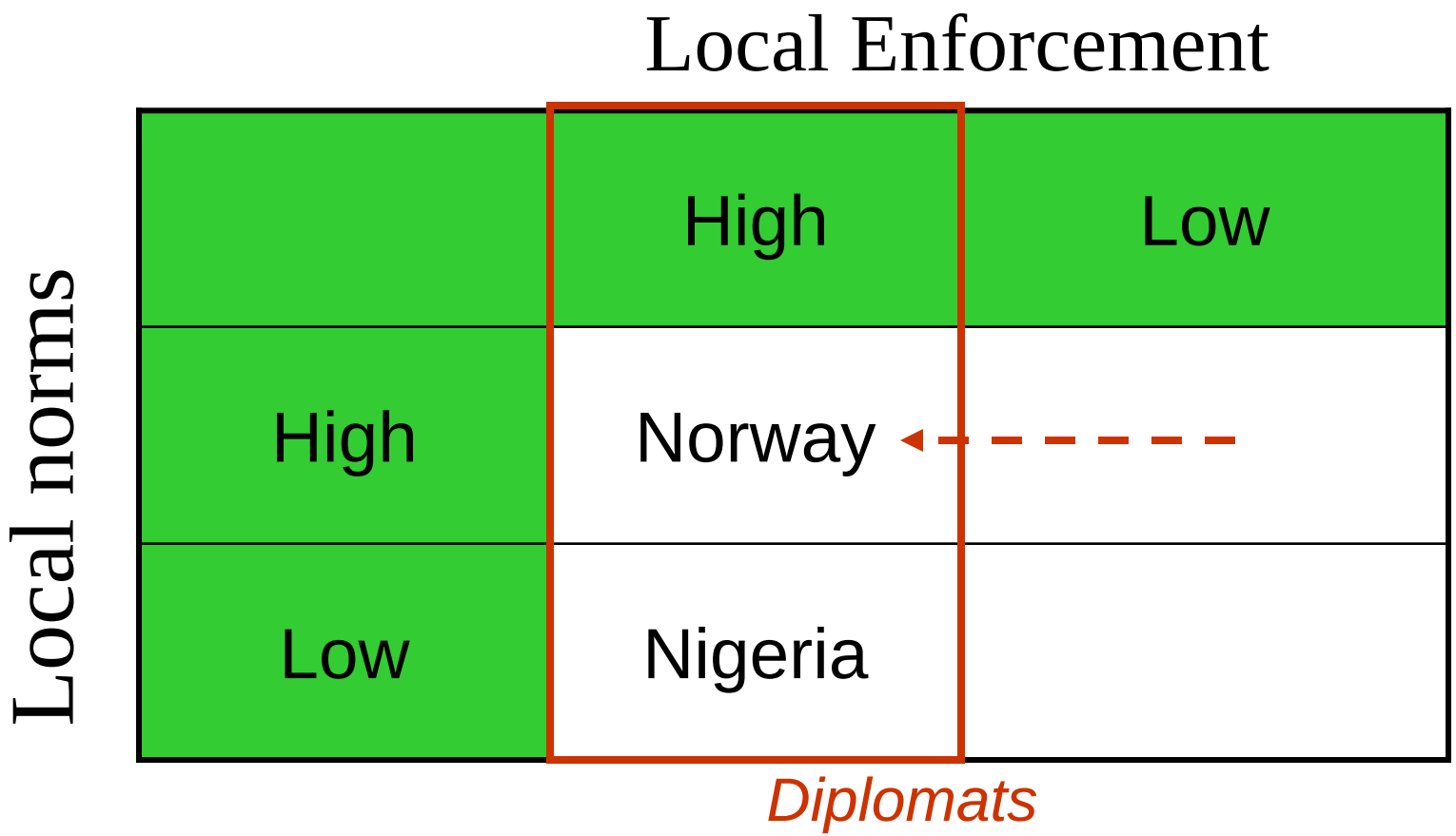
Local Enforcement

Local norms	High	Low
High	Norway	?
Low	?	Nigeria

Immunity eliminates differential enforcement



Increased enforcement post-2002



NYC diplomatic parking violation data

- Vehicle registrant
- License plate number
- Date and time of violation
- Type of parking violation
- Location of violation
- Fine, Penalty, Amount Paid
- Country of diplomat

