



# Corruption and Development

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Anticorruption and Governance Workshop

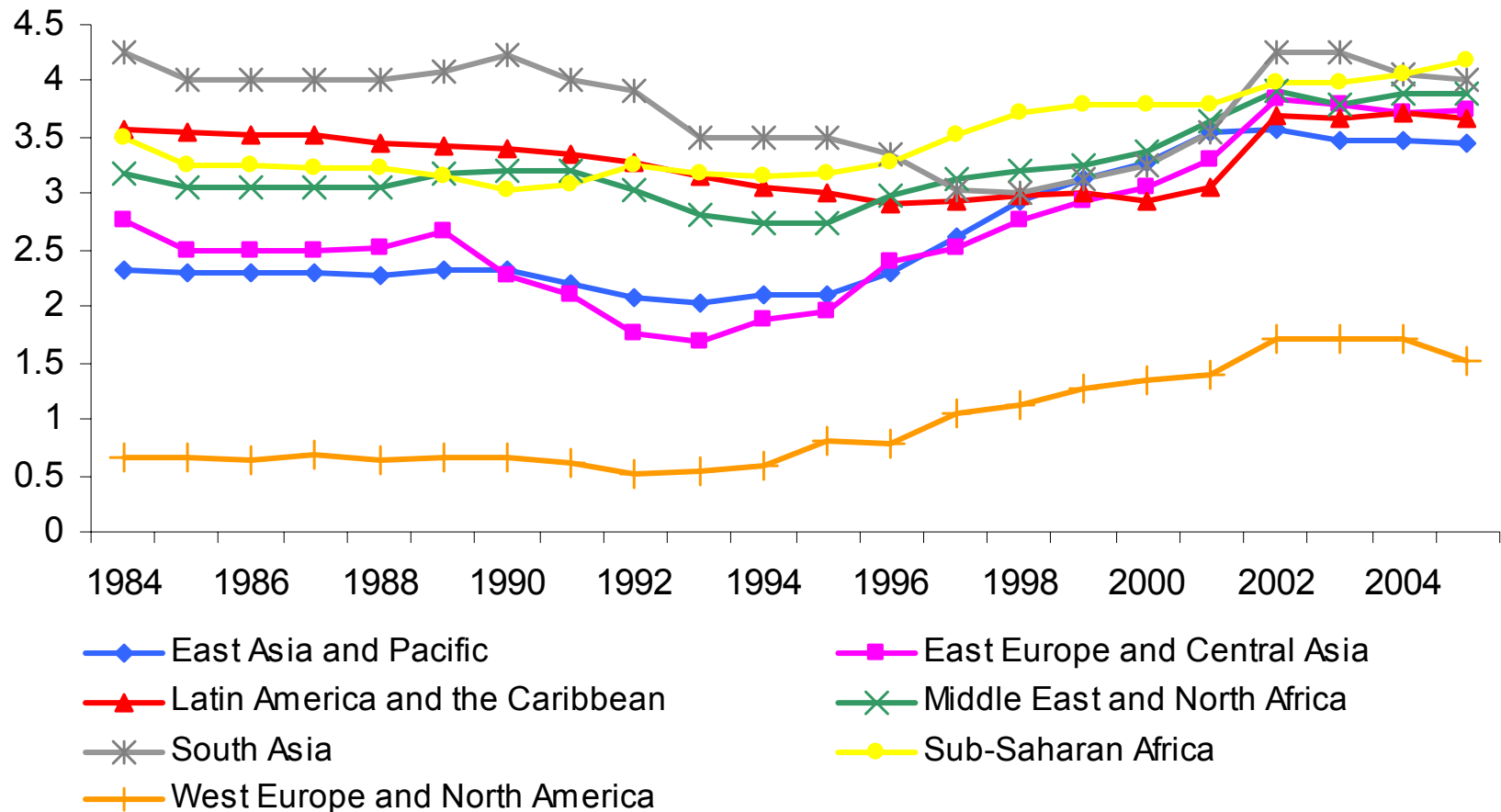
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# This Presentation

1. Some facts and trends
2. Does Corruption retard growth?
  1. Cross-country evidence
  2. Case studies
3. What are the transmission channels from corruption to growth?
4. But, is it corruption or bad institutions that matter?
5. Does growth tend to reduce or increase corruption?
6. What are the macro-determinants of corruption?
7. What are the effects of corruption on poverty and inequality?

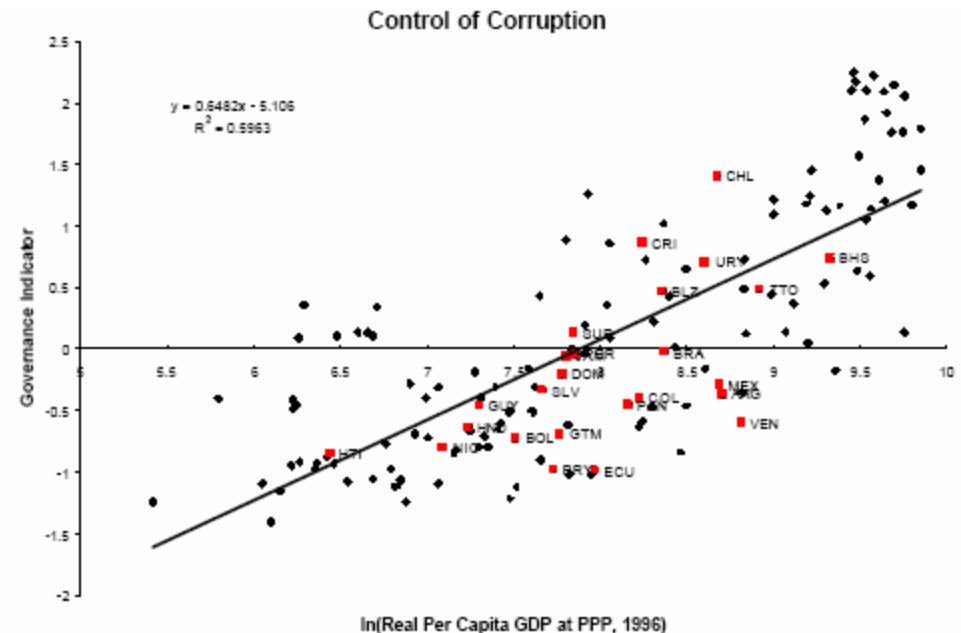
# 1. Corruption by regions



Note: Higher values imply higher levels of corruption. Source: ICRG

# 1. The correlation between corruption, governance and income per capita

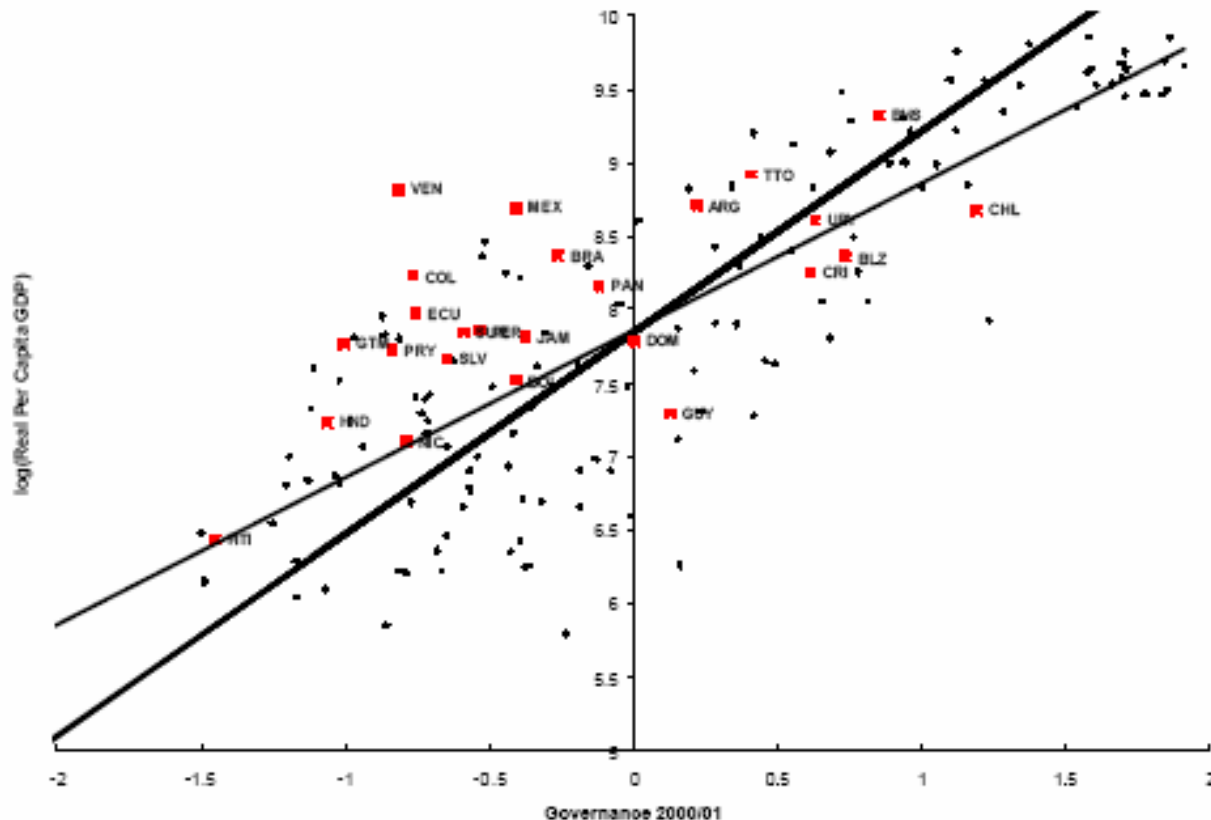
	Position relative to OLS regression line		P-value
	Below	Above	
<u>Voice and accountability</u>	8	18	0.05
<u>Political Stability</u>	11	15	0.43
<u>Government Effectiveness</u>	19	7	0.02
<u>Regulatory Quality</u>	10	16	0.24
<u>Rule of Law</u>	20	6	0.01
<u>Control of corruption</u>	20	6	0.01



