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UNDERSTANDING PAY-FOR-PERFORMANCE IN STATE GOVERNMENTS: A Diffusion Theory Approach

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Abstract

Since the New Public Management is emphasized, the practices of the business sector have been introduced to the public sector without careful assessment. One of the examples is the adoption of pay-for-performance across state governments. Although theories of pay-for-performance may be compelling, scholars have found failures of pay-for-performance in the public sector. This study applies a diffusion theory to understand why state governments have adopted pay-for-performance although its effectiveness was not confirmed. Findings show that state governments tend to adopt pay-for-performance as their neighboring states have previously adopted it, but the marginal probability of adoption decreases as more neighbors have adopted pay-for-performance.

Key words: pay-for-performance, policy diffusion

Introduction

The New Public Management (NPM) movement has spread through many nations in recent decades with emphasis on running the government like a business (Weibel, Rost, and Ostrloh, 2009). One of the practices of the NPM is pay-for-performance (Perry, Engbers, and Jun, 2009). The basic idea of pay-for-performance is to motivate employees to perform better with higher productivity by linking performance to financial rewards.

Pay-for-performance has been quite popular in the private sector; about 93 to 99 percent of private sector firms use pay-for-performance plans for their salaried employees (Bretz and Miklovich, 1989). American state governments are not exceptional. According to General Accounting Office's report, 23 state governments have adopted some forms of pay-for-performance as of 1989 (U.S. General Accounting Office, 1990).

An interesting remark is that the expectation that pay-for-performance would enhance productivity in the public sector was going a long way off (Kellough and Nigro, 2002). Some scholars attribute a failure of pay-for-performance to lack of thorough analyses on its effectiveness and applicability to the public sector (Ingraham, 1993). If state governments had adopted pay-for-performance with no significant evidence of its efficiency, the next question arises: why had state governments adopted the pay-for-performance? To answer this question, this study takes a policy diffusion approach.

This study hypothesizes that state governments whose neighboring states had adopted the pay-for-performance were more likely to adopt the pay-for-performance. According to policy diffusion theory, states are likely to follow each other because 1) they learn innovations from other states; 2) they adopt other states' good policies to compete with other states; and 3) they tend to follow nationally or regionally accepted standard (Berry and Berry, 2007; Dye 1990; Mooney, 2001; Tiebout 1956).

General Accounting Office's 1990 report, which is the most recent and official data identifying state governments with pay-for-performance, found that 23 state governments had pay-for-performance. Using an event history analysis, this study finds positive, curvilinear diffusion effects from one state to another neighboring states. It is also found that there are three cliques of pay-for-performance diffusion- the west clique, the east clique, and the north-to-south clique.

This study consists of the following orders. First introduces the theoretical background of pay-for-performance followed by understanding pay-for-performance from a different perspective. Then, a diffusion theory and hypotheses are derived. Econometric models, data, and method are explained, and findings are reported. Lastly, the study concludes and discusses findings of this study.

Pay-for-performance: Overview

The basic idea of pay for performance is that "excellent performers are to receive higher pay increase while average and poorer performers earn lower adjustments to pay," (Kellough, Selden, and Legge Jr., 1997). Linking pay to performance is very logical and strongly believed to motivate employees (Lawler, 1981; Locke et al., 1980). The mechanism of pay and performance is supported by expectancy theory (Vroom, 1964; Porter and Lawler III, 1968; Nadler and Lawler, 1977). According to Kellough and Lu's (1993) brief explanation of expectancy theory, it "assumes that people make decisions among alternative plans of behavior based on their perceptions or expectations of the degree to which given behaviors will lead to desired outcomes." The expectancy theory explains that individuals behave based on two expectancies: effort-performance expectancy and performance-outcome expectancy. Effort-performance expectancy is that individual's effort leads to a desired performance and performance-outcome expectancy is that the given performance leads to a desired outcome. The outcome gives positive value to individuals (Kellough and Lu, 1993). The interaction of these two expectancies and the basic assumption that individuals value monetary rewards results in pay-for-performance in management.

Along with expectancy theory, goal-setting theory also supports the rationale of the link between pay and performance. According to Locke et al. (1981) the goal setting process is more likely to enhance performance when people set a specific, challengeable but doable, and acceptable goal. Goal-setting theory supports the idea that pay-for-performance improves performance by linking employee efforts to organizationally defined goals, and by increasing the likelihood that those goals will be achieved-given that conditions such as doable, specific, acceptable goals, meaningful pay increases, consistent communication and feedback are met (Milkovoch and Wigdor, 1991).

Figure 1 shows the outcome line of how pay-for-performance, in theory, works. The ultimate outcome of pay-for-performance is citizen's satisfaction on government service. To achieve this ultimate outcome, pay-for-performance which is based on the expectancy theory and goal-setting theory needs to develop and administer the right appraisal system such as multi-lateral appraisal with lobbying legislature in order to get enough fund to implement pay-for-performance. As a result, pay-for-performance differentiates employee's pay and monetary rewards, and employee's recognition on incentive leads to the outcome of interest such as employee's motivation. Furthermore, as the employee get recognized and motivated, they tend to stay with their job so that the turnover gets reduced. The series of activities, subobjectives and outcomes of interest results in better government performance which, in the end, brings ultimate outcomes.