Sample violations – “page 1” of dataset

plate	name	date	time	description	location	fine	penalty	pay	country
022PSD		11/24/1997	0200P	NO STD-LIMITS	158 E 56 ST	55	60	0	ZIMBABWE
020PSD	PERMANENT MISSION	11/24/1997	0201P	NO STD-TRCK LOD	137 E 56 ST	55	60	0	ZIMBABWE
001PSD	ZIMBABWE UN MISSIOI	11/24/1997	0201P	NO STD-LIMITS	128 E 56 ST	55	60	0	ZIMBABWE
042PSD	xxxxxxxxxxxxxxxx	11/24/1997	0208P	NO STD-TRCK LOD	222 E 56 ST	55	60	0	ZIMBABWE
256YRD	PERMANENT MISSION	11/24/1997	0220P	NO PRKG-LIMITS	1075 45 AVE	50	60	0	RUSSIA
040QSD	MISSION , MOZAMBIQU	11/24/1997	0221P	NO STD-LIMITS	17 E 50 ST	55	10	0	MOZAMBIQUE
001TMD	PERMANENT MISSION	11/24/1997	0245P	NO STD-TRCK LOD		55	60	0	ICELAND
110DMD	xxxxxxxxxxxxxxxx	11/24/1997	0246P	NO STD-TRCK LOD	45 E 19 ST	55	60	0	IRAN
051CYD	xxxxxxxxxxxxxxxx	11/24/1997	0247P	NO PRKG-LIMITS	4 SPRING ST	55	60	0	CHINA (PRC)
039KSD	xxxxxxxxxxxxxxxx	11/24/1997	0258P	EXPIRED METER	1524 2ND AVE	55	60	0	MEXICO
001LCD	VENEZUELA UN MISSIC	11/24/1997	0320P	DOUBLE PKG	16 E 81 ST	55	60	0	VENEZUELA
037JPD	xxxxxxxxxxxxxxxx	11/24/1997	0330P	DOUBLE PKG	31 BEEKMAN PL	55	60	0	TUNISIA
034QXD	PERMANENT MISSION	11/24/1997	0331P	NO STD-TRCK LOD	425 PARK AVE	55	60	0	PAKISTAN
016TUD	xxxxxxxxxxxxxxxx	11/24/1997	0338P	NO STD-TRCK LOD	1167 BWAY	55	60	0	GUINEA
008KXD	P M OF THE REPUBLIC	11/24/1997	0405P	EXPIRED METER	134 E 70 ST	55	60	0	SUDAN
049TFD	xxxxxxxxxxxxxxxx	11/24/1997	0434A	OTHER	333 E 38 ST	55	60	0	ALGERIA
015THD	P M OF THE ARAB REP	11/24/1997	0434P	EXPIRED METER	27 E 67 ST	55	60	0	EGYPT
001DBD	MISSION , COSTA RICA	11/24/1997	0438P	NO STD-TRCK LOD	222 E 44 ST	55	60	0	COSTA RICA
050AQD	SYRIA UN MISSION	11/24/1997	0443P	NO STD-TRCK LOD	303 E 44 ST	55	60	0	SYRIA
024FJD	xxxxxxxxxxxxxxxx	11/24/1997	0443P	NO STD-TRCK LOD	236 W 47 ST	55	60	0	LEBANON
108JFD	NIGERIA UN MISSION	11/24/1997	0445P	NO STD-TRCK LOD	304 E 44 ST	55	60	0	NIGERIA
076QZD	xxxxxxxxxxxxxxxx	11/24/1997	0450P	DOUBLE PKG	325 E 38TH ST	55	60	0	INDONESIA
007QSD	MISSION , MOZAMBIQU	11/24/1997	0513P	DOUBLE PKG	425 E 50 ST	55	60	0	MOZAMBIQUE
001FRD	MISSION , PHILIPPINES	11/24/1997	0515P	NO STD-LIMITS		55	60	0	PHILIPPINES
041KVD	xxxxxxxxxxxxxxxx	11/24/1997	0549P	NO STD-TRCK LOD	134 E 43 ST	55	60	0	SAUDI ARABIA