Note: Higher values of the control of corruption index (KKZ) indicate “good governance”

# 1. Governance and income per capita

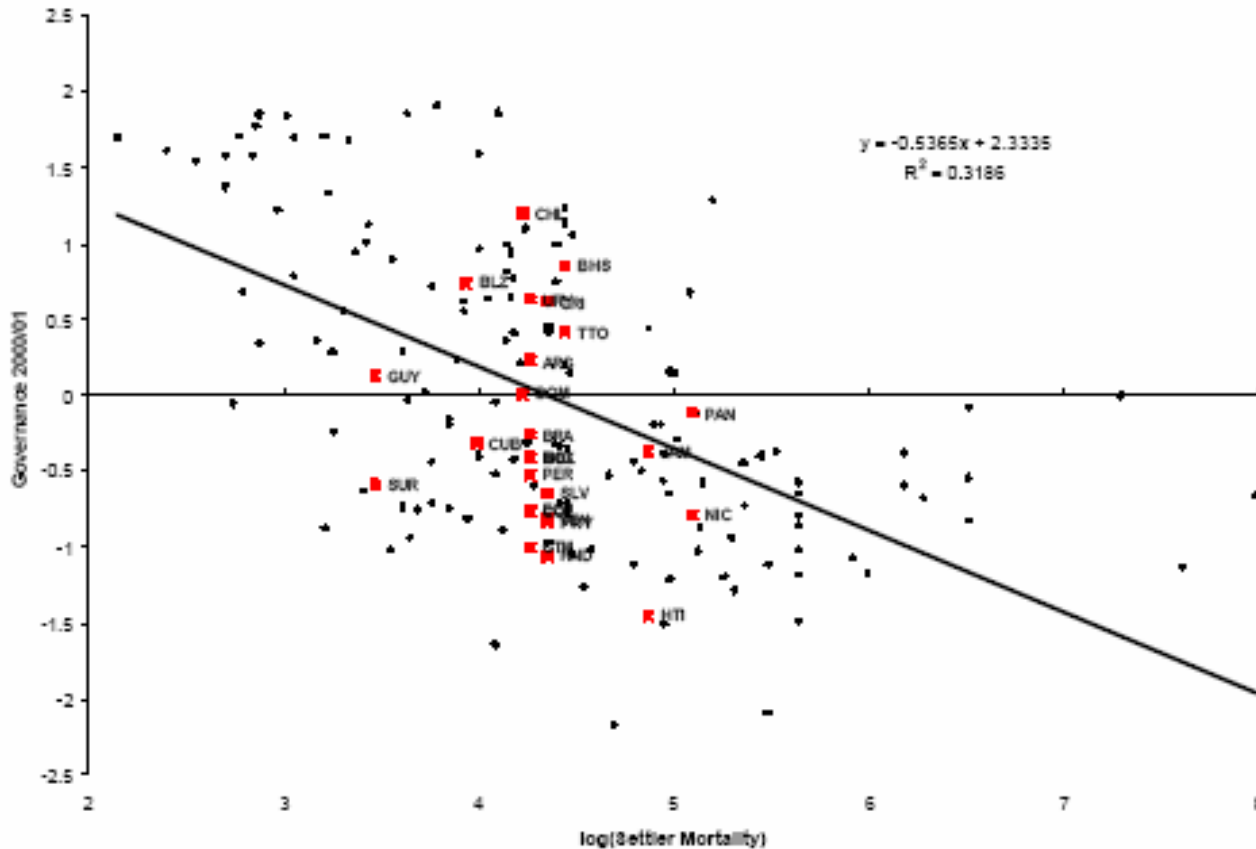
IV Regression of Per Capita Income on Governance



Note: Governance is proxied by the index of the rule of law. Higher values for this indicator implies “good governance.” Source: Kaufmann and Kraay (2002)

# 1. Does history matter?

First-Stage Regression of Governance on History



Note: Governance is proxied by the index of the rule of law. Higher values for this indicator implies “good governance.” Source: Kaufmann and Kraay (2002)

# 2.1 Corruption and Growth: Cross-country evidence

Dep Var: Real per capita GDP growth, 1960-85 average

Ind. Var	(1)	(2)	(3)	(4)
Constant	(0.0035) (0.85)	-0.0284 (-2.12)	0.0012 (1.50)	-0.0404 (-0.81)
Corruption index	<b>0.0029***</b> <b>(4.74)</b>	<b>0.0081***</b> <b>(3.61)</b>	<b>0.0038***</b> <b>(2.95)</b>	<b>0.0175*</b> <b>(1.40)</b>
Per cap GDP in 1960			-0.0075 (-4.49)	-0.0182 (-1.79)
Secondary education in 1960			0.0401 (3.09)	0.0034 (0.09)
Population growth			-0.4124 (-1.83)	-0.5192 (-1.29)
N	94	94	94	94

- A one s.d. increase in the corruption index (2.38) is associated with over a ½ percentage point increase in the annual growth rate of per capita GDP.

Note: Corruption index taken from ICRG and BI. Higher values indicate “good institutions” in that dimension. .Source: Mauro (1997)

# 2.1 Corruption and Growth: Cross-country evidence

Dep Var: Real per capita GDP growth

Ind. Var	(1)	(2)	(3)	(4)	(5)
Constant	1.87*** (2.59)	1.78** (1.85)	5.32*** (4.05)	2.06** (2.25)	5.12** (2.06)
Natural resource abundance	-11.10*** (-3.19)	-11.10*** (-3.19)	-2.10 (-0.55)	-11.10*** (-2.69)	-2.24 (-0.46)
Initial real per cap GDP (x10 <sup>3</sup> )	-0.30*** (-2.85)	-0.29*** (-2.75)	-0.16** (-2.15)	-0.24** (-1.88)	-0.14 (-1.35)
Initial secondary schooling	0.43 (1.19)	0.45 (1.25)	0.53* (1.67)	0.11 (0.26)	0.11 (0.34)
Initial Gini coefficient for land			<b>-0.06***</b> <b>(-3.58)</b>		<b>-0.05***</b> <b>(-2.33)</b>
Corruption	<b>-0.47***</b> <b>(-3.83)</b>	<b>-0.47***</b> <b>(-3.87)</b>	-0.12 (-0.96)	<b>-0.53***</b> <b>(-3.30)</b>	-0.16 (-1.11)
N	56	56	47	46	38

Note: The proxy used was corruption perception from *Transparency International*. Higher values of this indicator indicate higher corruption. Source: Gupta, Davoodi, Alonso-Terme (1998)

