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The American Recovery and Reinvestment Act: less stimulating in corrupt states

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Abstract

The American Recovery and Reinvestment Act of 2009 was an attempt to “jump-start the economy to create and save jobs” by inducing state spending on an enormous scale. 787 billion US dollars were allocated to the act, which included tax cuts and extension of benefits under Medicaid, but also major investment programs. Under the recovery act, 28 government agencies were each allocated a portion of the available funds, and then decided how to spend the money. Most of the money was awarded as grants, loans or contracts to state governments, which then distributed it further to specific projects.

However, while the recovery act may have avoided an even deeper recession, it has largely failed to jump-start the American economy in the intended way. Could it be that the stimulus had less effect than it could have had, because of corruption? Research shows that corruption increases costs of public investment, and reduces the efficiency of public spending. In this paper, I attempt to gauge the effects of corruption on the stimulus package by comparing projects awarded grants in the 50 US states, using a two-level modeling strategy. First, for each state, the cost of a project is modelled as a function of the number of people employed in the project, which yields a job cost coefficient. The assumption is that a lower coefficient implies more efficient spending, since projects with the same amount of labor cost more when the coefficient is higher.

Second, the job cost coefficient is modelled as a function of corruption in the state, controlling for other state-level factors. Corruption is measured as the number of convictions for corruption in the state 1976-2009 (Glaeser & Saks 2006). The empirical analysis shows that the job cost coefficient is higher in states where more public officials have been convicted for corruption, implying that corruption may have impaired the possible effect of the stimulus package.

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Introduction

The American Recovery and Reinvestment Act of 2009 was an attempt to "jump-start the economy to create and save jobs" by inducing state spending on an enormous scale. 787 billion US dollars were allocated to the act, which included tax cuts and extension of benefits under Medicaid, but also major investment programs. Under the recovery act, 28 government agencies were each allocated a portion of the available funds, and then decided how to spend the money. Most of the money was awarded as grants, loans or contracts to state governments, which then distributed it further to specific projects.

However, while the recovery act, according to reporting by the recipients, has created over 600,000 jobs, it has largely failed to jump-start the American economy in the intended way. Notable commentators, like Nobel memorial prize in economic sciences laurate Paul Krugman, have argued that the stimulus package was too small to generate the intended effect (Krugman, 2009). Congressional republican leadership has instead argued that the package was too big, and packed with wasteful pork spending (CNN, 2009).

Regardless of whether the economy would have been better served by a larger or smaller package, it may be that the stimulus had less effect than it could have had, because of corruption. As observers of another recovery act have put it, requiring the government to spend a large amount of money during a set time period is a "recipe for corruption" (Kroleski, Reville, & Mangiero, 2009).

In this paper, I attempt to gauge the effects of corruption on the stimulus package, by comparing projects awarded grants in the 50 US states, using a two-level modeling strategy. First, for each state, the cost of a project is modelled as a function of the number of people employed in the project, which yields a job cost coefficient. The assumption is that a lower coefficient implies more efficient spending. Second, the job cost coefficient is modelled as a function of corruption in the state, controlling for other state-level factors. The empirical analysis shows that the job cost coefficient is higher in states where more public officials have been convicted for corruption, implying that corruption impairs the possible effect of the stimulus package.

The paper proceeds as follows. First, previous research on corruption in general and it's effects on public investment is presented, together with the theory that guides the empirical analysis. Second, data and empirical strategy is discussed. Results are presented in the third section, while the fourth section concludes.

Previous research and theory

The stimulus package has for natural reasons not been the subject of many scholarly studies yet. There are however some unpublished conference papers dealing with the allocation of stimulus funds. De Rugy (2010) takes a critical view, arguing that congressional democrats are advantaged in allocation of funds: more funds are allocated to congressional house districts where a democrat holds the seat. De Rugy also criticized the ARRA in a testimony before congress. Young & Sobel (2010) echo this sentiment, arguing that the stimulus is a poor Keynesian counter-cyclical policy. Allocation, according to Young & Sobel, seems more guided by political concerns than macroeconomical.

Reifler & Lazarus (2010) criticize de Rugy, claiming that de Rugy fails to take into account the factors that are supposed to guide allocation of funds, such as the existance of research universities or military bases in the congressional district. Controlling for a host of these factors, the coefficient for the party of the house representative fails to achieve significance. Reifler & Lazarus thus conclude that the stimulus is allocated on proper grounds. Their findings however contrast sharply with those of Young & Sobel, which use a similar approach, but come to different conclusions. A possible explanation for this paradox is that the analysis of Reifler & Lazarus is carried out on the congressional district level, while Young & Sobel compare states.