[Figure 1 about here]

Understanding Pay-for-performance of State Government from a Different Angle

According to the literature, more than 90 percent of private companies have some forms of pay-for-performance (Ingraham, 1993), and its success stories have been reported (citation). Similar trends are found in the public sector. As of 2005, 17 member nations of the Organization for Economic Cooperation and Development (OECD) have some forms of pay-for-performance (Organization for Economic Cooperation and Development, 2005). As a member of OECD, the United States federal government enacted the Civil Service Reform Act of 1978 that introduced pay-for-performance to mid-level managers as well as members of the Senior Executive Service (SES) (Ingraham, 1993). Although the year of adoption varies across states, some state governments implemented pay-for-performance even earlier. For instance, about 63 percent of the total Florida state employees were under pay-for-performance plans (GAO, 1990). Since Florida adopted the program, according to GAO (1990), 22 other states adopted some forms of pay-for-performance as of 1990.

Implementation of pay-for-performance across states as well nations would suggest that pay-for-performance was successful in managing workforces. However, literature finds the opposite story. Adoption of pay-for-performance was triggered based more on subjective expectation about the success of the program among decision makers than on careful analysis and evaluation of the program (Ingraham, 1993). According to

Ingraham (1993), the effects of pay-for-performance in the private sector was not investigated until 1990, 22 years after Florida adopted pay-for-performance and 12 years after the federal government implemented the Civil Service Reform Act of 1978. This fact confirms that pay-for-performance was adopted in the public sector without a clear record of success.

The story of pay-for-performance in the public sector is more disappointing. Of the 75 state employees that GAO interviewed, 63 respondents replied that pay-for-performance was ineffective due to insufficient funding (GAO, 1990). GAO (1990) also found that pay-for-performance lowered employees' morale. Scholarly criticism on pay-for-performance also follows. For instance, Marsden and Richardson (1994) examined effects of pay-for-performance on motivation of public employees in U.K. Their findings indicated that about 60 percent of respondents agreed in principle that pay-for-performance is good and fair. However, respondents told different stories about the practices of pay-for-performance. The 80 percent of respondents disagreed that pay-for-performance has led them to improve the quality of their work; 70 percent of them disagreed that pay-for-performance led them to work harder; and only 10 percent of them agreed that pay-for-performance led them to be more effective in dealing with the public (Marsden and Richardson, 1994). Similar findings were reported. Kellough and Nigro (2002) surveyed Georgia state employees' perception on pay-for-performance, and about 70 percent of them did not agree that pay-for-performance is a good system to motivate employees. What is worse was that employees' cynicism regarding pay-for-performance leads to their dissatisfaction with the nature of work and the work environment (Kellough and Nigro, 2002). Pay-for-performance, according to their findings, not only fails to motivate employees but also causes employees' dissatisfaction.

When practices of pay-for-performance keep reporting failure of the program, why do public sector organizations including state governments adopt and implement pay-for-performance? One possible answer can be found from behaviors of decision makers in the public sector. In the public administration, it has long been a belief that a good practice in the private sector can be transferred to the public sector regardless of the differences in work settings (Ingraham, 1993; Perry and Kraemer, 1983). Likewise, policy makers in the public sectors might observe the practice of pay-for-performance in the private sector and think it is transferable to the public settings (Ingraham, 1993). Among state governments, GAO (1990) reported that the adoption of pay-for-performance was a "trend" (p. 24). Ingraham's (1993) survey reaffirmed the observation above that professional affiliation of decision makers and other states' implementation of pay-for-performance leads to the adoption of state governments' pay-for-performance. That is, the answer for why state governments adopted and implemented pay-for-performance may be that it has been diffused from one state to another.

Policy Diffusion and Pay-for-Performance: Hypotheses

According to Rogers (1983), diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system" (5). Scholars of diffusion models see the state governments in the United States as a social system and understand policy innovation as a result of policy diffusion (Berry and Berry, 2007). Berry and Berry (2007) argue that there are three reasons why states follow each other. First, they point that states learn innovations from other states where, they perceive, such innovations are implemented successfully. Second, they argued that in order to compete with other states, states take economic advantages over other states or get away from the disadvantage by emulating policies of other states. Lastly, Berry and Berry pointed Walker's (1969) argument that states tend to follow nationally or regionally accepted standard even if each state has autonomy in a federal system.

Because of these reasons, states diffuse or adopt policies from other states. In particular, the regional diffusion model contends that policies are diffused across state borders (Mooney, 2001). In other words, scholars of the regional diffusion model argue with evidence that a state is more likely to adopt a new policy if its neighbors have already adopted it (e.g., Berry and Berry 1990, 2007; Mintrom 1997; Balla 2001). A positive regional effect on policy adoption can be explained by two aspects: state's similarity and competition (Mooney, 2001). It is more likely to be true that one state shares similarity with neighboring states in terms of values, culture or policy preference (Freeman 1985; Lutz 1986; Mooney 2001; Tversky and Kahneman 1973). When confronting problems, state policymakers and citizens observe other states with similar problem in order to search for solutions, and because of familiarity, ease of communication, cross-mixing of media and population, and common values the states are likely to look their neighbors first (Wlaker1969; Cyert and March 1963; Hagerstrand 1965, Katx, Levin, and Hamilton 1963; Meyers 1998; Minitrom and Vergari 1998; Mooney 2001). After all, similarity among neighboring states due to geographical proximity increases the probability of policy diffusion.