# 2.1 Corruption and Growth: Cross-country evidence

Free Countries

Not Free Countries

Dep Var: per capita GDP growth, 1960-2000

Ind. Var	(1)	(2)	(3)
Corruption	<b>0.010***</b> (2.06)	<b>0.014***</b> (2.54)	<b>0.013***</b> (2.45)
Corruption <sup>2</sup>	<b>-0.0010***</b> (-2.33)	<b>-0.0012***</b> (-2.80)	<b>-0.0011***</b> (-2.54)
Average annual population growth	0.009 (1.43)	0.008 (1.48)	0.006 (1.23)
Secondary gross enrollment rate	0.0002 (1.31)	0.0002 (1.67)	0.0003 (1.96)
Initial GDP	-2.8E-6 (-306)	-2.6E-6 (-3.24)	-2.5E-6 (-3.15)
Investment		0.002 (3.81)	0.0018 (2.89)
GG consumption			-0.0027 (-3.31)

Ind. Var	(1)	(2)	(3)
Corruption	<b>0.045***</b> (3.47)	0.007 (1.17)	0.011* (1.60)
Corruption <sup>2</sup>	<b>-0.005***</b> (-3.46)	-0.0013* (-1.81)	-0.0014* (-1.91)
Average annual population growth	0.001 (0.13)	-0.0011 (-2.69)	-0.008 (-2.04)
Secondary gross enrollment rate	-9.1E-5 (-0.16)	-0.0003 (-1.24)	-0.0003 (-1.27)
Initial GDP	-1.1E-5 (-2.66)	-6.5E-6 (-2.81)	-6.1E-6 (-2.91)
Investment		0.002 (5.44)	0.002 (4.95)
GG consumption			-0.002 (-3.40)

- The rate of growth of an economy is higher in the presence of low but positive level of corruption

- Column [1]: Non-linear relationship between corruption and growth
- Evidence is not robust.

Note: Corruption is proxied by the ICRG index. Source: Méndez and Sepúlveda (2005)



## 2.2 Corruption and Growth: Is East Asia different?

### Effects of Corruption on Growth

*Dependent Variable: Growth in GDP per capita*

Region	Business International	Transparency International	Corruption ICRG	Corruption KKZ
East Asia NICs	0.63 ** (2.59)	0.52 ** (2.12)	0.76 ** (2.39)	5.41 ** (4.19)
Other Developing Countries	-0.22 (-0.081)	-0.12 (-0.51)	-0.21 (-0.69)	-2.31 ** (-2.83)

- Corruption slows growth in most developing countries, while appears to increase growth in East Asian NICs.
- East Asian paradox: Combination of high corruption and high growth (mutually beneficial exchanges of bribes and kickbacks).

*Source: Rock and Bonnett (2004)*



## 2.2 Corruption and Growth

### Case studies: Indonesia

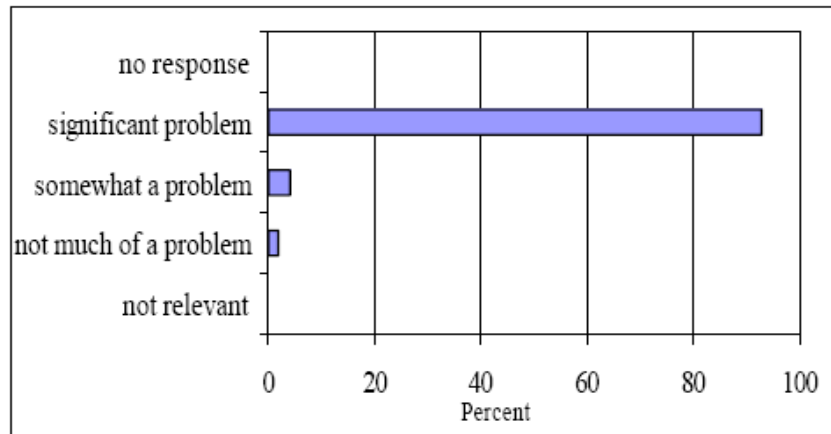
- Annual growth per capita of 3.6% for 1965-98 period despite “*bad institutions.*”
- Suharto regime:
  - Corruption
  - Heavy State involvement in the economy
  - Centralization of power
- High Growth due to (Temple, 2004):
  - Abundance of natural resources –e.g. oil
  - “Green revolution” with large agricultural sector
  - High-growth neighbors boosting Indonesian exports
- But, Indonesian institutions unable to provide required adjustments after Asian crisis in 1997.

# 2.2 Corruption and Growth

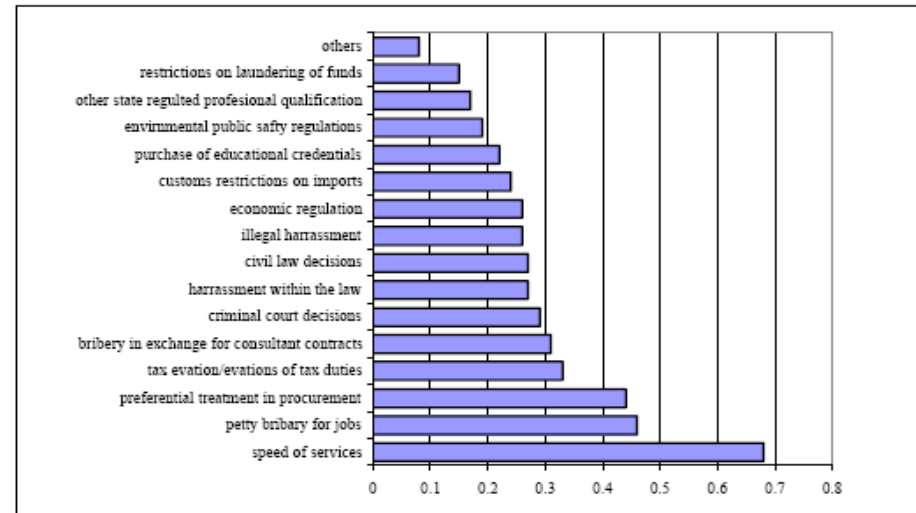
## Case Studies: Indonesia

### Civil Servants' Perception of Corruption

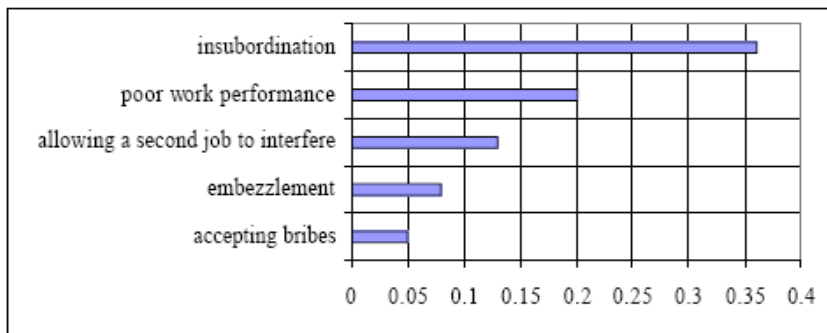
Would you say that corruption is a problem affecting the performance of the government?



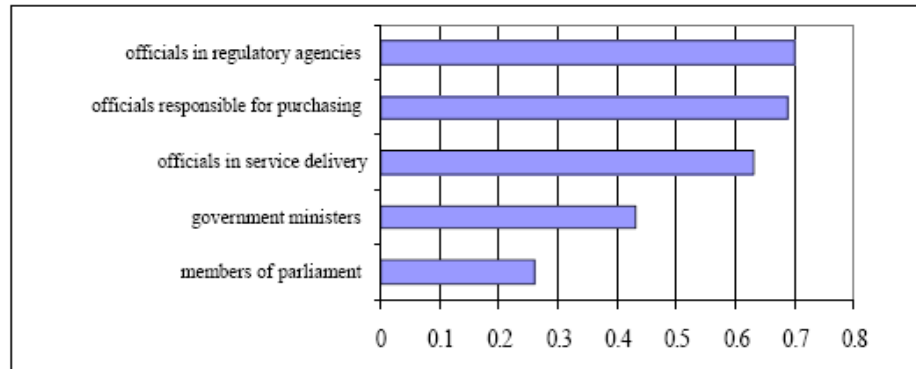
What does corruption help avoid/facilitate



In the past 3 years, have staff in your organization been disciplined?



Which officials are most corrupt?