Diplomats, registered vehicles per country

- The United Nations “Bluebook” lists all U.N. permanent mission members with diplomatic immunity, 1998
  - Allows us to compute the annual number of unpaid parking violations per diplomat

- Number of registered diplomatic vehicles per country (Source: U.N. Parking Office)
  - Only available for 2006, but number of vehicles is apparently quite stable over time

Legal consequences of unpaid violations

- Before October 2002:

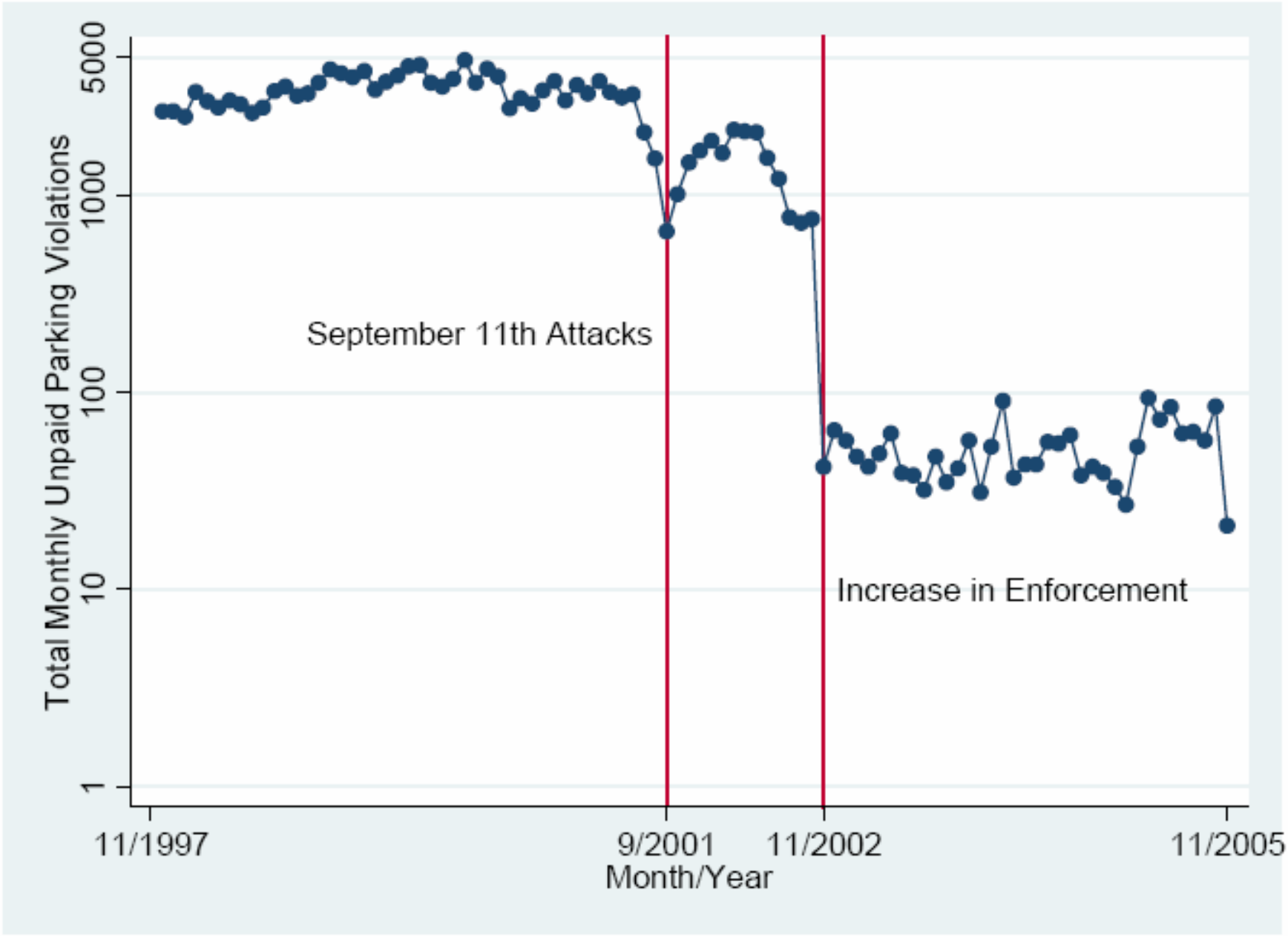
  NONE

- After October 2002:

