

*Senior Project*  
*Department of Economics*



“Exploring the Impact of Decentralization on  
Government Effectiveness”

Ryan Brosnahan  
May 2013

Advisors: *Francesco Renna*

## **Introduction:**

There is significant variance in the effectiveness of governments; some are efficient and honest, while others are corrupt and wasteful. This paper explores the relationships between fiscal decentralization and the effectiveness of government, a field of study that has been relatively neglected. A related and more researched area of study is the link between decentralization and corruption. We explore the corruption of bureaucrats, which is defined by the World Bank as “the abuse of public office for private gain”. We then hope to make more specific conclusions about how factors such as decentralization and corruption affect specific services provided by a government.

Twelve percent of World Bank projects from 1993-97 involved decentralizing governments and as of 2006, over 19% of the World Bank budget is spent on decentralization projects to the end of reducing corruption and improving the efficiency and effectiveness of governments. The real-world impact of understanding the impact of decentralization serves as motivation for continued research on this topic. In this paper, a new aspect of decentralization is explored with the question: *Why and how does decentralization of government affect government effectiveness?*

The majority of existing literature finds that decentralization tends to reduce corruption. Expanding upon that, other work also suggests that corruption stifles growth and negatively impacts government effectiveness (Méon & Sekkat, 2005); if a bureaucrat is corrupt, he or she is contributing to the ineffectiveness of government. Government effectiveness is more specifically defined by the World Bank as an aggregate measure of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of

policy formulation and implementation, and the credibility of the government's commitment to such policies. In short, a good government is an effective one, and understanding the driving forces of government effectiveness can give insight on how to make positive changes in the world. This research hopes to contribute to the understanding of the relationship between the three factors of *decentralization, corruption, and government effectiveness* to this end.

### **Literature:**

#### ***Decentralization and Corruption***

Triesman 2002 takes a theoretical approach to understanding the nexus between decentralization and corruption, offering perspective that led this work to be among the most cited in its field. He outlines the potential positive, negative, and ambiguous relationships between decentralization and corruption (Treisman, 2002).

He proposes the following theories to explain how decentralization can reduce corruption:

- i. Requires bureaucrats have local knowledge and must be able to address the special circumstances of the locality.
- ii. Improves accountability as citizens are better able to monitor and direct them, a theory later confirmed empirically by Arikian 2004.
- iii. Provides greater transparency of spending at the local level.
- iv. Governments with more tiers offering competing services, voters can use the performance of each to benchmark the efficiency of the other.

He also finds potential problems with decentralization such as:

- i. Duplication of services; there are fixed administrative costs for each jurisdiction which can impede government effectiveness
- ii. Incompetence; if the local politician was good at their job, they would have a better paying, more powerful position with central government.
- iii. As the number of levels in a government increases, these tiers each have an independent corruption structure that they impose on the same firms, which increases the aggregate extraction of bribes.

Lessman and Markwardt 2009 explore why in some countries, there is an unclear relationship between corruption and decentralization. In nations where bureaucrats are held accountable by a free press, decentralization reduces corruption, whereas countries without a free press tend to have higher corruption when they are decentralized (Lessmann & Markwardt, 2009).

Nelson and Goel 2010 take a novel approach at addressing how decentralization is measured, using the scope of services and the population being served. They find that more general-purpose governments are associated with higher levels of corruption. Interestingly, they also find that corruption increases with police employment (Goel & Nelson, 2010).

Arikan 2004 used a tax competition framework with rent-seeking behavior to explore the relationship between corruption and decentralization. She hypothesized that higher decentralization promoted inter-jurisdictional competition due to residents avoiding inefficient jurisdictions in favor of efficient ones. He conducted OLS and TSLS regressions; the results were not particularly strong. Interestingly, he also found strong evidence that freedom of the press

influenced corruption, but unfortunately did not explore this with the same depth as Lessman and Markwardt 2009 (Arikan, 2004).