## 2.2 Corruption and Growth

### Case studies: China

- Chinese growth miracle despite high corruption, absence of rule of law and secure property rights.
- “Transitional Institutions”: Limited institutions targeted at central incentives (Qian, 2003)
  - “Dual-track” Reform: Prices were liberalized at the margin while intra-marginal plan prices and quotas were maintained.
  - Intermediate form of ownership between private and state ownership represented by *Township-Village Enterprises* (TVEs)
  - Party leaders “guarantee” property rights for FDI. For how long?



# 3. Transmissions channels

## ○ **Private Investment**

- Increases uncertainty of doing business and deters private investment (Mauro, 1997; Pellegrini and Gerlagh, 2004)

## ○ **Foreign Direct Investment**

- Corruption acts like a tax deterring FDI (Wei, 2000; Smarzynska and Wei, 2000, Abed and Davoodi, 2002)

## ○ **Public Finances**

- Corruption lowers the quality of public infrastructure (Tanzi and Davoodi, 2002a)
- Corruption reduces significantly public revenues (Tanzi and Davoodi, 2002b)
- Corruption lowers government expenditure on education and health (Mauro, 1998)
- Corrupt governments tend to increase military spending (Gupta, De Mello and Sarah, 2001).



# 3. Transmissions channels

## ○ **Quality of Policies**

- Corruption leads to sub-optimal monetary policies (Wei, 2006) and pro-cyclical fiscal policies (Calderon et al. 2004)
- Corruption leads to more restrictions on the capital account (Bai and Wei, 2000)
- Corruption distorts trade policy by creating more import quotas and other trade barriers (Southgate et al. 2000)

## ○ **Quality of Institutions**

- Countries with more corruption experience lower acceptance of established institutions (Herzfeld and Weiss, 2003)
- Firms that pay more bribes may spend more management time with bureaucrats negotiating regulations (Kaufmann and Wei, 1999)
- Corruption leads to higher political instability (Mo, 2001)

## ○ **Informality**

- Countries with more corruption have a larger unofficial economy (Johnson, Kaufmann and Shleifer, 1997)

# 3. Transmissions channels

## Long term effects of corruption on:

	Investment	Schooling	Openness	Political instability
Direct effect	-0.89	-0.18	-0.07	0.02
Indirect income effect	-0.87	-0.62	-0.04	0.00
<b>Long-term effect</b>	<b>-1.76</b>	<b>-0.80</b>	<b>-0.11</b>	<b>0.02</b>

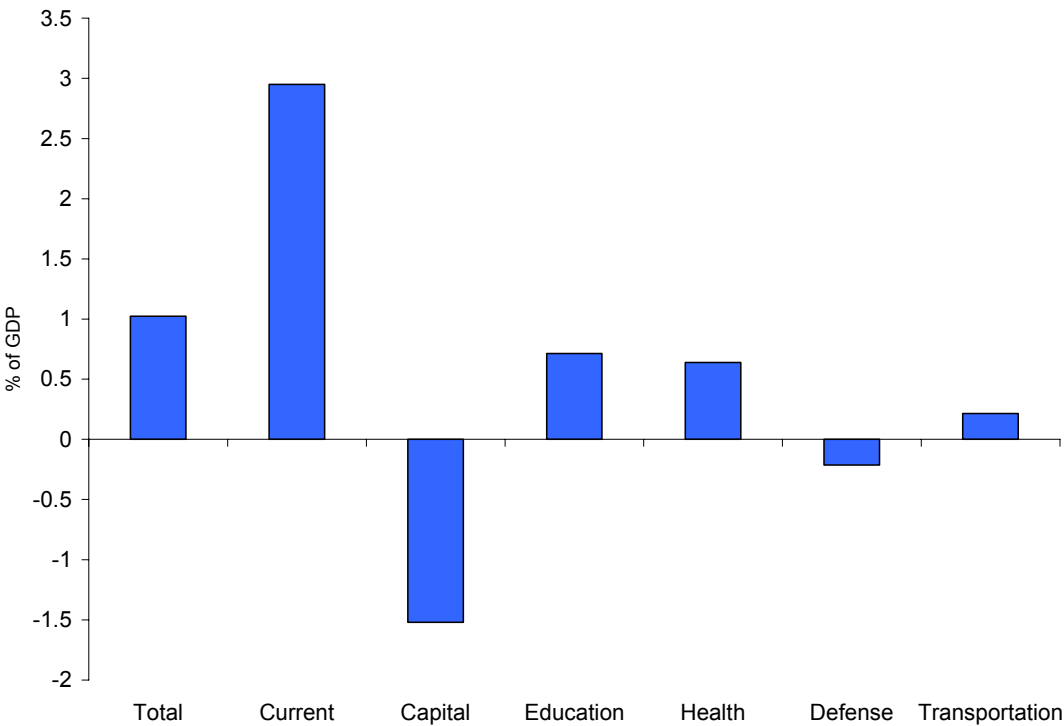
- Effects of a one standard deviation decrease in corruption levels:
  - Increase in the long-term level of investment by 4.86 per cent points
  - Increase in schooling by 2.21 years ( POP>25)
  - Increase in openness ( Sach and Warner) by 0.30
  - Increase the political instability index by 0.06

Source: Pellegrini and Gerlagh (2004)

# 3. Transmissions channels

## Composition of government expenditure

Effects of a one standard deviation (2.38) improvement in the corruption index on:

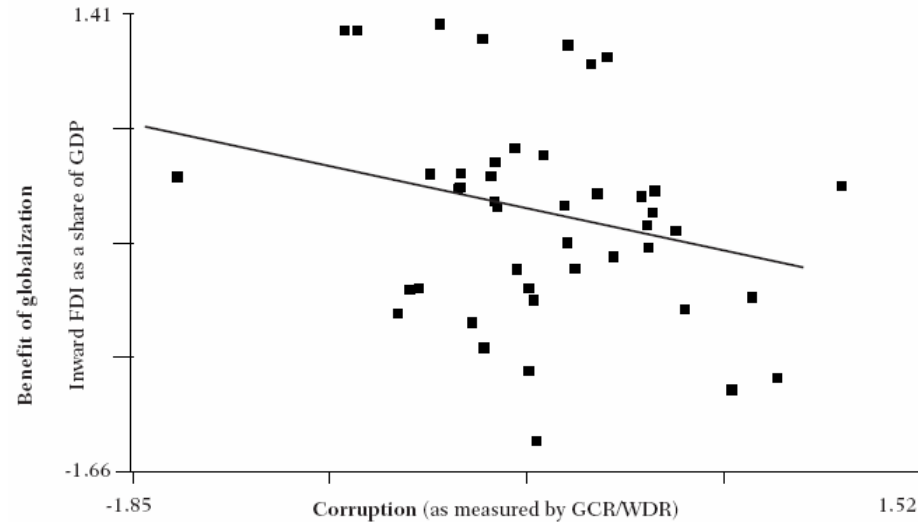


Dependent Variable (1985)	Corruption index	N
Total government expenditure	0.0043 (0.36)	88
Current	0.0124* (1.34)	85
Capital	-0.0064* (-1.61)	86
Education	0.0030** (2.29)	85
Health	0.0027*** (2.34)	86
Defense	-0.0009 (-0.24)	82
Transportation	0.0009 (1.02)	85

Note: The regressions include a constant term and the GDP per capita in 1980. Higher values of the corruption index indicate "good institutions" in that dimension. Source: Mauro (1997)

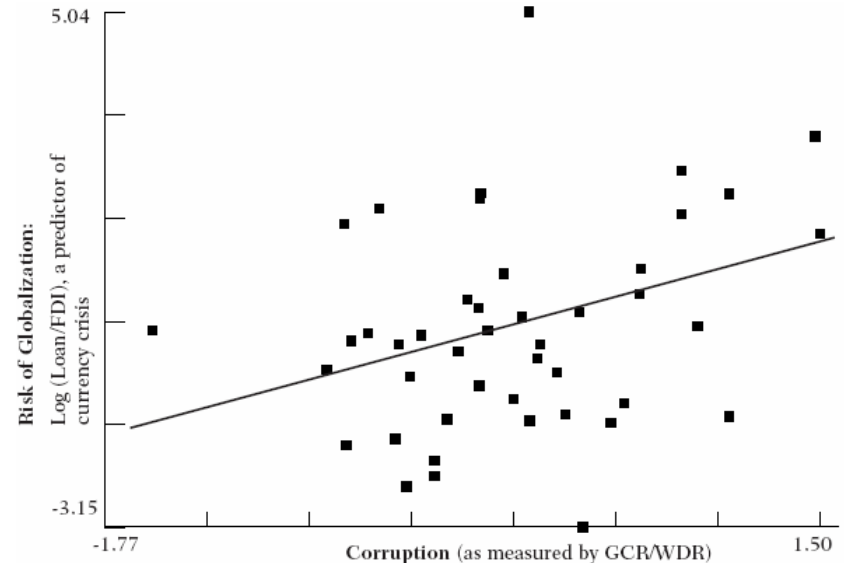
# 3. Transmissions channels

## Globalization and foreign direct investment



- Corruption constitutes an additional tax on foreign investors.
- An increase in the level of corruption (e.g. Singapore to Mexico) has the same negative effect on inward FDI as increasing the corporate tax rate by 50 percentage points