Another reason of a positive regional diffusion is that states compete with their neighboring states by adopting good policies or by avoiding bad policies (Dye 1990;

Mooney, 2001; Tiebout 1956). Support is found from Berry and Berry's (1990) state lottery diffusion study. According to Berry and Berry, states adopted a lottery in order to prevent their citizens from buying lottery tickets from neighboring states by crossing the border. Similarly, states set standards of welfare equivalent to neighbor's standard in order to avoid influx of poor population from their neighboring states (Peterson and Rom, 1989 cited in Mooney 2001). Based on the literature, this study hypothesizes as follows:

Hypothesis 1: State governments are likely to adopt pay-for-performance as their neighboring states has previously adopted pay-for-performance.

Literature of policy diffusion suggests that increasing number of neighboring states previously adopting a certain policy and the probability of adopting the policy may not be linear (Roger, 1995; Gray, 1973; Mooney, 2001). Roger (1995) contends that the frequency of adopting an innovation follows an inverted U-shaped curve. It is normal because information about new innovations diffuse fast at the initial stage, but the learning of information or the degree of innovativeness becomes not as good as it used to be; thus, the pattern of policy diffusion tends to follow an inverted U-shaped curve (Roger, 1995). Empirical research supports the nonlinearity of policy diffusion. Gray (1973) tested policy diffusion of 12 innovative state laws in three policy areas: education, welfare, and civil rights. He analyzed the cumulative proportion of policy adopters of each policy, and found that in half of the cases diffusion of innovation followed "S" shape in its cumulative form, which means an inverted U-shaped relationship between the number of previous policy adopters and the probability of adopting the policy. Mooney (2001) replicated Berry and Berry's (1990) study, which failed to look at the nonlinearity of state's lottery adoption. His reanalysis found that regional effect is not constant; the probability to adopt an innovation is much more greatly influenced by the first one or two neighbor adopters than the last one or two neighbor adopters. If the nature of decision makers follows non-linearity of policy adoption, adoption of pay-for-performance may also follow non-linearity. Thus, this study hypothesizes as follows:

Hypothesis 2: The marginal probability to adopt pay-for-performance for one state decreases as its neighboring states keep adopting pay-for-performance.

Model, Data, and Method

Model and Data

This study investigates diffusion effects of pay-for-performance in state governments. In order to do so, this study employs the following two econometric models with two sub-models. The first model tests the absolute number of neighboring states previously adopting pay-for-performance and the probability of adoption and the second model tests the proportion of neighboring states previously adopting pay-for-performance and the probability of adoption. In each model, the first sub-model tests linear impact and the second model tests a quadratic impact with a squared term included.

1. Diffusion Effects Model with the Absolute Number of Neighbors Previously Adopted Pay-for-Performance

1-1. Linearity

$$\Pr(adoption) = f(n.neighbor, demogov, n.employee, p.union, l.sal, l.exp, l.gsp, l.inc, popmil, trend)$$

1-2. Curvilinearity

$$\Pr(adoption) = f(n.neighbor, n.neighborsq, demogov, n.employee, p.union, l.sal, l.exp, l.gsp, l.inc, popmil, trend)$$

2. Diffusion Effects Model with the Proportion of Neighbors Previously Adopted Pay-for-Performance

2-1. Linearity

$$\Pr(adoption) = f(p.neighbor, demogov, n.employee, p.union, l.sal, l.exp, l.gsp, l.inc, popmil, trend)$$

2-2. Curvilinearity

$$\Pr(adoption) = f(p.neighbor, p.neighborsq, demogov, n.employee, p.union, l.sal, l.exp, l.gsp, l.inc, popmil, trend)$$

, where *adoption* refers to whether a state adopts pay-for-performance. Variables *n.neighbor*, *n.neighborsq*, *p.neighbor*, and *p.neighborsq* denote the number of one's neighbor states which had previously adopted pay-for-performance, its squared term, the proportion of one's neighbor states which had previously adopted pay-for-performance, and its squared respectively. A variable *demogov* is a dichotomous variable coded as 1 if the governor is a democrat; otherwise coded as 0. Variables *n.employee*, *p.union*, and *l.sal*, as state employees' variables, are the number of state employees, the percentage of state employees' union membership, and their salary. A variable *l.exp* is the amount of a state government's expenditure while *l.gsp*, *l.inc*, and *popmil* are gross state product per capita, per capita income, and the number of population in million respectively. Lastly, the *trend* is time trend from 1968 to 1989. All financial variables are discounted based on the consumer price index of 1989 and transformed into a logarithm form (Wooldridge, 2009).

Each variable in the econometric models above is collected from various sources. First, GAO's report in 1990 on pay-for-performance is used to identify states with pay-for-performance. Based on the U.S. congressmen's request for pay-for-performance information, and GAO identified states with pay-for-performance, described how these states structured and operated pay-for-performance, and introduced how state officials and employees viewed pay-for-performance as of 1989 (GAO, 1990). From the GAO's report, this study finds which states had pay-for-performance and when they introduced it. Since 1989, other states have adopted pay-for-performance. In this sense, data used in this study for analysis may be outdated. However, the GAO report is the only official report to record aftermath. Furthermore, the current data used in this study include observations for 21 years across 48 states, and these pooled cross-sectional time series data may be quite reliable enough to generalize diffusion effects.