Dincer 2010 is among the first to search for a link between decentralization and trust, which is a perception of corruption. Using several measures of decentralization for each US state, he hypothesized that more decentralized states would have higher trust. The theory is proposed that decentralization makes monitoring of officials easier and improves accountability, which increases incentives for the local government officials to not engage in corrupt activities as well as incentivizes outperforming their neighboring jurisdictions, a theory concurrent with Arikan's 2004 work. Dincer conducted OLS regression and finds that fiscal decentralization has a strong positive relationship to trust when using fiscal decentralization or the number of governments in a state. He also finds his results robust to endogeneity between trust and decentralization; e.g. trust as an instrument for corruption eliminates reverse causality.

### *Corruption and Government Effectiveness*

Government effectiveness is strongly tied to corruption; a government that is corrupt cannot be effective, and a government that is effective, does not permit corruption. The literature uses a number of proxies to measure government effectiveness including education quality, healthcare quality, and other outcomes of government services. The theoretical literature identifies three ways that corruption can affect the quality of government:

- i. Shleifer and Vishny 1993 propose that corruption increases the price and therefore reduce the output of government services such as healthcare and education (Shleifer & Vishny, 1993).
- ii. Hindriks et al 1999 suggest corruption decreases government revenue, which results in lower quality public services (Hindriks, Keen, & Muthoo, 1999). Lower quality services incentivizes individuals to seek non-public alternatives. Because many public services are economies of scale, when they face competition the result can be less efficient than the option of a government monopoly.
- iii. Ehrlich and Lui 1999 address the issue of government growth as a balance between accumulating human capital and political capital. They theorize that corruption causes lower investment in human capital; and empirically confirm that lower investment in human capital stifles growth.

Gupta et al. find that reducing corruption can result in significant social gains. They use OLS techniques to find a consistently positive relationship between the presence of corruption and various social indicators like dropout rates, infant and child mortality rates, and percent low-birthweight babies.

### *Government Effectiveness and Decentralization*

Triesman 2002 provides several economic theories to explain how decentralization influences the effectiveness of government:

- i. Inter-jurisdictional competition has been found empirically to improve government effectiveness; however, it is possible that this competition may impede coordination when it would be beneficial to running an effective government
- ii. Conversely, governments with more tiers offering competing services, voters can use the performance of each to benchmark the efficiency of the other.

Using education outcomes as a measure of government effectiveness, Barankay and Lockwood 2007 find that among developed countries, students who attend school in more decentralized systems tend to get a better education (Barankay & Lockwood, 2007) while students in a less developed country tend to be disadvantaged by decentralization (Parry, 1997).

#### **Data:**

Several measures for *government effectiveness*, *corruption*, and *decentralization* are used.

**WGI Government Effectiveness** – “Captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies”. A higher value implies a more effective government. Source: World Bank.

**Life Expectancy** - Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Source: World Bank.

**Infant** – Infant mortality rate per 1,000 births. Source: UN Inter-agency Group for Child Mortality Estimation (UNICEF, WHO, World Bank, UN DESA, UNPD).

**Sanitation** - Access to improved sanitation facilities refers to the percentage of the population with at least adequate access to excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta. Improved facilities range from simple but protected pit latrines to flush toilets with a sewerage connection. To be effective, facilities must be correctly constructed and properly maintained. Source: World Bank

**WGI Control of Corruption** – “Captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as ‘capture’ of the state by elites and private interests.” This is often referred to as a measure of “petty” corruption (Arvind, 2001). A higher value implies less corruption. Source: Transparency International. Source: World Bank.

**Corruption Perceptions Index (CPI)**- “The perceived levels of public sector corruption in 176 countries and territories around the world. ” This is often referred to as a measure of “petty” corruption (Arvind, 2001). A higher value implies less corruption. Source: Transparency International.



**Comparing Corruption Measures** – Both corruption variables measure the perception of the corruption of politicians and bureaucrats. Each indicator may put different weights on perceptions of trust, bribery, the extent of the corruption, and the intrusiveness of the country’s bureaucracy. The two measures are highly correlated with a Pearson correlation above 0.99.

**Expenditure Fiscal Decentralization** – The level subnational government expenditure as a percentage of total government expenditure for a country. A higher value implies more decentralization. Source: International Monetary Fund.