- High corruption levels increase the probability of a financial crisis by distorting the structure of capital inflows away from the more stable FDI and towards the more volatile bank borrowing



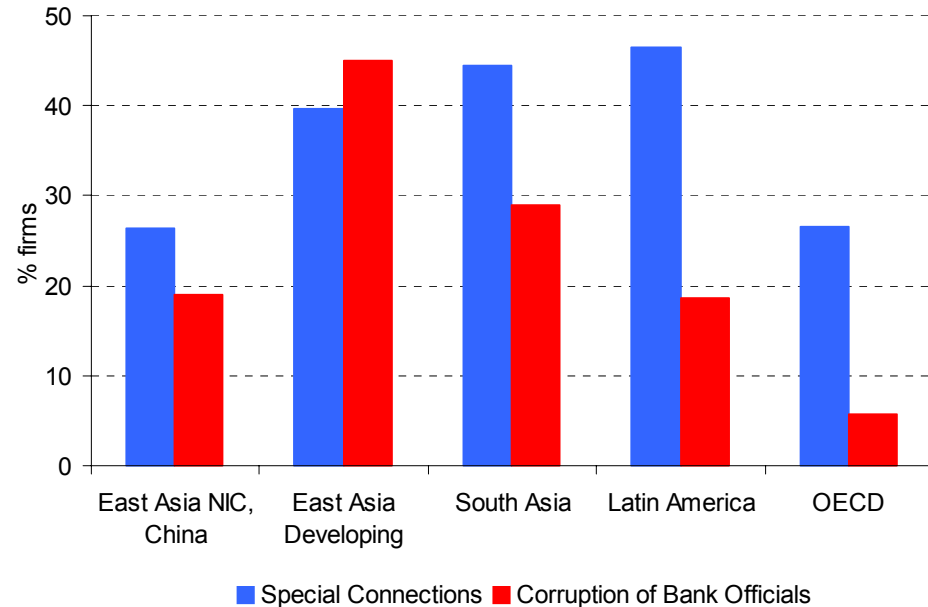
Source: Wei (2000, 2001)

# 3. Transmissions channels

## Cost of Doing Business

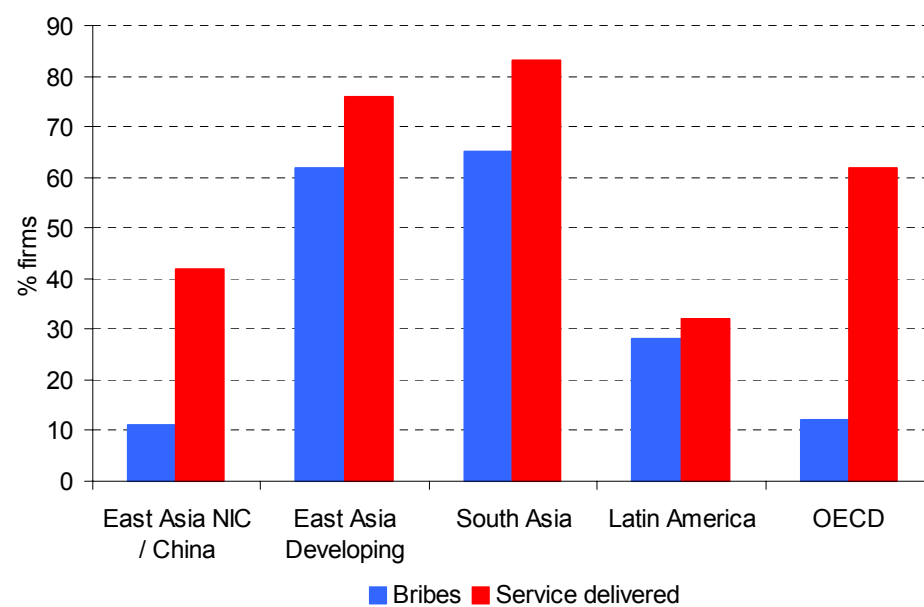
### Financing Constraints

*% firms considering the constraint "major" or "moderate"*



### Corruption

*% firms responding "always", "mostly" or "frequently"*



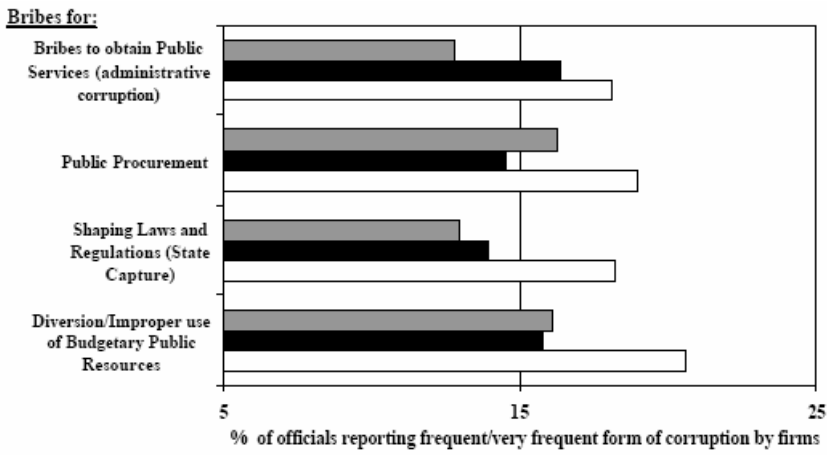
Corruption:

- (a) Bribes: Irregular payments made to government officials to get things done.
- (b) Service delivered as agreed if additional payment is made. This is answered only by firms acknowledging that payments are made.

Source: Batra, Kaufmann and Stone (2004)

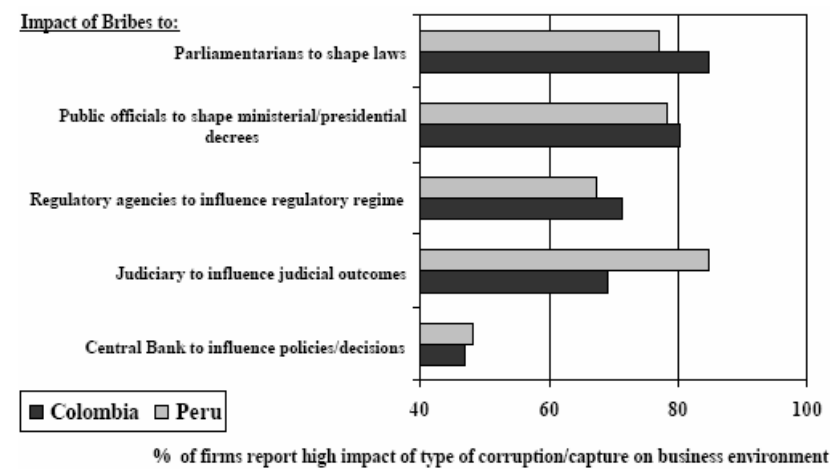
# 3. Transmissions channels Cost of Doing Business: State Capture