To identify neighboring states of each state, this study relies on Berry and Berry (1990). In their study, Berry and Berry report each state's neighboring states. Based on their identification and GAO's (1990) report, this study finds the number of neighboring states, numbers and proportions of neighboring states previously adopting pay-for-performance.

Data from the website of "State Politics and Policy Quarterly" are utilized in order to control governor's partisanship, gross state product, per capital personal income, and state governments' expenditure.[1]

Data on the number of state employees and averaged state employee salary are collected from the U.S. Census Bureau.[2]

Lastly, data on state employees' union membership are collected from Barry and David (2003).[3]

[1] Data are available at http://academic.udayton.edu/sppq-TPR/tpr_data_sets.html. [Accessed on June 16, 2013].
[2] Data are available at http://www2.census.gov/pub/outgoing/govs/special60/. [Accessed on June 16. 2013].
[3] More details are available at http://www.unionstats.com/. [Accessed on June 16. 2013].

Method

This study takes an event history analysis (EHA) using pooled cross-sectional time-series data. As shown in Table 1, the first state that adopted pay-for-performance is Florida. Florida adopted pay-for-performance in 1968 followed by Utah and Wisconsin in 1969. Because year1968 is the earliest year and the data is available by 1989, this study confines the analysis from1968 to 1989. Once a state adopts pay-for-performance, it is no longer a target of interest. However, if states do not adopt pay-for-performance until 1989, they remain as targets of interest. Therefore, a number of observations varies across states. A number of observations for those states with pay-for-performance is calculated as the following formula: 1989 - (year of adoption) + 1. Their dependent variable, *adoption*, is coded as 0 until the year of adoption. Once states adopted pay-for-performance, the dependent variable is coded as 1, and not coded in the following years. If states did not adopt pay-for-performance during the period, observations of 22 with the dependent variable coded as all 0 are analyzed. To analyze this type of dependent variable, pooled cross sectional time series probit model is employed with robust standard errors.

[Table 1 about here]

Results

Table 2 shows the results of the EHA models with an absolute number of neighboring states previously adopting pay-for-performance (Model 1) and its squared term (Model 2). According to the results of Model 1, a linear diffusion effect is not confirmed. However, Model 2 clearly finds non-linear diffusion effects. This finding confirms that the probability to adopt an innovative policy does not linearly increase as the number of one’s neighboring states that have adopted the policy earlier increases; rather, a state tends to adopt an innovation as its neighboring states have adopted the policy earlier than the state, but at a certain point of the number of neighboring states adopting the innovation, the state is demotivated to adopt the innovation. Figure 1 shows an inverted U-shaped relationship between the number of one's neighboring states previously adopting pay-for-performance and the probability of one's adoption of pay-for-performance based on Model 2 of Table 2. The graph shows that the positive relationship turns negative when the number of neighboring states previously adopting pay-for-performance is around 2 (the actual turning point is 2.13); that is, a state shows a tendency to adopt a new policy as its first one or two neighboring states introduce the policy. It implies that when a new policy is introduced by only a few neighbors, reaming states compete with their neighbors not to be behind the fashion of adopting an innovation. However, as more of their neighbors adopt the innovation, the remaining states may lose their incentives to adopt the new policy since the states fail to become early adopters. At this stage, states observe their neighbors' trials and errors in the policy and contemplate whether they will also adopt the policy or not. Findings support hypotheses of this study.

[Table 2 about here]

[Figure 2 about here]

Table 3 is another EHA model with a proportion of neighboring states previously adopting pay-for-performance. Diffusion models with absolute numbers of neighboring states previously adopting an innovation are limited in a way that each state has different numbers of neighbors. Thus, in order to precisely capture diffusion effects, proportions of neighboring states previously adopting an innovation need to be taken into account.

Model 3 in Table 3 tests linearity between proportion and the probability of adoption. The result fails to find a linear impact. However, Model 4 in Table 3 clearly finds an inverted U-shaped relationship between the proportion of neighboring states previously adopting pay-for-performance and the adoption of pay-for-performance. The graph of this nonlinearity is shown in Figure 2. The turning point is about 0.38. This implies that states tend to adopt pay-for-performance as proportion of their neighbors previously adopting pay-for-performance approaches up to 38 percent, but after this point, the probability declines. Findings from Table 2 and Table 3 conclude that pay-for-performance diffuses to neighboring states, but states are demotivated to adopt the program as more and more neighboring states have adopted the program before them.