To discuss the effects of corruption on economic efficiency, it is first necessary to define what corruption is. While there are plenty of definitions, a widely used one is that corruption is the misuse of public office for private gain (Rose-Ackerman, 2008). Public officials may be both politicians and bureaucrats.

For long, the effects of corruption on economic efficiency and growth were understudied, and several scholars argued that corruption possibly could have beneficial effects. For instance, Leff (1964) argued that corruption could stimulate economic growth by increasing competition among bureaucrats in the government bureaucracy and thereby increasing governmental efficiency. It could also work as a “hedge” against bad governmental policies, by allowing entrepreneurs to implement their favored policies, aided by corrupted bureaucrats. Moreover, corruption could also reduce uncertainty, in that entrepreneurs need not fear governmental intervention as much when the bureaucracy is corrupted. Bribes could also act as "speed money", and reduce government inefficiency (Mauro, 1995).

Needless to say, an underlying tendency in this strand of research is low trust in government. Governmental policies are seen as intervening in an efficient market and bureacratic rigidity and inefficiency is seen as impeding growth. However, a large and growing body of literature has pointed to the importance of 'Weberian' bureaucratic structures. In Weber's classical work, the ideal bureacracy was characterized among other things by hierarchical organization, meritocratic recruitment, predictable careers for bureaucrats and rule-governed decision-making (Evans & Rauch, 1999). In this radically different perspective bureaucratic rigidity instead serves to increase predictability, and ensures impartial treatment for all who deal with the bureaucracy.

Empirical studies demonstrating the negative effects of corruption on economic growth and performance now abound (Evans & Rauch, 1999; Mauro, 1995; Mo, 2001), and this is reflected in policy shifts among policymakers, for instance the World Bank (Holmberg, Rothstein, & Nasiritousi, 2009).

How then, could corruption in the state governments affect the efficiency of the stimulus package? Two mechanisms are proposed, one direct and one indirect.

The direct mechanism builds on the model proposed by Dal Bó & Rossi (2007). They argue that the price of output by firms in non-corrupt countries is close to the "technical price", i.e. the cost of producing the output as cheaply as possible. In corrupt countries on the other hand, regulators can be subject to bribery, and can then allow prices that are higher than necessary. This should be especially true when the public officials that are subject to bribery not only are regulators, but also buyers of the services. As Dal Bó and Rossi also acknowledge, corruption can also be initiated by the officials themselves. Furthermore, public officials could also siphon off a part of grants by inflating costs and taking a part of the money for themselves.

Among the sentences delivered in 2009, none concern grants or contracts related to the American Recovery and Reinvestment Act. This is perhaps to be expected, given that it takes some time to discover corruption schemes, and prosecute them. Examples of corruption in relation to the awarding of contracts however abound. For instance, William R. Dodson, a building manager for the United States General Services Administration, was in 2009 sentenced to 15 months of imprisonment. Dodson had received $31,800 in cash and $4,600 worth of services from a contracting company that were awarded $294,926 in contracts (Department of Justice, 2010, p. 34). There are also examples of downright theft by public employees. Violet Williams, employed by the Department of Energy, submitted attendance records for 2,415 overtime hours more than she worked, rendering Williams $94,494 in undue compensation (2010, p. 41).

The indirect mechanism is that corruption increases the cost of projects by raising transaction costs in general. Even while no actual corruption may be involved when the grants are awarded, the corrupt climate makes it harder to do business. Projects are likely slowed down if it is necessary to pay bribes to acquire necessary permits and licenses. Simply put – transaction costs increase because the number of necessary transactions (bribes) is higher.

There is to the best of my (admittedly very limited) knowledge surprisingly little literature discussing corruption and transaction costs explicitly. Kang (2003) argue that corruption may increase, but also decrease, transaction costs depending on how the nature of corruption. However, Kang focuses on grand corruption between political elites, and not on petty corruption by low-level public officials, which is more relevant in this study. Corruption and uncertainty is however a more common topic. Wei (1997) finds that corruption lowers foreign investment in countries, but especially when there is uncertainty about the nature of corruption in a country. When there is more uncertainty, investors discount future profits, and are discouraged from investing. Brunetti & Weder (1998) actually equate corruption with uncertainty, and find that it lowers investment. A related argument is that about quality of government and impartiality – when government institutions are partial (for instance corrupted), those subject to government intervention are discouraged from investment (Rothstein & Teorell, 2008).