Prevalence of different forms of corruption



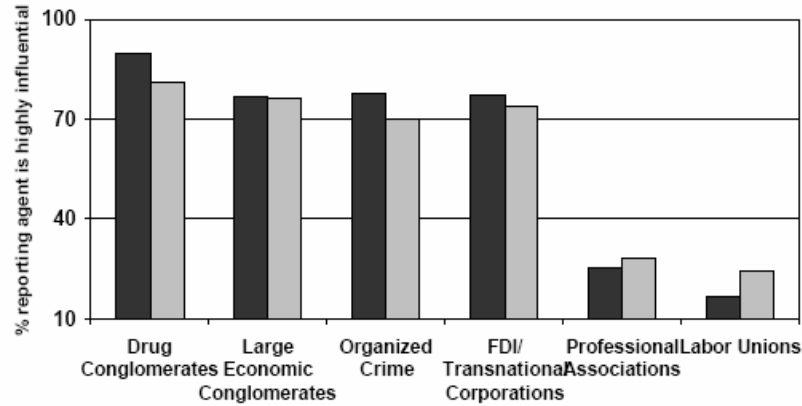
Peru Honduras Colombia

Extend of state capture



Colombia Peru

Sources of undue private influence on the State



Responses by: Firms Public officials

# 4. But, is it corruption or bad institutions?

Depended variable: productivity measured by GDP/Capital stock, 2000

Independent Variable							
Constant	1.49*** (7.6)	1.37*** (6.6)	1.65*** (8.0)	1.51*** (8.1)	1.76*** (7.7)	1.74*** (7.6)	1.66*** (7.3)
Absence of Corruption	<b>0.020***</b> <b>(3.3)</b>	<b>0.019***</b> <b>(3.1)</b>	0.009 (1.2)	<b>0.024***</b> <b>(2.6)</b>	<b>0.015***</b> <b>(2.6)</b>	0.007 (0.7)	
Capital stock per cap (log)	-0.080 (-5.5)	-0.078*** (-5.5)	-0.096*** (-5.7)	-0.080*** (-5.4)	-0.092*** (-5.8)	-0.106*** (-6.1)	-0.102*** (-5.7)
Government stability (ICGR)		<b>0.011*</b> <b>(1.6)</b>				<b>0.017***</b> <b>(2.5)</b>	<b>0.019***</b> <b>(3.1)</b>
Bureaucratic quality			<b>0.048**</b> <b>(2.0)</b>			<b>0.051**</b> <b>(2.1)</b>	<b>0.058***</b> <b>(2.8)</b>
Law and order (ICGR)				-0.010 (-0.6)		-0.042 (-0.8)	-0.008 (-0.6)
Lack of civil liberties					<b>-0.021***</b> <b>(-2.4)</b>	<b>-0.020***</b> <b>(-2.6)</b>	<b>-0.021***</b> <b>(-2.6)</b>

- When Bureaucratic quality added, absence of corruption became no significant

Source: Lambsdorff (2003)

# 4. But, is it corruption or bad institutions?

Depended variable: average net annual capital inflows to GDP, 1970-95

Independent Variable							
Constant	0.029** (1.8)	0.054** (1.9)	0.028* (1.6)	0.012 (0.7)	0.035** (2.2)	0.054** (1.8)	0.021 (0.6)
Absence of Corruption	<b>0.0067***</b> <b>(5.3)</b>	<b>0.0072***</b> <b>(5.5)</b>	<b>0.0066***</b> <b>(3.7)</b>	<b>0.0051***</b> <b>(4.2)</b>	<b>0.0067***</b> <b>(5.2)</b>	<b>0.0064***</b> <b>(3.8)</b>	
GDP stock per head 1970*10 <sup>-6</sup>	-5.0*** (-6.0)	-5.3*** (-6.2)	-5.0*** (-5.5)	-5.4*** (-7.0)	-5.8*** (-4.3)	-6.3*** (-4.3)	-5.2*** (-3.4)
Government stability (ICGR)		-0.0024 (-1.1)				<b>-0.0030*</b> <b>(-1.4)</b>	-0.0007 (-0.3)
Bureaucratic quality			0.0003 (0.0)			-0.0031 (-0.6)	<b>0.0066**</b> <b>(1.7)</b>
Law and order (ICGR)				<b>0.0064***</b> <b>(3.1)</b>		<b>0.0068***</b> <b>(3.7)</b>	<b>0.0091***</b> <b>(4.5)</b>
Lack of civil liberties					-0.0021 (-0.7)	-0.0018 (-0.7)	-0.0018 (-0.6)

- Here, low and order became significant while the other sub-components were irrelevant

Source: Lambsdorff (2003). The regressions included other controls: raw materials exports, population growth, dom. Savings per head



## 5. Does growth tend to reduce or increase corruption?

- Causality between Governance and Growth (Chong and Calderon, 2000)
  - The direction (Growth → Governance) dominates the correlation of these variables for developing countries.
- Kaufmann and Kraay (2003)
  - Negative feedback from income per capita to governance → No “virtuous circle”
  - “State capture”: Undue and illicit influence of elites in shaping laws, policies and regulations of the State
- Need: Positive and sustained interventions to improved governance in countries



## 6. What are the macro-determinants of corruption?

- Political institutions play an important role in determining corruption
- Democracies, parliamentary systems, political stability and freedom of press are all associated with lower corruption

One s.d. increase in:	Effects on the corruption index
Democracy	-0.3
Democracy stability	-0.54
Freedom of press index	-0.19

- Political decentralization (autonomy) seems to increase corruption.
- Decentralized expenditures seem to reduce corruption



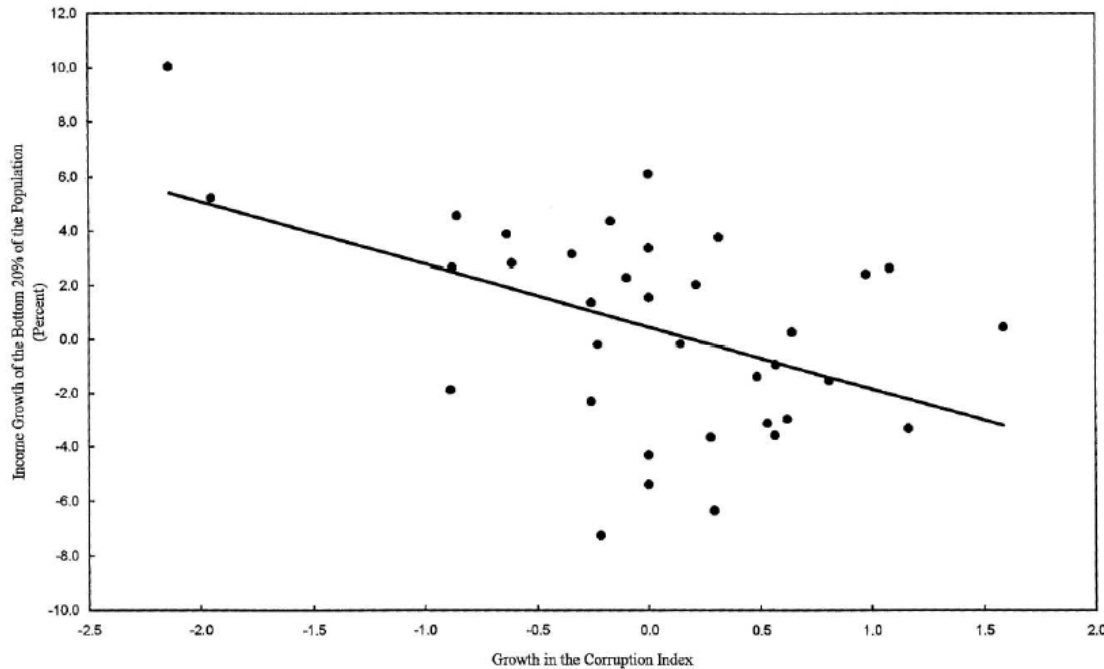
## 6. What are the macro-determinants of corruption?

