

## An Economic Look at Corruption

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## Some key questions

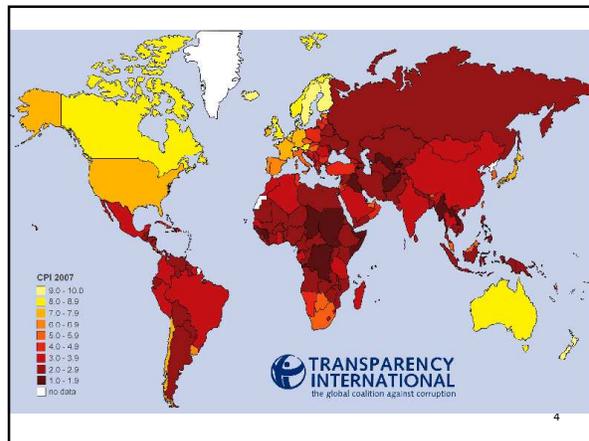
- What structures encourage/discourage?
- How to detect?
- What are likely economic consequences?

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## 2007 Corruption Perceptions Index

- The looks at perceptions of public sector corruption in 180 countries and territories
- Composite index that draws on 14 expert opinion surveys.
- Scale from zero to ten, with zero indicating high levels of perceived corruption and ten indicating low levels of perceived corruption.

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## Some results

- Country, #, rank
- Denmark, 9.4, 1
- Canada, 8.7, 9
- Luxembourg, 8.4, 12
- Hong Kong, 8.3, 14
- USA, 7.2, 20
- Israel, 6.1, 30
- Italy, 5.2, 41
- Poland, 4.2, 61
- China, 3.5, 72
- India, 3.5, 72
- Algeria, 3.0, 99
- Uganda, 2.8, 111
- Iran 2.5, 131
- Russia, 2.3, 143
- Afghanistan, 1.8, 172
- Haiti, 1.6, 177
- Somalia, 1.4, 179

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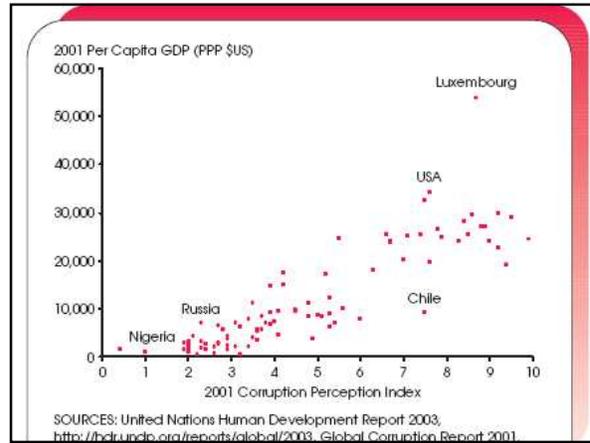


Table 1. How much is spent in bribes			Per Capita Income, 2005
Bribes paid by household members over the previous 12 months	Nominal amount in current USD	Amount in purchasing power parity USD	
Cameroon	205	560	\$1010
Ghana	181	1095	\$450
India	102	523	\$720
Kenya	50	114	\$530
Lithuania	195	432	\$7050
Mexico	111	166	\$7320
Moldova	86	280	\$880
Romania	56	154	\$3830
Russia	129	393	\$4460
Ukraine	160	860	\$1520

Source: Transparency International Global Barometer 2005

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## Suharto

- Indonesian military leader, 2<sup>nd</sup> president of Indonesia
- Held office 1967-98
- Died in 2008
- Tremendous growth in Ind. Economy over this period



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- New Order program
- Strong central, military style government
- Strong anti-communist stance so he was favored by the US
- Occupied East Timor for 24 years
- History of corruption in his government/family
- Estimates of embezzlement from \$2-\$35 billion

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- 1995-1997, Ind. Economy goes into tailspin
- Over this times, 6 episodes in local/international papers suggesting declining health of Suharto
- If firms tied to Suharto, then returns should fall when health was failing