The main hypothesis of this paper is thus that *projects funded by the American Recovery and Reinvestment Act will be less cost-effective in more corrupt states.*

The effect of corruption on efficiency of spending has been studied extensively. Using Italy as a case, Del Monte & Papagni (2001) show that the effect of public investment is lower in more corrupt regions. Dal Bó & Rossi (2007) find that firms in more corrupt countires use more labor to produce the same amount of electric utilities as firms in less corrupt countries.

While the purpose of this paper is to gauge the effects of corruption on the efficiency of public spending, other studies have taken the reverse approach. Golden & Picci (2005) tried to measure corruption by calculating the discrepancy between public spending on infrastructure and actual infrastructure in Italy. They find that the discrepancy correlates to a high extent with measures of government malfeasance, which suggests that corruption indeed impairs efficiency in public spending.

Data and empirical strategy

The data in the study is gathered from recovery.org, which provides reports of stimulus spending to the public. The cumulative summary for the second quarter of 2010 is used, which contains information on about 48000 stimulus projects. Recipients report the amount of funds received, as well as the number of jobs created (or kept, if they otherwise would have been terminated) by the project. For each project, there is a prime recipient, and in some cases sub-recipients. The analysis will focus on the prime recipients, since the number of jobs created only are reported on prime recipient level.

Projects vary in size from 1000$ awarded for pavement overlay in Isle of Wight, Virginia, creating 0.01 jobs, to 4.3 billion dollars in education grants to california, supposedly allowing for the creation or retainment of 34997.77 jobs, including teachers.

In the first level of the modelling, the cost of a project is modelled as a function of the number of jobs created in the project, elapsed time since the projects inception, the level of completion, the agency that awarded the grant, and the state in which the recipient is located. Moreover, the slope of the jobs coefficient is allowed to vary between agencies, since the cost of labour varies depending on the nature of the project. For instance, rocket scientists employed by NASA probably have a higher salary than construction workers employed by the Federal Highway Commission. The slope of the jobs coefficient is also allowed to vary between states. Some of the state-level variation in the slope is expected to depend on natural factors, such as geography, but some of the variation can possibly be attributed to corruption. The state-specific slope will in level 2 be used as the dependent variable.

The rationale underlying the decision to model cost as a function of jobs rather than the opposite is based on the assumption that projects are initiated in the following way. First, a need for a project is identified, such as a road needing repairs, or a research question needing investigation. Second, the workload required to carry out the project is calculated, and third, a total cost for the project is estimated. Cost is thus a function of jobs, and not the other way around.

An alternative approach would have been to model project cost of various factors, but to include corruption directly as a determinant of the cost level. However, such a modelling approach requires the assumption that corruption imposes an additional cost on the project, regardless of size. While reasonable, the theory outlined above instead states that corruption lowers the efficiency in public sector spending. Hence, it is more reasonable to expect that the relationship between the scope of the project, proxied by the number of jobs created, and the cost of the project is affected by corruption: jobs cost more in more corrupt states.

In the first level, multi-level modelling is employed, to account for the varying slopes and intercept of each agency and each state. However, agencies are not nested in states, and states are not nested in agencies. The model is hence a non-nested multi-level model, with random effects of jobs. The first level equation can thus be written:

(1) $$\log(COST)_{ijk} = \alpha_j + \delta_k + \beta_1 TIME_{ijk} + \beta_2 COMPLETION_{ijk} + \beta_{3jk}\log(JOBS)_{ijk} + \varepsilon_{ijk}$$

Where *i* denotes the project, *j* the state and *k* the agency, α_j is a state-specific intercept, δ_k is an agency-specific intercept. *COST* is the grant amount in dollars, *TIME* is elapsed days since the award date, *COMPLETION* is a variable indicating how much progress that has been made in the project, and *JOBS* is the number of jobs created or retained by the project, as reported by the recipient.