- After political institutions are accounted for, determinants usually found to be important (openness, wages in the public sector, and legal tradition) lose virtually all their independent relevance
  - Previous evidence:

	Literature:
Sources of Corruption	
Trade restrictions	Krueger (1974), Di Tella (1994)
Government subsidies (including tax expenditures)	Clemens, Hugounenq and Schwartz (1995), Andes and Di Tella (1995)
Low wages in civil service relative to private sector	Kraay and Van Rijckeghem (1995), Haque and Sahay (1996)
Natural-resource endowments	Sachs and Warner (1995)
Sociological factors ( such as different ethnic groups)	Shleifer and Vishny (1993), Mauro (1995) and Tanzi (1994)

Source: Lederman, Loayza and Soares (2005)

# 7. Effects of corruption on poverty



Note: Higher values indicate an increase in corruption. A deterioration of 0.78 percentage point in the growth rate of corruption (1 s.d.) reduces the growth in the income of the poor by 4.7 p.p. per year

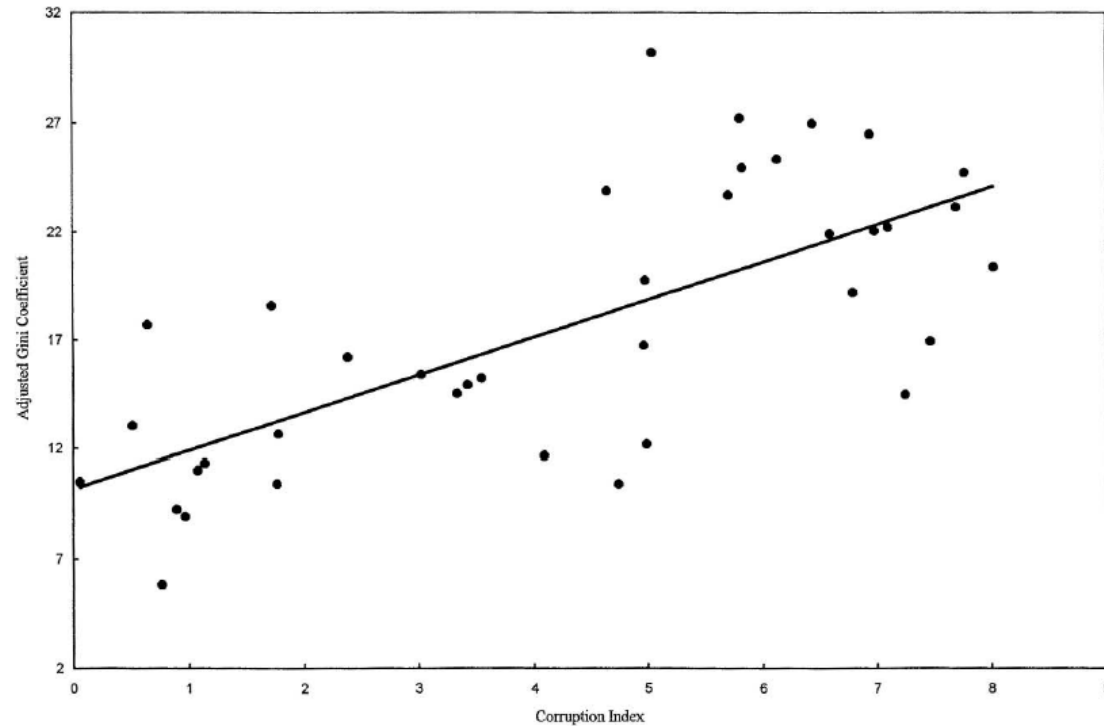
Dep var: Income growth of the bottom 20%

Ind. Var	(1)
Constant	-0.02 (-1.02)
Natural resource abundance	-0.14* (-1.65)
Initial income of the bottom 20 percent ( $\times 10^4$ )	-0.09** (-2.52)
Initial secondary schooling	0.02* (1.77)
Social spending	0.04** (2.71)
<b>Corruption</b>	<b>-0.06**</b> <b>(-2.87)</b>
N	35

Source: Gupta, Davoodi, Alonso-Terme (2002)

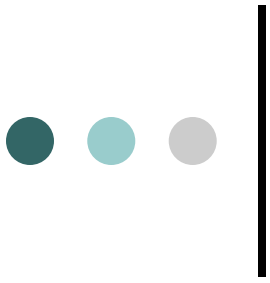
# 7. Effects of corruption on inequality

Dep var: Gini coefficient



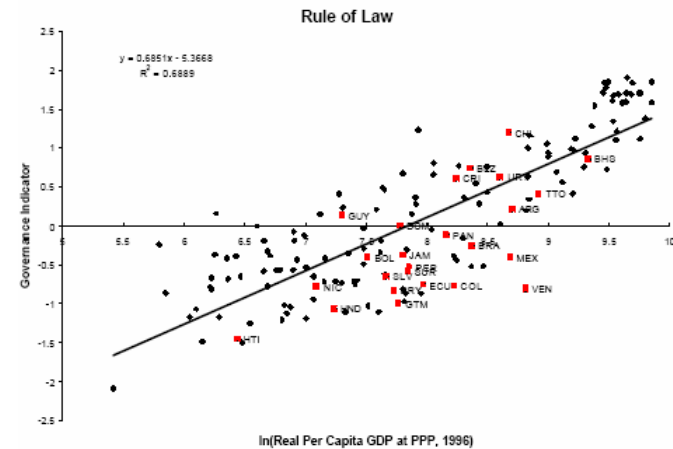
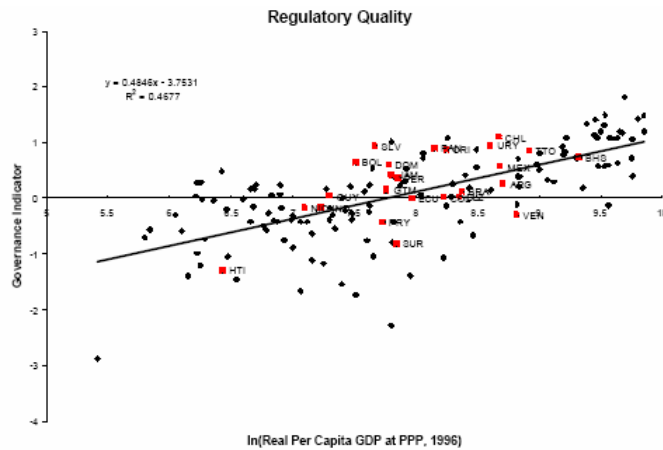
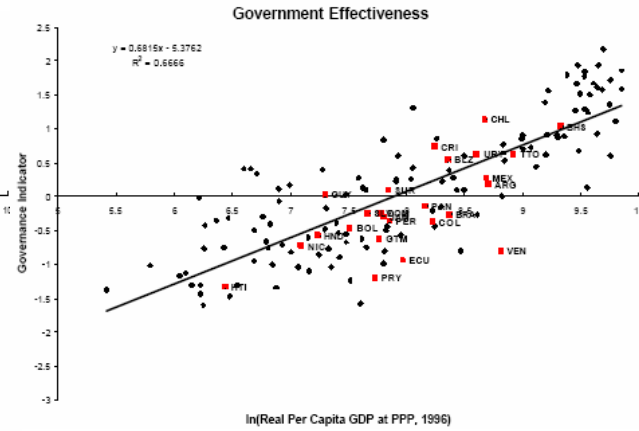
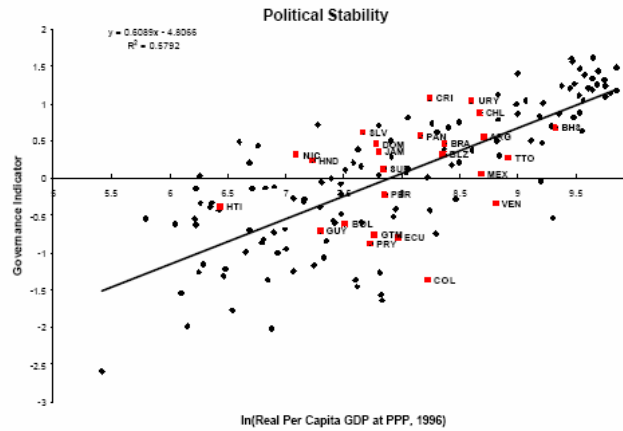
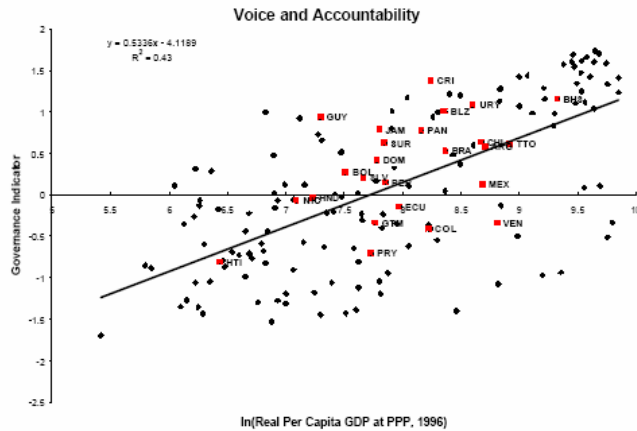
Ind. Var	(1)
Constant	38.51** (6.19)
Natural resource abundance	41.02** (2.65)
Capital stock-GDP ratio	0.06** (2.52)
Education inequality	0.66 (0.45)
Initial Gini coefficient for land	0.06 (1.01)
<b>Corruption</b>	<b>3.48**</b> <b>(3.81)</b>
N	38