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## Political dependency index

- Constructed by Castle group
  - Leading economic consulting firm in Jakarta
  - Prepared for seminar in 1996 to business clients about investment opportunities in Ind.
  - Ranking of how the 25 largest industrial groups tied to Sudharto –
  - individually ranked 79 companies
  - 1 was least dependent, 5 was most dependent

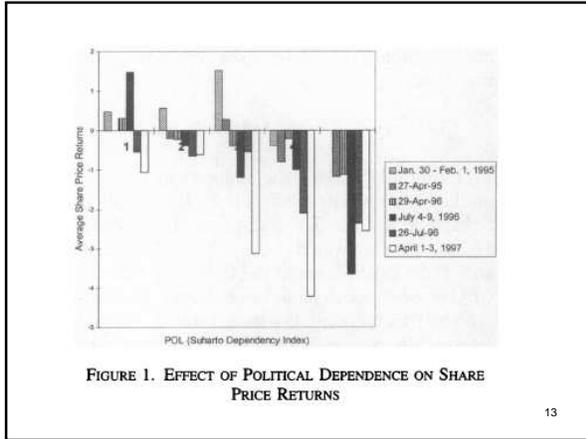
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TABLE 1—SUMMARY STATISTICS BY DEGREE OF POLITICAL DEPENDENCE AS MEASURED BY THE SUHARTO DEPENDENCY INDEX

POL	1	2	3	4	5	All firms	Observations
Observations	5	34	10	16	14	79	
Assets	2,145.76 (2,843.63)	2,228.57 (3,989.85)	2,206.20 (3,676.99)	1,634.08 (2,561.07)	1,765.51 (2,250.52)	2,033.19 (3,321.59)	76
Debt	707.18 (702.84)	791.32 (1,478.83)	813.25 (976.28)	397.83 (461.06)	712.57 (1,070.83)	717.37 (1,186.85)	70
Return on assets (net income)/ (total assets)	0.038 (0.031)	0.058 (0.058)	0.043 (0.023)	0.037 (0.032)	0.050 (0.029)	0.050 (0.044)	76
Tax rate (taxes paid)/(pretax income)	0.23 (0.05)	0.24 (0.12)	0.16 (0.14)	0.22 (0.16)	0.15 (0.12)	0.21 (0.13)	74

Sources: All data are from the *Financial Times' Extel Database* (1997); Assets and Debt are expressed in millions of 1995 rupiah.

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### Sumo wrestling

- 2000 year history
- National sport of Japan, very ritualistic
- Country with low level of corruption
  - Index ranking of 7.5, 17<sup>th</sup> best
- Good data available
- Situation ripe for cheating

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### Payoffs

- Tournaments (basho), 66 wrestlers (rikishi), 15 bouts each
- Wrestlers with 8+ wins (kachi-koshi) move up in rankings (banzuke)
- Those with losing record (make-koshi) fall

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- One more win generates 2.5 point change
- Movement from 7 to 8 wins produces almost 11 point change
- One point is worth roughly \$3000 annually
- 5<sup>th</sup> – 10<sup>th</sup> ranked wrestler makes \$250/year

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## Consider 2 wrestlers

- 8-6 vs 7-7 going into last match
- Return for a win for the 7-7 person is much higher
- 8-6 lets the 7-7 win, 7-7 must return the favor later

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## Data

- 12 years
- 6 tournaments/year
- 70 wrestlers/tournament
- 15 matches/tournament
- 34K matches, 64K wrestlers
- 281 wrestlers,

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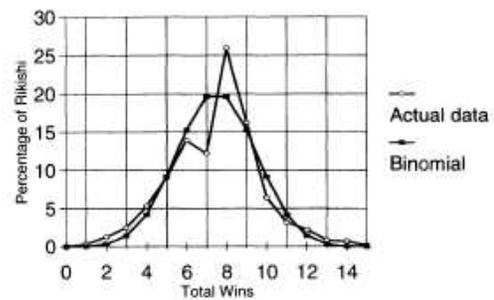