On the second level, the state-specific slope coeffricient of jobs is regressed on the corruption level, log population, real GDP per capita, the median wage, and the party of the governor in the state. Furthermore, the state-specific intercept from level 1 is included as a regressor to rule out the suspicion that different slopes only are an effect of different starting levels.

$$\beta_{3j} = \gamma_0 + \gamma_1\beta_{0j} + \gamma_2 CORRUPTION_j + \gamma_3 \log(POPULATION)_j + \gamma_4 \log(LANDAREA)_j + \gamma_5 GDP/CAP_j + \gamma_6 WAGE_j + \gamma_7 GOVERNOR_j + \omega_j \quad (3)$$

How then to measure the main independent variable, corruption? By definition, corruption is illegal, and hence secret. Measuring corruption is hence a daunting research agenda in itself. Two main corruption indicators will be used in this study. The first is the number of public officials per million capita in the state convicted for corruption, which each year is reported by the US Department of Justice. This measure has been used by several researchers, for different time periods (Alt & Lassen, 2008; Glaeser & Saks, 2006), and has also been referenced in popular press such as the *New York Times* (Marsh, 2008).

Of the 1082 individuals charged with corruption in 2009, 39 percent were federal officials, 9 percent were state officials, 25 percent were local government officials and 27 percent were private citizens involved in corruption (such as making illegal campaign contributions) (Department of Justice, 2010).

Conviction rates have both advantages and drawbacks as a corruption indicator. On the positive side, it captures actual and proved corruption rather than perceptions of it. However, a high number of convictions can be an indication of an effective judiciary system, rather than widespread corruption. To account for this, Meier & Holbrooke (1992) regressed the number of convictions per capita on the number of federal judges and US attorneys per capita, as well as the percentage of cases backlogged. None of the variables, which it could be argued relates to judiciary capacity, had a statistically significant effect. Hence, corruption convictions should not only reflect efficiency of the judiciary system.

Furthermore, the data provided by the Department of Justice contains convictions of federal officials in the state as well as state and local government officials – corruption in state and local government only constitutes about one third of the convictions.[1] Still, it is likely that perception-based indicators are biased by prejudice about the corruption in the states: in a New York Times article referencing the conviction numbers, the title of the article ("Illinois is

[1] A future research task is to separate convictions of federal officials from state and local officials.

trying. It really is. But the most corrupt state is actually…") is a play on the fact that Illinois is seen as utterly corrupt (Marsh, 2008). The objective numbers of convictions are superior in this regard.

To filter out temporary fluctuations, it is necessary to average convictions over several years. Glaeser & Saks (2006) have compiled figures for 1976-2002. I add figures for 2003-2009 using the latest Department of Justice report and calculate the average number of convictions per 100 000 inhabitants during the period 1976-2009.

Despite the drawbacks, a perception-based measure will also be tested in the analysis. In a survey of state house reporters, Boylan & Long (2003) asked about how widespread they perceived corruption to be in the state government they covered. Boylan & Long then compute an index from the answers to several questions. A total of 293 responses were obtained, for a total of 47 states. While the objective indicator in general is more reliable, this measure will be included as a point of reference. Table 1 ranks the five most and least corrupt states according to each indicator.

Table 1. The five most and least corrupt states according to the number of convictions for corruption and a survey of state house reporters.

	Most corrupt	
	Total number of convictions per 100000 capita 1976-2009	*Boylan & Long* (2003) *perceptions index*
1	Louisiana (19.3)	Ne w Mexico (1.6)
2	Mississippi (18.5)	Rhode Island (1.4)
3	Alaska (17.3)	Illinois (1.1)
4	North Dakota (17.3)	Delaware (1.1)
5	South Dakota (16.6)	Florida (0.9)

	Least corrupt	
	Total number of convictions per 100000 capita 1976-2009	*Boylan & Long* (2003) *perceptions index*
1	Oregon (2.4)	South Dakota (-1.9)
2	Washington (3.0)	Vermont (-1.4)
3	Utah (3.2)	Colorado (-1.2)
4	New Hampshire (3.5)	Iowa (-1.2)
5	Minnesota (3.6)	North Dakota (-1.1)

Comment: Figures in parentheses are the values on each indicator. Correlation between the two indexes: Pearson's R=0.08.

Judging from table 1, the correspondence between the two indicators is very low. No state is featured on both top or bottom lists. Both North and South Dakota are however ranked as among the five least corrupt states when using conviction numbers, but as among the five least corrupt states when ranked by state house reporters! The correlation coefficient for the two indicators is accordingly very low, R=0.08. If the Dakotas are excluded, the correlation coefficient however increases to R=0.35.