- A deterioration of 2.52 points in the corruption index increases the Gini coefficient by 9 points
- Impact is higher when using the after-tax measure of inequality.
- Corruption increases income inequality by reducing the progressivity of the tax system

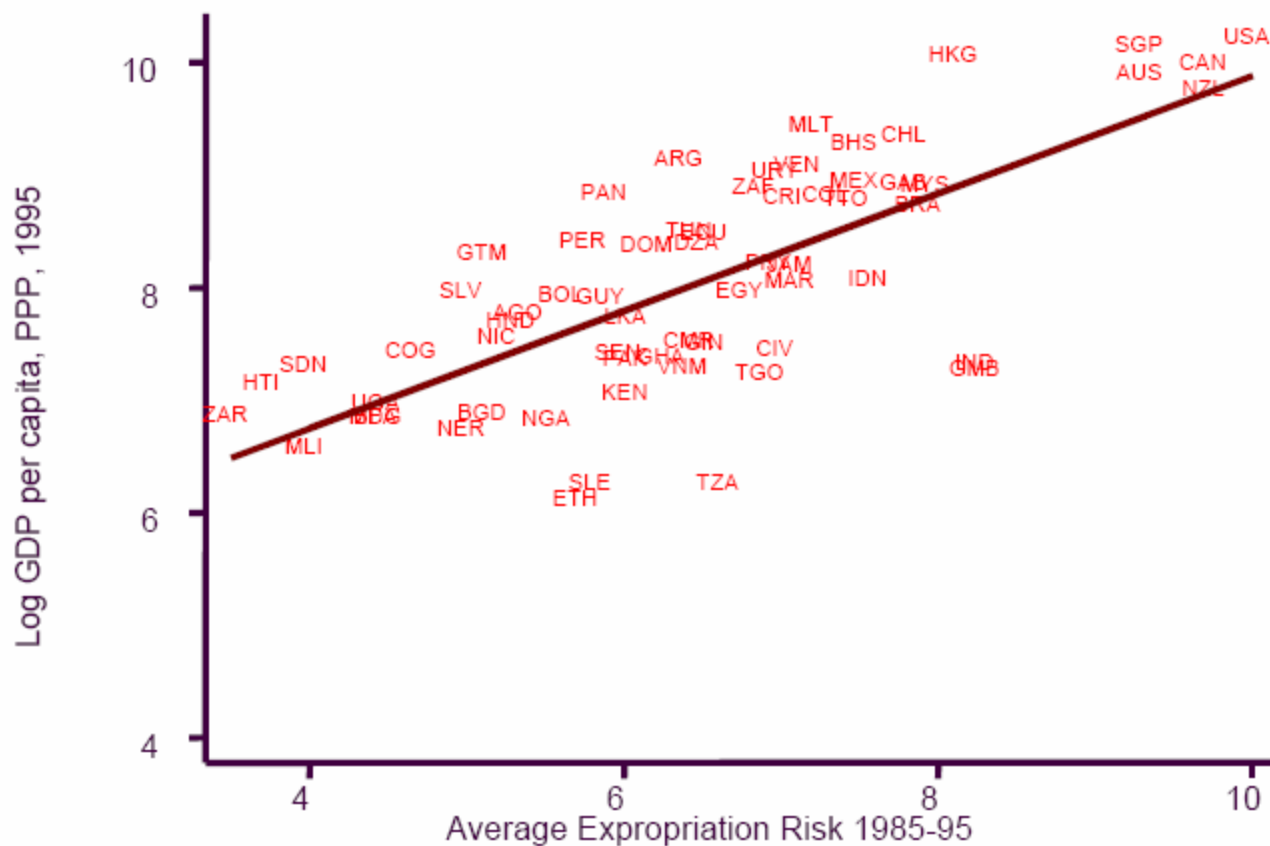


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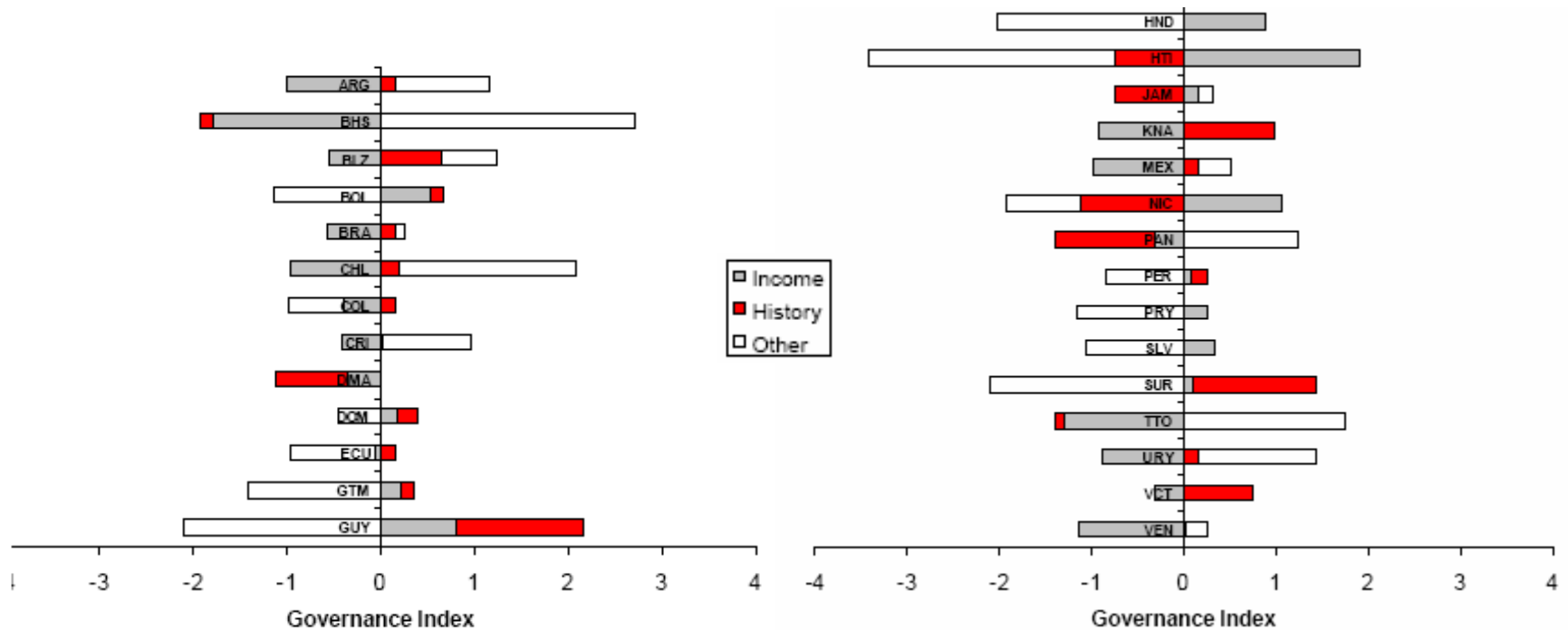
# 1. The correlation between governance and income per capita



# Institutions and Income per Capita



# 1. Determinants of governance



Note: Governance is proxied by the index of the rule of law. Source: Kaufmann and Kraay (2002)

# 3. Transmissions channels

## Composition of government expenditure

Dependent Variable (1985)	Constant	Corruption index	Per capita GDP (1980)	N
Total government expenditure	0.233 (4.16)	0.0043 (0.36)	0.0112 (1.59)	88
Current	0.141 (3.33)	0.0124* (1.34)	0.0094 (1.64)	85
Capital	0.081 (4.54)	-0.0064* (-1.61)	0.0011 (0.43)	86
Education	0.021 (3.95)	0.0030** (2.29)	-0.0020 (-1.93)	85
Health	0.01 (0.13)	0.0027*** (2.34)	0.0012 (1.27)	86
Defense	0.034 (2.42)	-0.0009 (-0.24)	0.0010 (0.41)	82
Transportation	0.013 (4.13)	0.0009 (1.02)	-0.0003 (-0.39)	85

- A one standard deviation improvement (2.38) in the corruption index is associated with an increase in
  - Government expenditure on education by 0.7% of GDP
  - Government expenditure on health by 0.6% of GDP