[Table 3 about here]

[Figure 3 about here]

Figure 3 shows flows of pay-for-performance among states analyzed through UCINet 6.0[4] assuming that pay-for-performance diffuses. Dots indicate state governments and lines indicate flows of diffusion. Arrows indicate from where to where pay-for-performance diffuses. The graph shows that there are three independent, unconnected cliques. One clique consisting of Connecticut, Massachusetts, and New York is the one existing in the eastern U.S. Another clique consisting of Oregon, California, Arizona, Utah, and Idaho is at the west part of the U.S. The last clique consisting of other states encompasses from the north (Minnesota) to the south (Florida). In the east clique, Connecticut is an early adopter and diffuses pay-for-performance to

[4] Borgatti, S.P., Everett, M.G. and Freeman, L.C. 2002. Ucinet for Windows: Software for Social Network Analysis. Harvard, MA: Analytic Technologies.

other states. In case of the west, Utah is the early adopter, and diffuses pay-for-performance to other states in the west. The last clique is somewhat more complicated. Clearly, it is confirmed that Wisconsin is an early adopter and diffuses pay-for-performance to its neighbors. However, Mississippi and Florida are also early adopters among their neighbors, and influence their neighbors as well. It cannot be generalized through a pay-for-performance case, but policy diffusion may explain adoption of an innovation of not the whole states but some regions.

[Figure 4 about here]

Table 4 indicates out-degrees and in-degrees of diffusion. Out-degree stands for how many states the focal state diffuses pay-for-performance while in-degree denotes how many neighboring states adopted pay-for-performance from the focal state. Weighted out-degrees and weighted in-degrees are calculated by dividing raw out-degrees and in-degrees by a number of its neighbors. Results show that Wisconsin, Iowa, and Connecticut are the top three states that influence their neighbors most. California, Alabama, and Indiana are the top three states that are mostly influenced by their neighbors. Or, they may be called the most cautious states to adopt pay-for-performance; they wait to adopt pay-for-performance until their neighbors adopt and test pay-for-performance.

As for control variables, findings from Table 2 and Table 3 show that states whose employees' average salary is high and gross state product is high are less likely to adopt pay-for-performance while states whose number of state employees is high are more likely to adopt pay-for-performance. This may indicate that wealthier states are less likely to adopt pay-for-performance. Population is found to be statistically significant only when the proportion of states is controlled; states with more population are less likely to adopt pay-for-performance. The results show that political factors (governor's partisanship and employee's union membership) and some economic factors (per capita income and expenditure of state government) are not statistically influential for the probability of state's adoption of pay-for-performance. Unlike Mooney's (2001) expectation, pay-for-performance is less time-sensitive; time trend is not statistically significant.

[Table 4 about here]

CONCLUSION AN DISCUSSION

Pay-for-performance has been widely adopted throughout the states. Unlike the expectation, literature keeps reporting failures of pay-for-performance in the public sector. However, for 21 years from the initial adoption of pay-for-performance by Florida, 23 states have adopted and implemented some forms of pay-for-performance. Few clearly explained this odd practice, and Ingraham (1993) suggested a possible policy diffusion effect. Since her suggestion, no empirical studies have been conducted to apply diffusion models to the adoption of pay-for-performance in state governments. This study, adopting Berry and Berry's (1990) approach, tests a possible diffusion effects on the adoption of state governments' pay-for-performance. It is found from empirical analyses from 1968 to 1989 that as a state's neighboring states have adopted pay-for-performance, the state is more likely to adopt pay-for-performance, but it marginal increase of probability decreases as the number of neighboring states previously adopting pay-for-performance increases. It is same when proportion of neighboring states previously adopting pay-for-performance was analyzed. Moreover, it is found that there are geographical cliques of diffusion, which may propose that there are some barriers that blocks diffusion across regions. However, it is just a proposition to be investigated by future research.

Although this study clearly confirms diffusion effects, it has limitations. First, diffusion theory cannot explain what causes the first adopters to adopt a certain innovation. In this study, it is found that Florida, Wisconsin, Utah, South Carolina, Connecticut, Mississippi, and Maryland are the first adopters. Diffusion models are limited to explain for these states to adopt pay-for-performance. Diffusion theory, of course, suggests that there are non-diffusion factors to influence the adoption of an innovation (Roger, 1995). Another limitation is, the variation of pay-for-performance itself across states is not controlled. The number of employees covered by pay-for-performance varies across state governments. However, the current study fails to capture this coverage aspect. Moreover, due to data limitation, more recent adoption of pay-for-performance is not analyzed. However, current pooled cross-sectional time-series probit model may capture diffusion effects.

This study may be just another study applying a diffusion model to another policy area. However, findings and implication of the study is expected to contribute to better understanding of pay-for-performance in state governments.

Table 1. Order of States with Pay-for-Performance and Their Neighbors

Extent of Diffusion	State	Year of Adoption	Number of Previously Adopting Adjacent States	Number of Adjacent States	Proportion of Previously Adopting Adjacent States
1	Florida	1968	0	2	0.00
2	Utah	1969	0	6	0.00
2	Wisconsin	1969	0	4	0.00
4	South Carolina	1970	0	2	0.00
5	Arizona	1973	1	5	0.20
6	Iowa	1977	1	6	0.17
7	Illinois	1978	2	6	0.33
8	Connecticut	1979	0	3	0.00
8	Idaho	1979	1	6	0.17
10	Michigan	1980	2	4	0.50
11	New York	1981	1	5	0.20
11	Oregon	1981	1	4	0.25
13	Indiana	1983	2	4	0.50
14	California	1984	2	3	0.67
15	Mississippi	1985	0	4	0.00
15	Minnesota	1985	3	5	0.14
17	Arkansas	1986	1	7	0.14
17	Kentucky	1986	2	8	0.25
17	South Dakota	1986	2	6	0.33
20	Alabama	1987	2	4	0.50
20	Massachusetts	1987	2	6	0.33
20	Nebraska	1987	2	6	0.33
23	Maryland	1989	0	5	0.00