Results

Results of the first-level regression are presented in table 2.[2] In the fixed part, all variables are significant. Of special interest is the coefficient for log(JOBS), which is estimated at 0.419. If the number of jobs for a given project increases with one percent, the cost of the project is expected to increase with 0.419 percent. The random part shows that there is significant variation of the log(JOBS) coefficient, both on the state and agency level. The standard deviation of the coefficient is 0.039 among states, and 0.209 among agencies. Variation

[2] To obtain the state-specific coefficients of log(JOBS) for each state, a model with dummy variables for each state and interaction terms between the dummy variables and the log(JOBS) variable was also estimated. It should however correspond to the one presented in table 2.

among states is thus not as large as among agencies, which seems reasonable, as agencies require very different types of labor.

Table 2. First stage estimation results. Maximum likelihood estimation. Dependent variable: log(COST).

Fixed part	
log(JOBS)	0.419***
	(0.034)
TIME	-0.002***
	(0.000)
COMPLETION	-0.465***
	(0.009)
Intercept	41.847***
	(1.270)
Random part	
Project level:	
Standard deviation of ε_{ijk}	1.009***
	(0.004)
State level:	
Standard deviation of α_j	0.135***
	(0.015)
Standard deviation of β_{3j}	0.039***
	(0.006)
Agency level:	
Standard deviation of δ_k	1.195***
	(0.126)
Standard deviation of β_{3k}	0.209***
	(0.026)
Log Likelihood	-54437.266
Number of projects	37836
Number of states	50
Number of agencies	53

The estimated coefficients for each state are displayed in figure 1, excluding Alaska and Hawaii for space considerations. A darker red color indicates that cost of a project increase more rapidly when the number of jobs increases. The most distinct geographical pattern is the cluster of high-cost states to the north and west of (but not including) Tennessee: Mississippi, Arkansas, Missouri, Illinois, Kentucky and Virginia.

Figure 1. Estimated coefficient of log(JOBS) – the job cost coefficient.

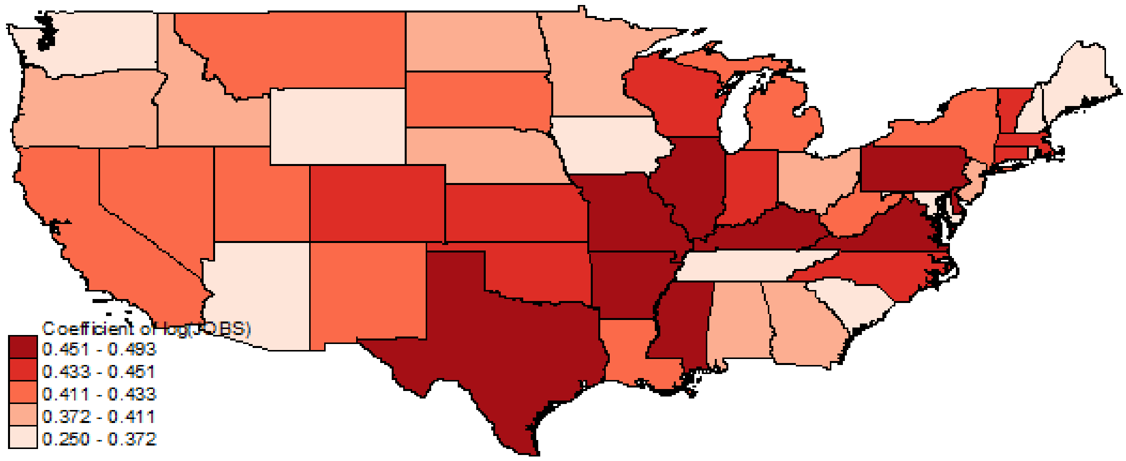
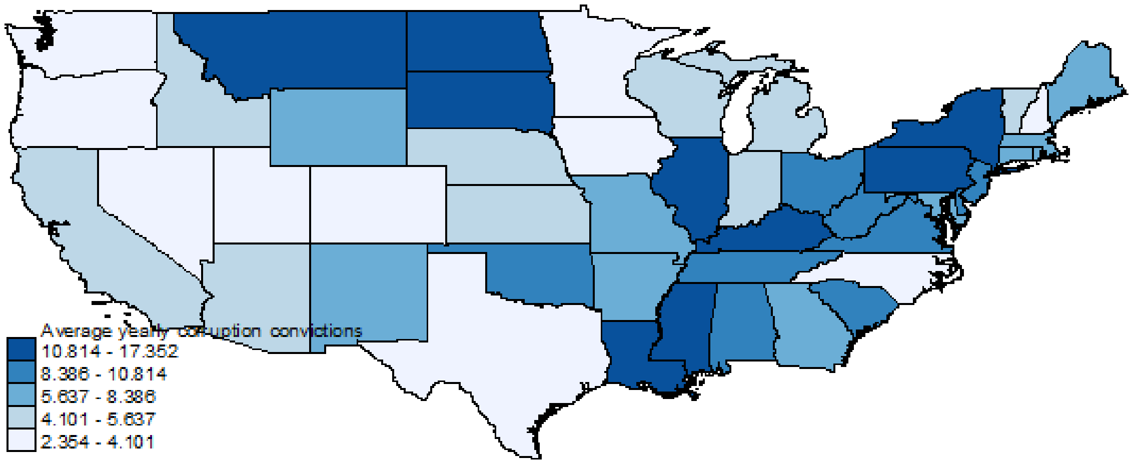