**Revenue Fiscal Decentralization** – The level subnational government revenue as a percentage of total government revenue for a country. A higher value implies more decentralization. Source: International Monetary Fund.

**GDPpC**-The log of the GDP per capita. Source: CIA World Factbook.

**Press Freedom**-“Reflects the degree of freedom that journalists, news organizations, and netizens[sic] enjoy in each country, and the efforts made by the authorities to respect and ensure respect for this freedom.” A higher value implies less freedom of the press. Source: Reporters without Borders.

**Education**- Educational attainment for population aged 25 and over. Source: Barro Lee

**Internet**-Internet users per 100 people (Internet users are people with access to the worldwide network). Source: World Bank.

Variable	N	Mean	Std Dev	Minimum	Maximum
GovernmentEffectiveness	50	0.83891	0.8486	-1.09376	2.24696
Education	50	9.87	1.91	4.43	13.27
WGI Corruption	50	65.22	20.67	34.19	98.42
CPI	50	59.32	19.47	31	90
Expenditure FD	48	26.88	15.35	2.64	61.04
Revenue FD	46	19.11	13.035	2.17	52.28
GDPpC	50	9.93	0.74	8.13	11.3
Press Freedom	50	31.02	19.73	10	93
Internet	50	61.87	23.74	10.07	95.02
Infant	50	9.07	9.82	1.7	47.2
Sanitation	43	90.53	18.21	27	100
LifeExp	50	74.03	5.79	52.05	80.7

Figure 1. Descriptive statistics table

**Empirical Analysis:**

**Theoretical Model**

In the literature we found the relationships between corruption, decentralization, and government effectiveness individually. Combining these relationships the theoretical model is proposed:

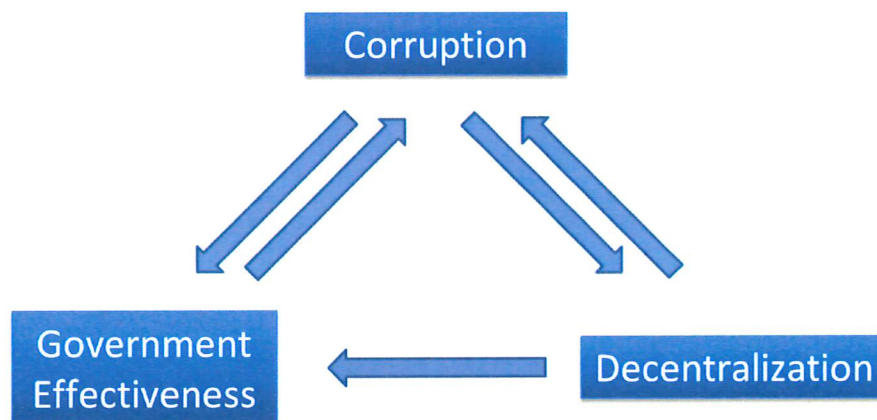


Figure 2. Theoretical model

Although we are not concerned with the endogenous effects of corruption, these relationships are acknowledged.

### **Benchmark Regression**

To create a benchmark case, we first estimate the impact of corruption and decentralization on government effectiveness in a cross-country dataset without adjusting for interaction or endogeneity. This estimation approach allows us to compare our results with those of similar, previous studies.

The basic estimation function takes the form:

$$GOVEFFECTIVE = \alpha + \beta \cdot DECENR_i + \delta \cdot Corr_i + \sum \gamma_n \cdot CONTROL_i$$

Where *GOVEFFECTIVE* as a dependent variable represents the level of effectiveness in county *i*, *DECENR* represents one of the different decentralization measures, and *CORR* represents one of the different corruption measures. The control vector includes *Education*, *GDPpC*, *Press Freedom*, and *Internet*. The subscript *i* denotes the country. Education is expected to have a positive relationship with the control of corruption because a more education population is keener to understanding and recognizing when corrupt or inefficient government activity is occurring. GDP per Capita is expected to have a positive relationship with the control of corruption because a wealthier population is likely more educated and likely has more large corporate entities that have significant financial interest in operating in a country with a highly effective government. Recall the variable *Press Freedom* increases as press is less free; we expect to find a negative relationship between the variable for press freedom and government

effectiveness because a freer press is more able to investigate and expose inefficient activity. We expect a similar relationship with internet access for the same reason; internet access increases the chance that an ineffective government will be exposed.