Table 2. Policy Diffusion: Number of Neighbors

Variables	(Linear Model)		(Curvilinear Model)	
	Raw Coefficient	Marginal Effect	Raw Coefficient	Marginal Effect
Number of Previously Adopted Neighboring States	0.125	0.007	0.508**	0.032
	(0.084)		(0.212)	
Number of Previously Adopted Neighboring States (squared)			-0.119**	-0.007
			(0.053)	
Democratic Governor	-0.274	-0.012	-0.241	-0.011
	(0.196)		(0.196)	
Number of State Employees (in ten thousand)	0.052*	0.003	0.051*	0.003
	(0.003)		(0.003)	
Percentage of Employees with Union Membership	-0.014	-0.001	-0.013	-0.001
	(0.015)		(0.015)	
CPI-adjusted State Employee Salary (logged)	-0.117**	-0.007	-0.124**	-0.007
	(0.056)		(0.055)	
CPI-adjusted State Expenditure (logged)	0.463*	0.027	0.462*	0.026
	(0.246)		(0.244)	
CPI-adjusted Per Capita Gross State Product (logged)	-2.123**	-0.125	-2.210**	-0.127
	(1.004)		(1.025)	
CPI-adjusted Per Capita Income (logged)	1.734	0.102	1.943*	0.111
	(1.112)		(1.171)	
Population in million	-0.116	-0.007	-0.117	-0.007
	(0.071)		(0.073)	
Time Trend	0.033	0.002	0.027	0.002
	(0.029)		(0.029)	
Constant	-32.241**		-34.530**	
	(14.940)		(15.466)	
Observations	852		852	
Pseudo R-squared	0.085		0.099	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3. Policy Diffusion: Proportion of Neighbors

Variables	(Linear Model)		(Curvilinear Model)	
	Raw Coefficient	Marginal Effect	Raw Coefficient	Marginal Effect
Proportion of Previously Adopted Neighboring States	0.123	0.007	2.069**	0.118
	(0.369)		(0.950)	
Proportion of Previously Adopted Neighboring States (squared)			-2.707**	-0.155
			(1.154)	
Democratic Governor	-0.277	-0.013	-0.250	-0.011
	(0.192)		(0.194)	
Number of State Employees (in ten thousand)	0.052*	0.003	0.052*	0.003
	(0.003)		(0.003)	
Percentage of Employees with Union Membership	-0.012	-0.001	-0.009	-0.001
	(0.015)		(0.016)	
CPI-adjusted State Employee Salary (logged)	-0.120**	-0.007	-0.130**	-0.007
	(0.058)		(0.056)	
CPI-adjusted State Expenditure (logged)	0.476*	0.028	0.459*	0.026
	(0.245)		(0.245)	
CPI-adjusted Per Capita Gross State Product (logged)	-1.789*	-0.105	-1.881*	-0.109
	(0.975)		(0.981)	
CPI-adjusted Per Capita Income (logged)	1.429	0.084	1.625	0.094
	(1.055)		(1.122)	
Population (in million)	-0.118*	-0.007	-0.120*	-0.007
	(0.069)		(0.072)	
Time Trend	0.043	0.002	0.039	0.002
	(0.031)		(0.031)	
Constant	-28.142**		-30.151**	
	(14.301)		(14.843)	
Observations	852		852	
Pseudo R-squared	0.079		0.095	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. State’s Out-degree and In-degree of Policy Diffusion

Out-degree				In-degree			
State	Out-degree	State	Weighted Out-degree*	State	In-degree	State	Weighted In-degree**
Wisconsin	4	Wisconsin	1.00	Kentucky	3	California	0.67
Iowa	4	Iowa	0.67	Illinois	2	Alabama	0.50
Illinois	2	Connecticut	0.67	Indiana	2	Indiana	0.50
Utah	2	Mississippi	0.50	Arkansas	2	Minnesota	0.40
Mississippi	2	Florida	0.50	Minnesota	2	Kentucky	0.38
Connecticut	2	Illinois	0.33	South Dakota	2	Illinois	0.33
Florida	1	Utah	0.33	California	2	Massachusetts	0.33
Arizona	1	Michigan	0.25	Alabama	2	Nebraska	0.33
Idaho	1	Oregon	0.25	Massachusetts	2	South Dakota	0.33
Michigan	1	Indiana	0.25	Nebraska	2	Arkansas	0.29
New York	1	Arizona	0.20	Iowa	1	Michigan	0.25
Oregon	1	New York	0.20	Arizona	1	Oregon	0.25
Indiana	1	Minnesota	0.20	Idaho	1	Arizona	0.20
Arkansas	1	Idaho	0.17	Michigan	1	New York	0.20
Minnesota	1	South Dakota	0.17	New York	1	Idaho	0.17
South Dakota	1	Arkansas	0.14	Oregon	1	Iowa	0.17
Kentucky	1	Kentucky	0.13	Wisconsin	0	Connecticut	0.00
California	0	California	0.00	Utah	0	Florida	0.00
South Carolina	0	South Carolina	0.00	Mississippi	0	Maryland	0.00
Alabama	0	Alabama	0.00	Connecticut	0	Mississippi	0.00
Massachusetts	0	Massachusetts	0.00	Florida	0	South Carolina	0.00
Nebraska	0	Nebraska	0.00	South Carolina	0	Utah	0.00
Maryland	0	Maryland	0.00	Maryland	0	Wisconsin	0.00