  -- “[The Bloomberg administration] threatened to revoke the plates of scofflaws and subtract however much they owed in fines from the foreign aid their countries received.” (Washington Post)

  -- 30 countries actually had some diplomatic plates stripped in October 2002

Figure 1: Total Monthly New York City Parking Violations by Diplomats, 1997-2005 (vertical axis on log scale)



Country-level Data

- Corruption index (Source: Kaufmann et al, 2005)
- Log per capita GDP (WDI, 1998)
- U.S. foreign aid (Kuziemko and Werker, 2006)
- Geographic distance from the U.S. (CEPII)
- Affinity for USA (Pew, 2002)
  - "Please tell me if you have a very favorable, somewhat favorable, somewhat unfavorable or very unfavorable opinion of the United States"

Main Results

- We focus on both country-level and diplomat-level negative binomial count models

- Social norms and legal enforcement are both influential:

  -- An increase in country-level corruption from a country like Norway (-2.35) to Nigeria (+1.01) is associated with an 80% increase in unpaid diplomatic parking tickets

  -- This is the combined effect of individual psychic costs ("conscience") and informal social sanctions

- Greater legal enforcement after 2002 reduces unpaid parking tickets by 98%

Figure 2: Country corruption and Unpaid New York City Parking Violations per diplomat (in logs), pre-enforcement (11/1997 to 11/2002)