	Government Effectiveness			
	Model I	Model II	Model III	Model IV
Const.	-2.94*** (-3.06)	-2.34** (-2.62)	-2.51** (-2.65)	-1.89** (-2.11)
GDPpC	0.28** (2.4)	0.22** (2.13)	0.20* (1.69)	0.15 (1.36)
Press Freedom	-0.009*** (-2.86)	-0.0089** (-2.69)	-0.0077** (-2.55)	-0.0086** (-2.59)
Education	-0.046 (-1.48)	-0.063** (-2.15)	-0.038 (-1.22)	-0.057* (-1.93)
Internet	0.0069 (1.5)	0.0061 (1.39)	0.0075* (1.71)	0.0070 (1.6)
Expend Decentr	0.0011 (0.45)		0.0016 (0.66)	
Revenue Decentr		0.0025 (0.83)		0.0048* (1.67)
WGI Corruption			0.023*** (5.08)	0.024*** (5.75)
CPI Corruption	0.022*** (4.83)	0.024*** 5.78		
Obs.	48	46	48	46
Adj. R2	0.9174	0.9309	0.9204	0.9306
	* p < 0.1	** p < .05	*** p < .01	

Figure 3. Benchmark regression results table; t-statistics are listed in parenthesis

With the exception of education, the parameter estimates are concurrent with the literature. Higher government effectiveness is associated with lower levels of corruption, a more free press, and a higher GDP per capita.

The OLS regression models find no significance for parameter estimates of decentralization measures. Recall how the theoretical model supports a relationship between decentralization and corruption; it is likely that decentralization and corruption are collinear and the effect of decentralization on government effectiveness is absorbed by corruption in the benchmark. Multicollinearity can also explain the insignificance of *Internet* in any of the models. A second model is proposed to normalize corruption and remove correlation between the corruption and decentralization measures.

$$Corruption = \beta_0 + \beta_1 Decentralization + e$$

$$GOVEFFECTIVE = \alpha + \beta \cdot e_i + \delta \cdot Decentralization_i + \sum \gamma_n \cdot CONTROL_i$$

Here we find, as before, that more effective governments are associated with less corruption, a freer press, and higher GDP per capita. Additionally, we find that decentralization does have a positive impact on government effectiveness. In education, we find a negative relationship which is contrary to the literature. Understanding this relationship warrants future study.

	Government Effectiveness			
	Model I	Model II	Model III	Model IV
Const.	-1.85** (-1.88)	-1.013 (-1.11)	-1.23 (-1.24)	-0.38 (-0.41)
GDPpC	0.28** (2.4)	0.22** (2.13)	0.20* (1.69)	0.15 (1.36)
Press Freedom	-0.0086*** (-2.86)	-0.0089** (-2.69)	-0.0077** (-2.55)	-0.0086** (-2.59)
Education	-0.046 (-1.48)	-0.063** (-2.15)	-0.038 (-1.22)	-0.057* (-1.93)
Internet	0.0069 (1.5)	0.0061 (1.39)	0.0075* (1.71)	0.0070 (1.6)
Expend Decentr	0.0086** (3.41)		0.0089*** (3.59)	
Revenue Decentr		0.0091** (3.28)		0.0091*** (3.27)
Adj. WGI Corruption			0.45*** (5.08)	0.48*** (5.75)
Adj. CPI Corruption	0.022*** (4.83)	0.024*** (5.78)		
Obs.	48	46	48	46
Adj. R2	0.9174	0.9309	0.9204	0.9306

\* p < 0.1      \*\* p < .05      \*\*\* p < .01

Figure 4. Results for adjusted model

We explore some additional, more specific measures of government effectiveness. Following the work of Gupta et al. we regress *Revenue Decentralization* and the adjusted measure of *corruption* from the World Bank with the other control variables against infant mortality rate, life expectancy at birth, and access to improved sanitation facilities.