* Raw out-degree divided by number of neighbors
** Raw in-degree divided by number of neighbors

Figure 1. The Outcome Line for Pay-for-Performance Program

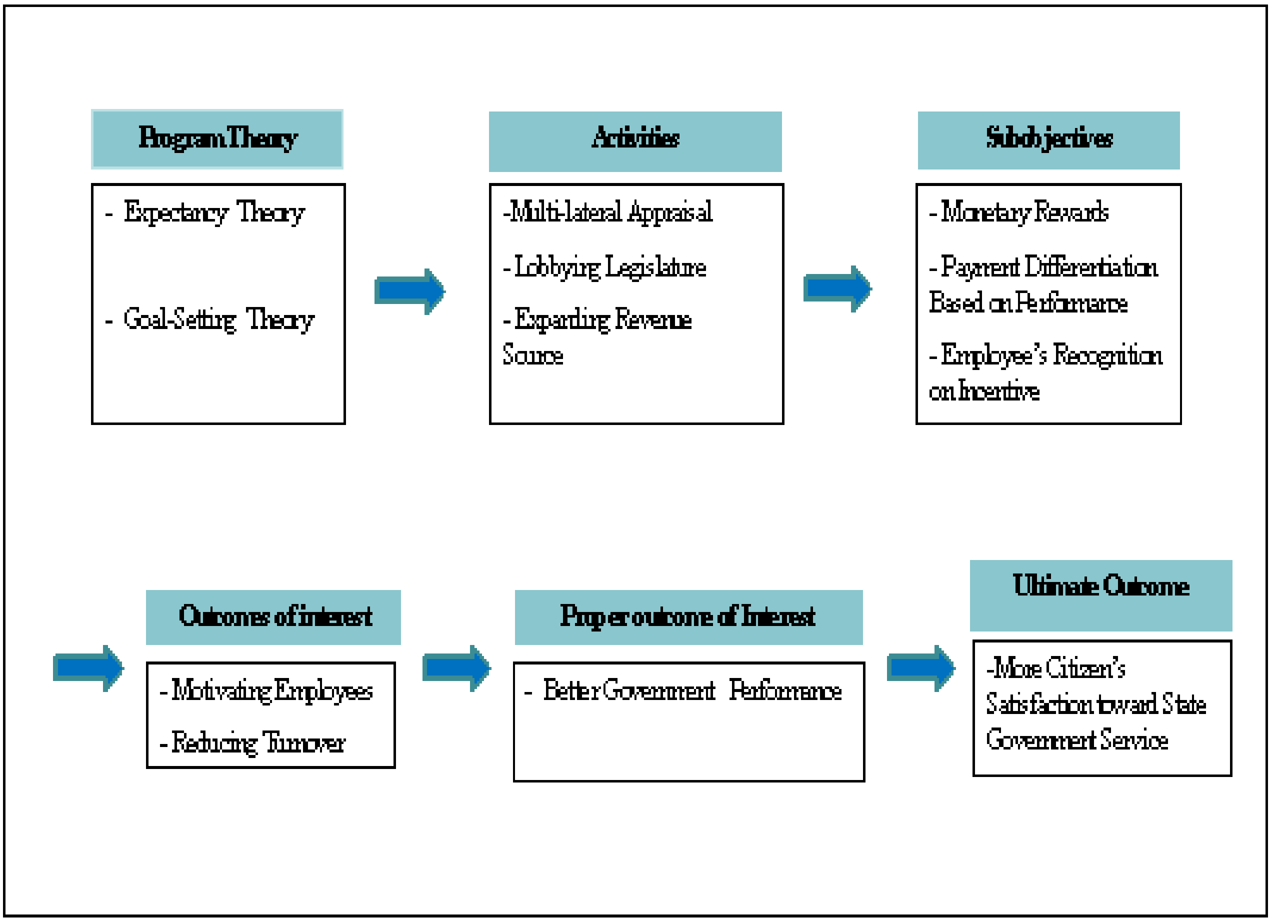