FIGURE 2. WINS IN A SUMO TOURNAMENT (ACTUAL VS. BINOMIAL)

$$(1) \text{ Win}_{ijt} = \beta \text{Bubble}_{ijt} + \gamma \text{Rankdiff}_{ijt} + \lambda_{ij} + \delta_{it} + \epsilon_{ijt}$$

Win =1 if wrestler i beats j in tournament t on day d

BUBBLE =1 if wrestler is on the margin, -1 if Opponent on margin, =0 otherwise

RANKDIFF is difference in rank

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On the Margin on:	(1)	(2)
Day 15	0.244 (0.019)	0.249 (0.019)
Day 14	0.150 (0.016)	0.155 (0.016)
Day 13	0.096 (0.016)	0.107 (0.016)
Day 12	0.038 (0.017)	0.061 (0.018)
Day 11	0.000 (0.018)	0.018 (0.018)
Rank difference	—	0.0053 (0.0003)
Constant	0.500 (0.000)	0.500 (0.000)
R <sup>2</sup>	0.008	0.018
Number of observations	64,272	62,708

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Two possible explanations???

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Variable	Only Matches in Which the Wrestler on the Margin Wins		Only Matches in Which the Wrestler on the Margin Lose	
	(3)	(4)	(5)	(6)
One or two matches prior to the bubble match	0.020 (0.011)	0.019 (0.017)	-0.041 (0.016)	-0.041 (0.016)
Bubble match	—	—	—	—
First meeting after bubble match	-0.082 (0.015)	-0.079 (0.020)	-0.056 (0.020)	-0.056 (0.020)
Second meeting after bubble match	0.031 (0.017)	0.028 (0.022)	-0.061 (0.023)	-0.061 (0.023)
Three or more meetings after bubble match	0.013 (0.007)	0.022 (0.014)	-0.045 (0.008)	-0.045 (0.008)
Constant	0.500 (0.000)	—	0.500 (0.000)	—
Wrestler-opponent interactions?	No	Yes	No	Yes
R <sup>2</sup>	0.002	0.279	0.002	0.279

TABLE 4—EXCESS WIN PERCENTAGES ON THE BUBBLE FOR WRESTLERS LABELED BY SUMO INSIDERS AS “CORRUPT” OR “CLEAN”

		Wrestler on the Bubble Is Identified as:		
		Corrupt	Status Unknown	Clean
Opponent of wrestler on the bubble is identified as:	Corrupt	0.260 (0.037)	0.270 (0.021)	-0.010 (0.038)
	Status unknown	0.271 (0.021)	0.181 (0.019)	0.041 (0.031)
	Clean	0.036 (0.027)	-0.033 (0.035)	0.022 (0.074)

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## Fisman and Miguel

- What determines corruption?
- Two possible candidates
  - Legal environment
  - Culture/social norms
- Problem: identification?

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## Parking violations in NYC

- UN diplomats are given immunity from prosecution or lawsuits in the US
- Reciprocal arrangements with other countries, designed to protect diplomats in unfriendly environments
- Diplomatic plates in NY are identified
- Will receive ticket, but no way to compel violators to pay

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- Called 'best free parking pass in town'
- Between 11/87 and 12/02
  - 150K unpaid parking tickets
  - Fines totaling \$18 million
- 30 days to pay fine
  - At that point an additional penalty is levied of 110% of finer
  - Diplomats have another 70 days to pay
  - Then recorded as unpaid violation

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## Data

- At the level of the violation
- Contains license plate, name and county of registrant, date, time location of violation, fine and penalty, amount paid (if any)
- 43% were violations of 'no standing-loading zone'
- 20% of cases, are registered to mission, so official rather than personal vehicle
- Need to scale fines by size of diplomatic mission

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## Corruption index

- Constructed by Kaufman et al.
- Scaled composite measure of corruption
- Mean of zero, std dev of 1, goes from -2.6 (least corrupt) to 1.6 (most)
- Correlation coefficient with Transparency index, 0.9