	Infant	Life Exp	Sanitation
Const.	94.11*** (4.41)	45.21*** (3.03)	-89.01* (-1.7)
GDPpC	-5.89** (-2.4)	2.66* (1.56)	15.48** (2.52)
Press Freedom	-0.24*** (-3.21)	0.033 (0.62)	0.27 (1.56)
Education	-0.31 (-0.46)	-0.73 (-1.56)	1.64 (1.08)
Internet	-0.33*** (-3.3)	0.14* (2)	0.14 (0.64)
Revenue Decentr	0.21*** (3.28)	-0.0028 (-0.06)	-0.40*** (-2.81)
Adj. WGI Corruption	0.97 (0.51)	1.15 (0.87)	1.05 (0.2)
Obs.	46	46	40
Adj. R2	0.7417	0.6397	0.6674

\* p < 0.1    \*\* p < .05    \*\*\* p < .01

Figure 5. Results for regressions of specific effectiveness measures.

It is interesting that we find decentralization improves infant mortality rate but not corruption as suggested by Gupta. This may suggest that decentralization is a better indicator than corruption when used to predict infant mortality rate. Conversely, we find the decentralization hinders access to sanitation facilities. Sanitation facilities are economies of scale, so if a country is highly decentralized, each unit is responsible for sanitation services which are a very large cost. All of these results are interesting because corruption is not significant, but it was in the generic World Bank measure; this is likely due to the proxy having controlling factors for corruption built-in.

### Conclusions:

In the benchmark OLS specification of the model we failed to find significance of decentralization as an indicator of government effectiveness. We find results concurrent with the theoretical literature with the exception of the effect of education on government effectiveness.

The effects of decentralization and control of corruption on government effectiveness are both positive. This suggests the World Bank's current approach to investing in decentralizing governments is, generally, a good idea.

### **Limitations and Future Work**

This field of research is severely limited by decentralization data. Fiscal decentralization was used as it is the easiest to quantify, however, it is difficult to normalize this across many different governments. Only a handful of countries report finance statistics making it impossible to include many in this study. If this could be overcome, it would be possible to perform a TSLS regression and correct for endogeneity in the model.

Fiscal Decentralization is a flawed measure of decentralization as the flow of money may not be an accurate indicator of which parts of government are making the decisions. It also has a bias towards more developed nations as poorer and developing nations tend not to do publish or even do accurate record keeping. Unfortunately, it is the most complete in terms of access and data available.



## Bibliography

- Adam, A., Delis, M., & Pantelis, K. (2008). *Fiscal Decentralization and Public Sector Efficiency: Evidence from OECD Countries*. Athens, Greece: CESifo.
- Arikan, G. (2004). Fiscal Decentralization: A Remedy for Corruption? *International Tax and Public Finance*, 175-195.
- Arvind, J. K. (2001). Corruption: A Review. *Journal of Economic Surveys*, 15(1).
- Barankay, I., & Lockwood, B. (2007). Decentralization and the productive efficiency of government: Evidence from Swiss cantons. *Journal of Public Economics*, 1197-1218.
- Carrion-i-Silvestre, J., Espasa, M., & Mora, T. (2008). Fiscal Decentralization and Economic Growth in Spain. *Public Finance Review*, 194-218.
- Dincer, O. (2010). Fiscal Decentralization and Trust. *Public Finance Review*, 178-192.
- Ehrlich, I., & Lui, F. T. (1999). Bureaucratic Corruption and Endogenous Economic Growth. *Journal of Political Economy*, 107(6).
- Escobar-Lemmon, M. (2006). Executives, Legislatures and Decentralization. *The Policy Studies journal*, 245-263.
- Goel, R., & Nelson, M. (2010). Government fragmentation versus fiscal decentralization and corruption. *Public Choice*.
- Gupta, S., Davoodi, H. R., & Tiongson, E. R. (2000). Corruption and the Provision of Health Care and Education Services.
- Hindriks, J., Keen, M., & Muthoo, A. (1999, January). Corruption, extortion and evasion. *Journal of Public Economics*, 74.
- Lessmann, C., & Markwardt, G. (2009). One Size Fit All? Decentralization, Corruption, and the Monitoring of Bureaucrats. *World Development*, 631-646.
- Letelier, L. (2005). Explaining Fiscal Decentralization. *Public Finance Review*, 155-183.
- Méon, P.-G., & Sekkat, K. (2005). Does corruption grease or sand the wheels of growth? *Public Choice*, 122(1-2), 66-97.
- Neyapti, B. (2010). Fiscal decentralization and deficits: International evidence. *European Journal of Political Economy*, 155-166.
- Panizza, U. (2004). *What Drives Fiscal Decentralization?* CESifo DICE Report.