Figure 2. Average yearly corruption convictions 1976-2009.



In figure 2, the states have been categorized according to the average yearly corruption convictions per 100000 inhabitants in the state. Some correspondence can be seen, but there are also notable exceptions, like Texas. Texas is located in the group where the coefficient of log(JOBS) is highest, but also in the category of states where corruption is least widespread. The correlation between the coefficient and the corruptionvariable is Pearson's R=0.25, and is significant at the 90 percent level. Correlation between the coefficient and the perception-based measure of Boylan & Long (2003) is Pearson's R=0.20, but is not significant. Scatterplots for the two correlations are presented in figures 3 and 4.

Figure 3. Scatterplot of the relationship between the coefficient of log(JOBS) and corruption, measured as the log of convictions per 100000 capita in the state 1973-2009. R=0.25.

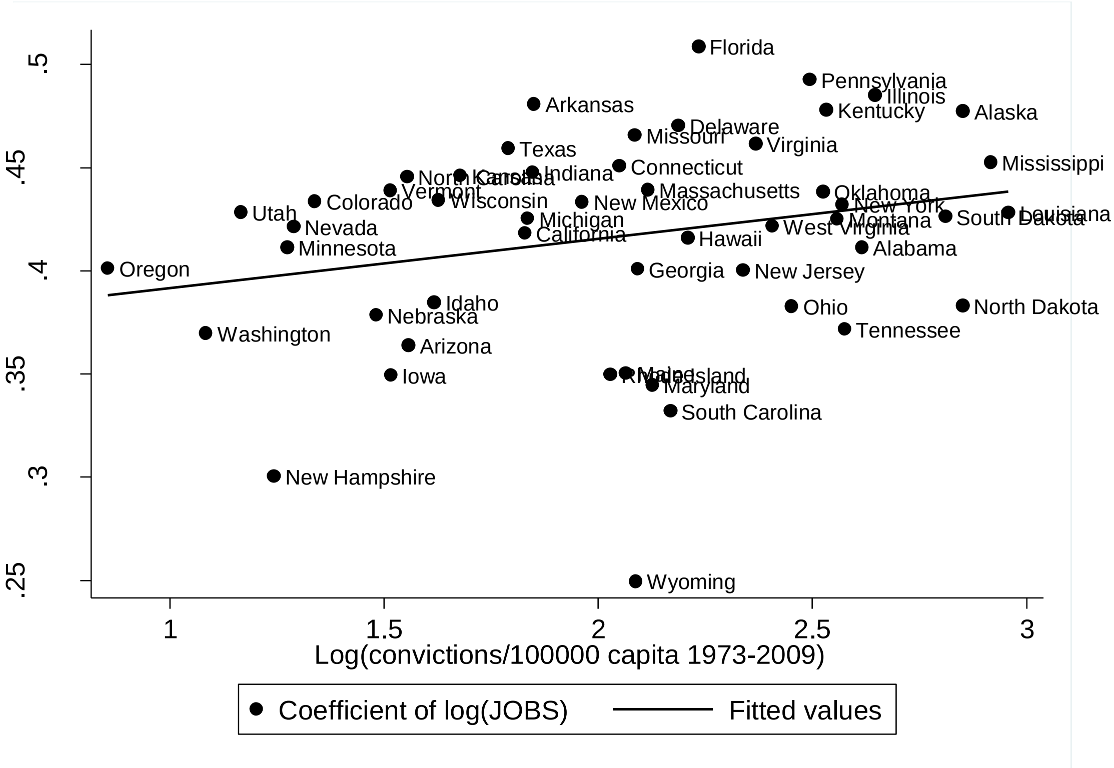
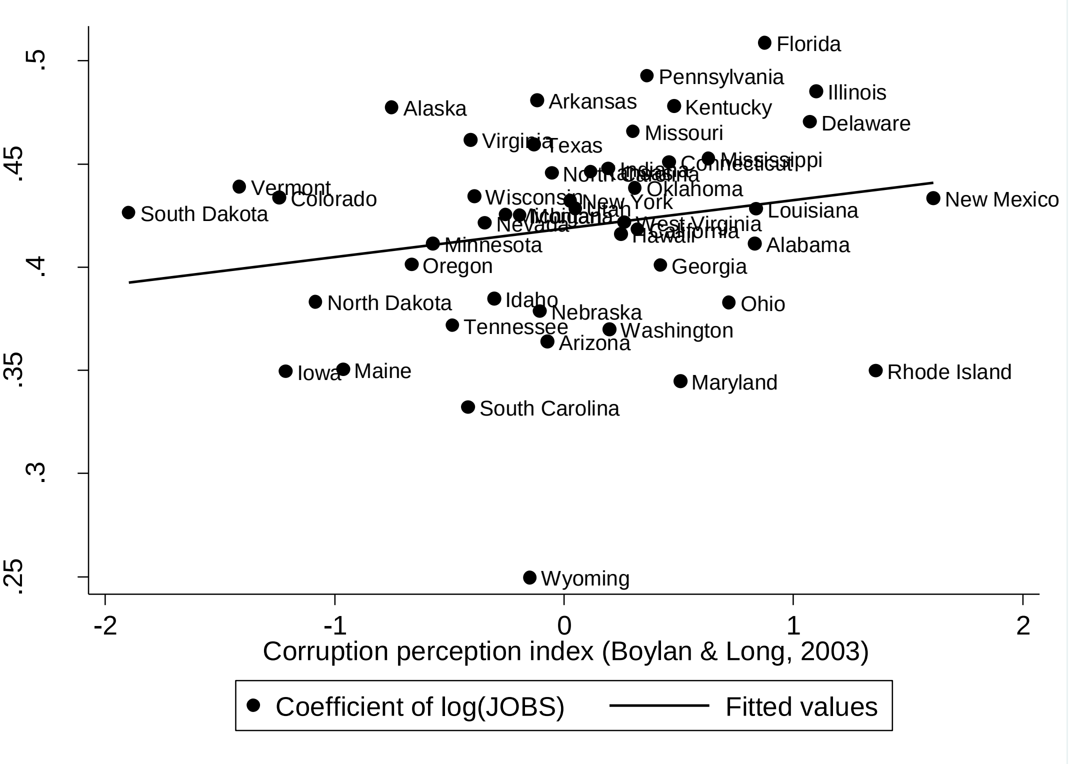