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## Legal environment

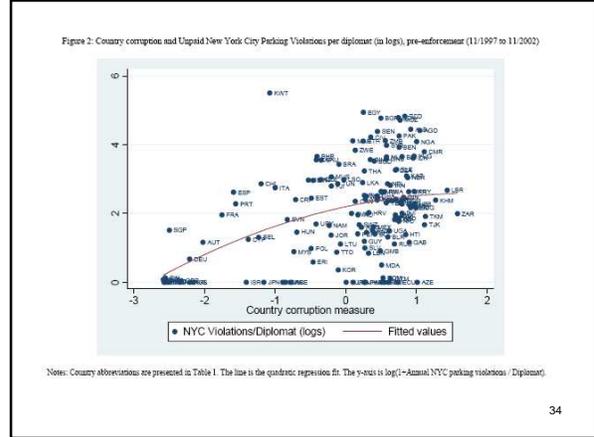
- Oct 2002, State dept gave NYC permission to revoke diplomatic plates w/ 3+ unpaid violations
- Clinton-Schumer Amendment allowed US to deduct 110% of outstanding violations from US foreign aid to a country

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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	Country code
1	KUWAIT	246.2	0.15	9	-1.07	KWT
2	EGYPT	139.6	0.33	24	0.25	EGY
3	CHAD	124.3	0.00	2	0.84	TCD
4	SUDAN	119.1	0.38	7	0.75	SDN
5	BULGARIA	117.5	1.67	6	0.50	BGR
6	MOZAMBIQUE	110.7	0.07	5	0.77	MOZ
7	ALBANIA	84.3	1.89	3	0.92	ALB
8	ANGOLA	81.7	1.74	9	1.05	AGO
9	SENEGAL	79.2	0.21	11	0.45	SEN
10	PAKISTAN	69.4	1.23	13	0.76	PAK
11	IVORY COAST	67.1	0.47	10	0.35	CIV
12	ZAMBIA	60.4	0.15	9	0.56	ZMB
13	MOROCCO	60.0	0.41	17	0.10	MAR
14	ETHIOPIA	59.7	0.63	10	0.25	ETH
15	NGERIA	58.6	0.45	25	1.01	NGA
16	SYRIA	52.7	1.39	12	0.58	SYR

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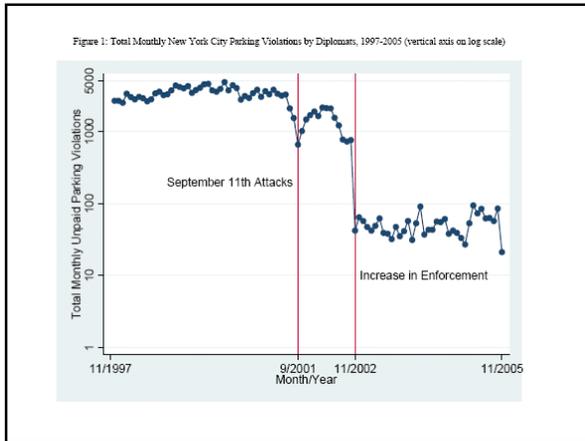


Table 3: Country Characteristics and Unpaid New York City Parking Violations, 11/1997 to 11/2005

	Dependent variable: Unpaid		
	(1)	(2)	(3)
Country corruption index, 1998	0.48*** (0.18)	0.57*** (0.22)	0.57*** (0.21)
Post-enforcement period indicator (post-11/2002)	-4.41*** (0.21)	-4.41*** (0.21)	-4.21*** (0.13)
Country corruption index * Post-enforcement period			
Diplomats	0.05** (0.02)	0.04** (0.02)	0.05*** (0.02)
$\log(\text{Per capita income, 1998 US\$})$		0.06 (0.14)	0.09 (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)
$\log(\text{Per capita income, 1998 US\$})$ polynomials (quadratic, cubic, quartic)	No	No	No