- Parry, T. R. (1997). Achieving Balance in Decentralization: A Case Study of Education Decentralization in Chile. *World Development*, 211-225.
- Roe, E. (1995). More Than the Politics of Decentralization: Local Government Reform, District Development and Public Administration in Zimbabwe. *World Development*, 833-843.
- Sherry-Cloonan, L. (2000). *UNFPA and Government Decentralization: A study of Country Experience*. New York: Office of Oversight and Evaluation United Nations Fund.
- Shleifer, A., & Vishny, R. W. (1993). Corruption. *Quarterly Journal of Economics*, 108(3), 599-617.
- Sigman, H. (2009). *decentralization and Environmental Quality: An International Analysis of Water Pollution*. New Jersey: Rutgers University.
- Treisman, D. (2002). *Decentralization and the Quality of Government*. Los Angeles: University of California, Los Angeles.
- United Nations Population Fund. (2000). *UNFPA and Government Decentralization: A Study of Country Experiences*. New York: Office of Oversight and Evaluation.
- Yeung, R. (2009). The Effects of Fiscal Decentralization on the Size of Government: A Meta-Analysis. *Public Journal Publications, Inc.*, 1-23.

## Appendix:

$$\text{Expenditure Decentralization} = \frac{\text{State Gov. Expenses} + \text{Local Gov. Expenses}}{\text{State Gov. Expenses} + \text{Local Gov. Expenses} + \text{Central Gov. Expenses}}$$

$$\text{Revenue Decentralization} = \frac{\text{State Gov. Revenue} + \text{Local Gov. Revenue}}{\text{State Gov. Revenue} + \text{Local Gov. Revenue} + \text{Central Gov. Revenue}}$$

**Government effectiveness** captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

Code	Concept Measured
<b>Representative Sources</b>	
<b>EU</b>	Quality of bureaucracy / institutional effectiveness Excessive bureaucracy / red tape
<b>GCS</b>	Infrastructure Quality of primary education
<b>GWP</b>	Satisfaction with public transportation system Satisfaction with roads and highways Satisfaction with education system
<b>IPD</b>	Quality of the supply of public goods: education and basic health Capacity of political authorities to implement reforms
<b>PRS</b>	Bureaucratic Quality
<b>WMO</b>	<i>Bureaucracy</i> : An assessment of the quality of the country's bureaucracy. The better the bureaucracy the quicker decisions are made and the more easily foreign investors can go about their business. <i>Policy consistency and forward planning</i> How confident businesses can be of the continuity of economic policy stance - whether a change of government will entail major policy disruption, and whether the current government has pursued a coherent strategy. This factor also looks at the extent to which policy-making is far-sighted, or conversely aimed at short-term economic advantage.

**Control of corruption** captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Code	Concept Measured
<b>Representative Sources</b>	
<b>EU</b>	Corruption among public officials
<b>GCS</b>	Public Trust in Politicians Diversion of Public Funds Bribery: Trade Bribery: Utilities Bribery: Taxes Bribery: Procurement Bribery: Judiciary State Capture
<b>GWP</b>	Is corruption in government widespread?
<b>IPD</b>	Level of petty, large-scale and political corruption
<b>PRS</b>	Corruption
<b>WMO</b>	<i>Corruption</i> : An assessment of the intrusiveness of the country's bureaucracy. The amount of red tape likely to be countered is assessed, as is the likelihood of encountering corrupt officials and other groups.