Figure 4. Scatterplot of the relationship between the coefficient of log(JOBS) and corruption, measured through a corruption perceptions index (Boylan & Long, 2003). R=0.20.



Regression models including the control variables described in the previous section are estimated next, using both the objective and the subjective corruption indicators. In table 3, models 2 and 4 display the results of these regressions. The coefficient for the objective corruption indicator is still significant, albeit only at the 90 percent level, when controlling for other possible confounding factors. Corruption measured as the perceptions of state house reporters is not significant in either model.

Table 3. Second stage estimation results. OLS regression, unstandardized regression coefficients. Standard errors in parentheses.

	Model 1	Model 2	Model 3	Model4
CORRUPTION	0.024*	0.020*		
Log(convictions/100000 capita 1973-2009)	(0.014)	(0.012)		
CORRUPTION			0.014	0.006
Corruption survey index (Boylan & Long 2003)			(0.010)	(1.792)
β_{0j}		-0.170***		-0.171***
		(0.040)		(0.044)
Log(POPULATION)		0.018*		0.015
		(0.009)		(0.012)
Log(LANDAREA)		0.000		0.001
		(0.007)		(0.010)
GDP/CAP		3.033*		3.011**
		(1.568)		(1.485)
WAGE		-0.003		-0.004
		(0.006)		(0.007)
GOVERNOR		-0.005		-0.005
		(0.013)		(0.014)
Intercept	0.368***	7.125***	0.419***	7.256***
	(0.028)	(1.676)	(0.007)	(1.792)
N	50	50	47	47
R^2	0.061	0.367	0.042	0.323
R^2_{adj}	0.042	0.262	0.020	0.201

*** p<.01 ** p<.05 * p<.10. For model 2 and 4, robust standard errors were used to correct for heteroskedasticity. β_{0j} denotes the state-specific intercept from the first-stage model.