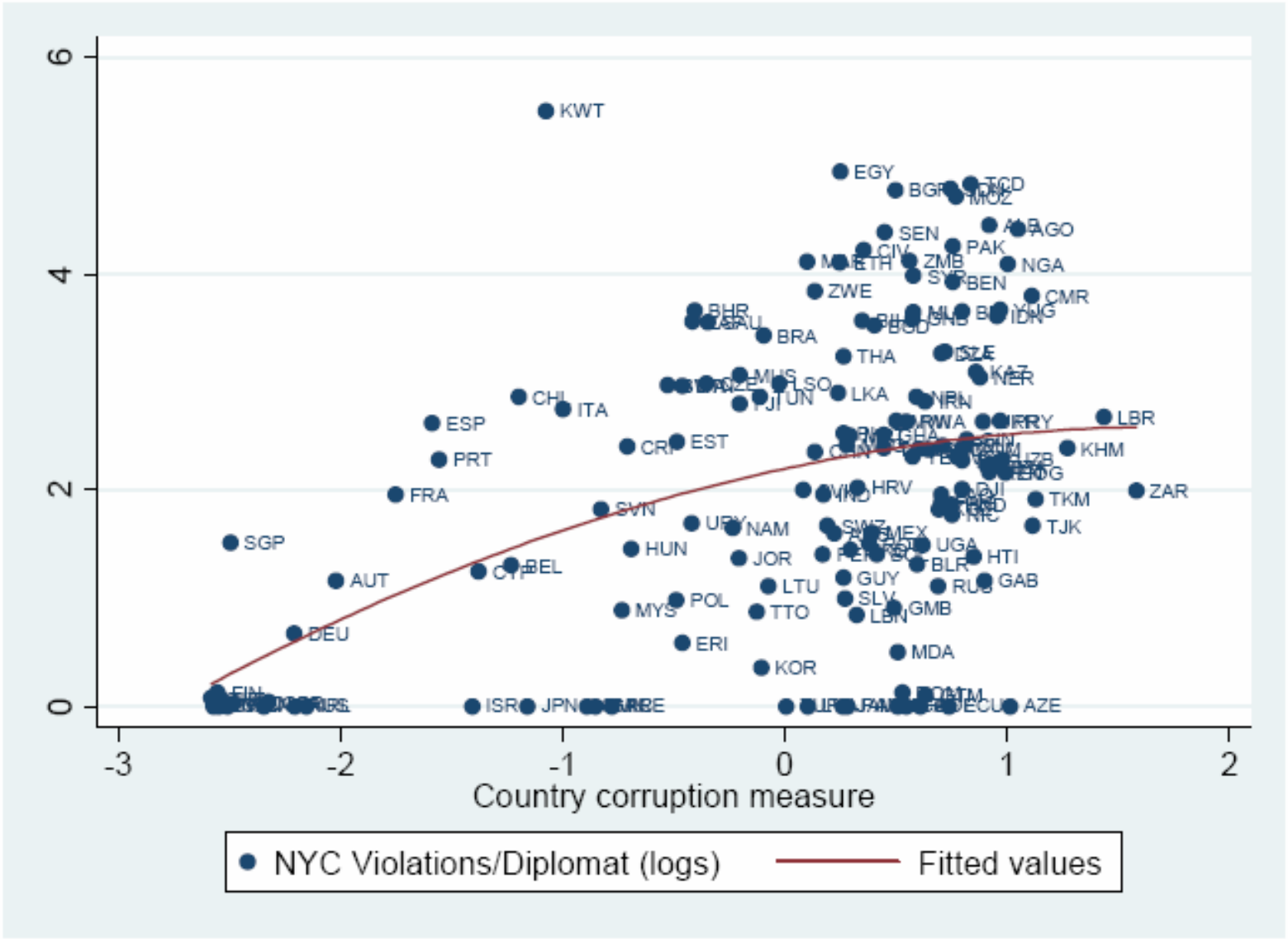


Table 3: Country Characteristics and Unpaid New York City Parking Violations, 11/1997 to 11/2005

	Dependent variable: Unpaid Parking Violations				
	(1)	(2)	(3)	(4)	(5)
Country corruption index, 1998	0.48***	0.57***	0.57***	0.56**	0.57*
	(0.18)	(0.22)	(0.21)	(0.28)	(0.30)
Post-enforcement period indicator (post-11/2002)	-4.41***	-4.41***	-4.21***	-4.43***	-4.41***
	(0.21)	(0.21)	(0.13)	(0.20)	(0.21)
Country corruption index * Post-enforcement period					-0.01
					(0.28)
Diplomats	0.05**	0.04**	0.05***	0.05**	0.04**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
log(Per capita income, 1998 US$)		0.06	0.09	64.2*	0.06
		(0.14)	(0.14)	(36.9)	(0.14)
Africa region indicator variable			2.86***		
			(0.48)		
Asia region indicator variable			1.99***		
			(0.50)		
Europe region indicator variable			2.24***		
			(0.55)		
Latin America region indicator variable			1.67***		
			(0.56)		
Middle East region indicator variable			3.23***		
			(0.60)		
Oceania region indicator variable			1.51**		
			(0.64)		
log(Per capita income, 1998 US$) polynomials (quadratic, cubic, quartic)	No	No	No	Yes	No
Observations	298	298	298	298	298
Log pseudo-likelihood	-1570.21	-1570.07	-1547.69	-1567.56	-1570.07

Robustness of the main finding

- The strong link between parking violations and the country corruption index is robust to (Table 4):
  - Controls for the number of diplomatic vehicles, and average government salaries
  - OLS specifications rather than negative binomial
  - Violations outside of the UN “business district” and during off-work hours

Table 4: Country Characteristics and Unpaid New York City Parking Violations, 11/1997 to 11/2005 – sensitivity tests