The intercept from the first stage of estimation is significant in both model 2 and 4, and has a negative effect, which could be expected given that cost in the first stage estimation is expressed in logarithmic terms: in states where fixed costs is higher (possibly due to geography or other constant factors), the cost of adding additional jobs to a project is obviously smaller, expressed in percentages.[3]

Log population has a significant and positive effect in model 2, which indicates that the cost of jobs is higher in states with a larger population, and more densely populated states. The variable is however not significant in model 4, probably because three states are excluded from the analysis, which indicates that the result not is particulary robust.

[3] Omitting the intercept control does not affect the implications of the analysis – the p values for the corruption coefficients are lowered slightly.

State GDP per capita has a positive effect in both model 2 and 4, which probably is an indication that costs generally are higher in more wealthy states. The median wage is not significant, and neither is the party of the governor.

What are the substantive implications of the results? Moving from the lowest value of corruption to the highest value of corruption is expected to increase the value of the log(JOBS) coefficient by 0.04. This in turn means that increasing the number of people employed in a project in the least corrupt state is predicted to lead to an increase in costs by 0.39 percent, but with 0.43 percent in the most corrupt state.

But how does it translate to real dollars? The average number of people employed in projects that employ more than zero is $e^{0.456}$, which translates to 1.6 people employed, in non-logarithmic terms. Substituting average values of the variables and coefficients estimated in the first stage model (presented in table 2) into equation 1 allows for predicting the cost of the average-sized project in the least and most corrupt states. In the least corrupt state, the job-cost coefficient is predicted to be 0.39, and the average-sized project is expected to cost $581626. In the most corrupt state, the job-cost coefficient is predicted to be 0.44, and the average-sized project is expected to cost $592329. The difference is 10703 dollars. In this case, the average-sized project is 1.8 percent more expensive in the most corrupt state.

While point estimates and predicted values should be taken with a grain of salt, the general tendency is clear – corruption decreases the efficiency of public spending. Equally-sized projects cost more in states where there is more corruption, when corruption is measured as the number of corruption convictions per capita, but not when a subjective corruption measure is used.

Conclusion

A consensus that corruption impairs economic and human development has the latest decades emerged in the scholarly community. Corruption has been shown to adversely effect economic growth as well as the efficiency of public spending. In this paper, I attempt to test whether corruption in the US states has decreased the effect of public spending, and specifically stimulus spending.

By estimating the cost of adding additional jobs to a project in each state, a measure of the efficiency of public spending is obtained. Variation in this measure, the job cost coefficient, can to some extent be explained by the level of corruption in the state. Projects hence increase more rapidly in cost in corrupt states as they become bigger than in less corrupt states.

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Appendix. US states ranked according to the total number of convictions of public officials for corruption per 100000 inhabitants 1976-2009.

Rank	Name	Convictions 1976-2009	Rank	Name	Convictions 1976-2009
1	Oregon	2.4	26	Wyoming	8.1
2	Washington	3.0	27	Georgia	8.1
3	Utah	3.2	28	Massachusetts	8.3
4	New Hampshire	3.5	29	Maryland	8.4
5	Minnesota	3.6	30	South Carolina	8.7
6	Nevada	3.6	31	Delaware	8.9
7	Colorado	3.8	32	Hawaii	9.1
8	Nebraska	4.4	33	Florida	9.3
9	Vermont	4.5	34	New Jersey	10.4
10	Iowa	4.6	35	Virginia	10.7
11	North Carolina	4.7	36	West Virginia	11.1
12	Arizona	4.7	37	Ohio	11.6
13	Idaho	5.0	38	Pennsylvania	12.1
14	Wisconsin	5.1	39	Oklahoma	12.5
15	Kansas	5.4	40	Kentucky	12.6
16	Texas	6.0	41	Montana	12.9
17	California	6.2	42	New York	13.1
18	Michigan	6.3	43	Tennessee	13.1
19	Indiana	6.3	44	Alabama	13.7
20	Arkansas	6.4	45	Illinois	14.1
21	New Mexico	7.1	46	South Dakota	16.6
22	Rhode Island	7.6	47	North Dakota	17.3
23	Connecticut	7.8	48	Alaska	17.3
24	Maine	7.9	49	Mississippi	18.5
25	Missouri	8.0	50	Louisiana	19.3