	Dependent variable:						
	Unpaid Parking Violations	Unpaid Parking Violations	Paid and Unpaid Parking Violations	After-hours Parking Violations	Log (1 + Unpaid Parking Violations)	Unpaid Parking Violations	Unpaid Parking Violations
	Negative binomial	Negative binomial	Negative binomial	Negative binomial	OLS	OLS	Negative binomial
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Country corruption index, 1998	1.01***	0.48**	0.47**	0.56*	0.37**	123.9*	0.74***
	(0.32)	(0.24)	(0.18)	(0.30)	(0.16)	(72.3)	(0.23)
Post-enforcement period indicator (post-11/2002)	-4.06***	-4.31***	-3.36***	-3.52***	-2.69***	-966.6***	-4.34***
	(0.15)	(0.19)	(0.16)	(0.21)	(0.14)	(164.6)	(0.19)
Diplomats	0.06**	0.01	0.05***	0.04*		21.1*	0.05
	(0.03)	(0.02)	(0.02)	(0.02)		(11.2)	(0.03)
log(Per capita income, 1998 US$)	0.32	0.01	0.06	-0.02	-0.24**	-40.0	0.02
	(0.20)	(0.14)	(0.13)	(0.17)	(0.10)	(68.4)	(0.17)
Average government wage / country per capita income	0.15**						
	(0.06)						
Diplomatic Vehicles		0.05*					
		(0.02)					
Log (Diplomats)					0.75***		
					(0.15)		
log(Weighted distance of population from U.S.)							1.23***
							(0.30)
Log (Total trade with the U.S.)							0.04
							(0.07)
Received U.S. economic aid							-0.65**
							(0.30)
Received U.S. military aid							0.10
							(0.23)
Observations	184	278	298	298	298	298	288
Log pseudo-likelihood	-967.23	-1463.60	-1816.45	-831.14	-	-	-1510.79
R^2	-	-	-	-	0.52	0.13	-

Corruption culture vs. disposable income

- *H_0: Rich country diplomats commit lots of violations but their mission pays for them*
  - No, results are robust to counting paid and unpaid parking violations (Appendix A2)

- *H_0: Rich country diplomats can afford garage spots, while poor diplomats overstay street meters*
  - No, the same pattern holds for “socially egregious” and “after hours” violations

Is there gradual socialization of diplomats?

- Do diplomats adjust over time to local conditions?

- *H_1: converge to U.S. norm*
  - Individual violation frequency declines over time
  - Largest decline for diplomats from corrupt countries

- *H_2: converge to "no enforcement" norm* ✓
  - Individual violation frequency increases over time
  - Largest increase for diplomats from clean countries

Table 5: Unpaid Parking Violations at the Diplomat level, 11/1997 to 11/2005

	Dependent variable: Unpaid Parking Violations (monthly)	
	Negative binomial	Negative binomial
	(1)	(2)
Country corruption index, 1998	0.148	0.388***
	(0.120)	(0.117)
Log (Length of time in New York City, in months)	0.084***	0.090***
	(0.006)	(0.006)
Log(Length of time in New York City) * Country corruption index		-0.027***
		(0.006)
Month Fixed Effects	Yes	Yes
Observations (diplomats)	40,938 (5338)	40,938 (5338)
Log pseudo-likelihood	-23733	-23621

Discussion

- Corruption norms are persistent and important: diplomats from corrupt countries commit substantially more violations when there is no enforcement

- But legal enforcement matters a lot, too: violations fell by 98% after October 2002

  -- NYC is a good setting to study increased enforcement

- Socialization of diplomats: in the anarchic pre-2002 environment, diplomats “learned” to commit violations

  -- How persistent are these changes? Are low corruption cultures mainly a legacy of good law enforcement?

  -- There is no cookbook on how public policy can change culture, and program impacts may be locally specific

Whiteboard #1

Whiteboard #2

Whiteboard #3

Whiteboard #4

Whiteboard #5


ARCTIC OCEAN
GREENLAND
BEAUFORT SEA
BAFFIN SEA
GREENLAND SEA
NORWEGIAN SEA
BARENTS SEA
KARA SEA
EAST SIBERIAN SEA
RUSSIA
CANADA
UNITED STATES OF AMERICA
KAZAKHSTAN
MONGOLIA
CHINA
ATLANTIC OCEAN
PACIFIC OCEAN
BRAZIL
INDIAN OCEAN
AUSTRALIA
International Date Line
Midnight
The direction of the earth's rotation
West
East