Figure 2. Impact of Number of Neighbors

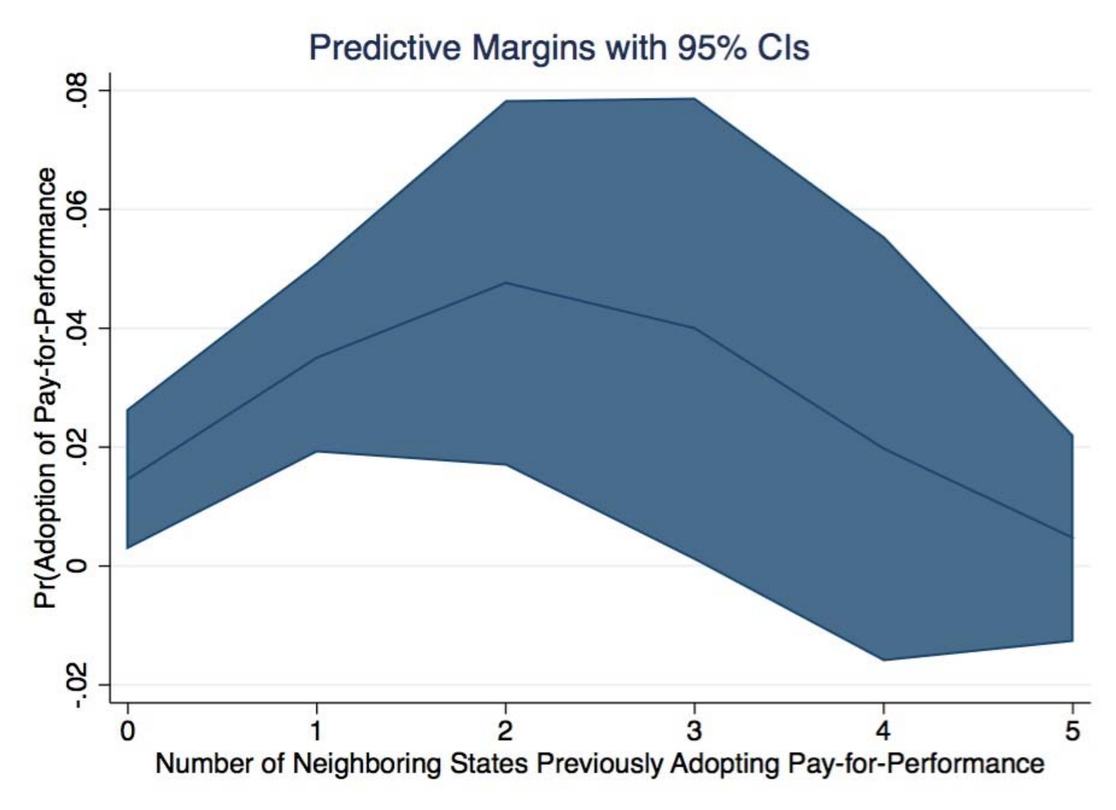

Figure 3. Impact of Proportion of Neighbors

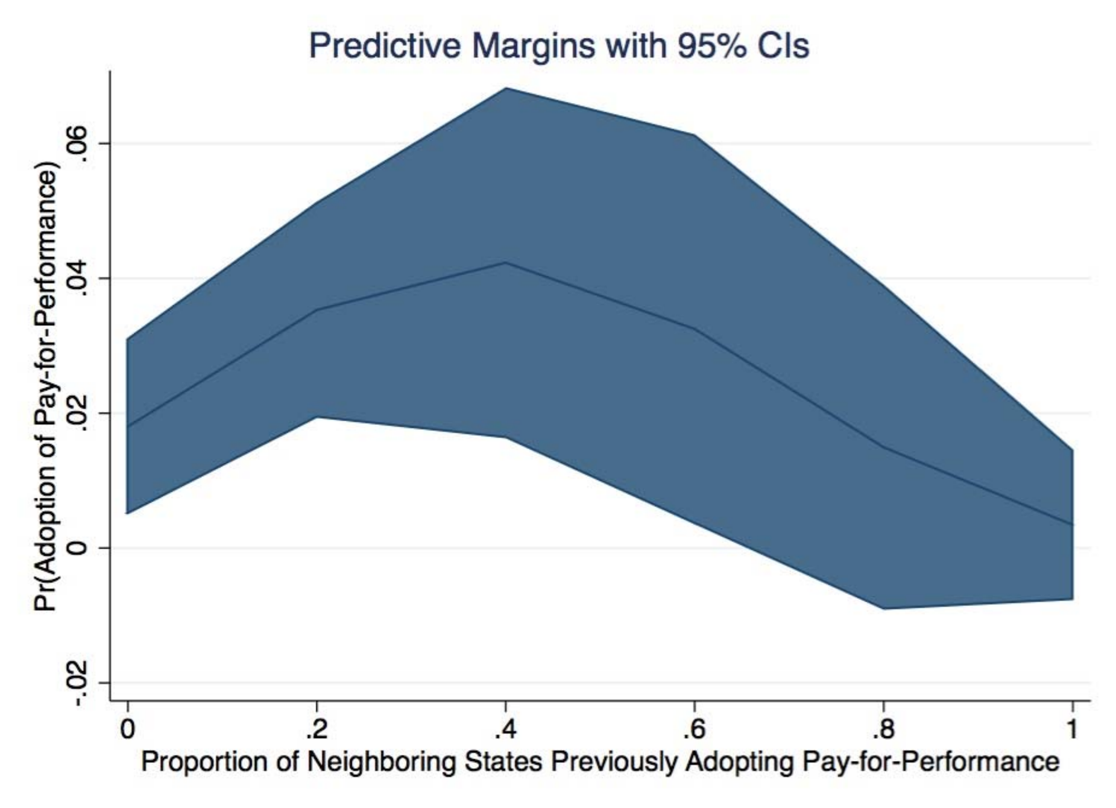

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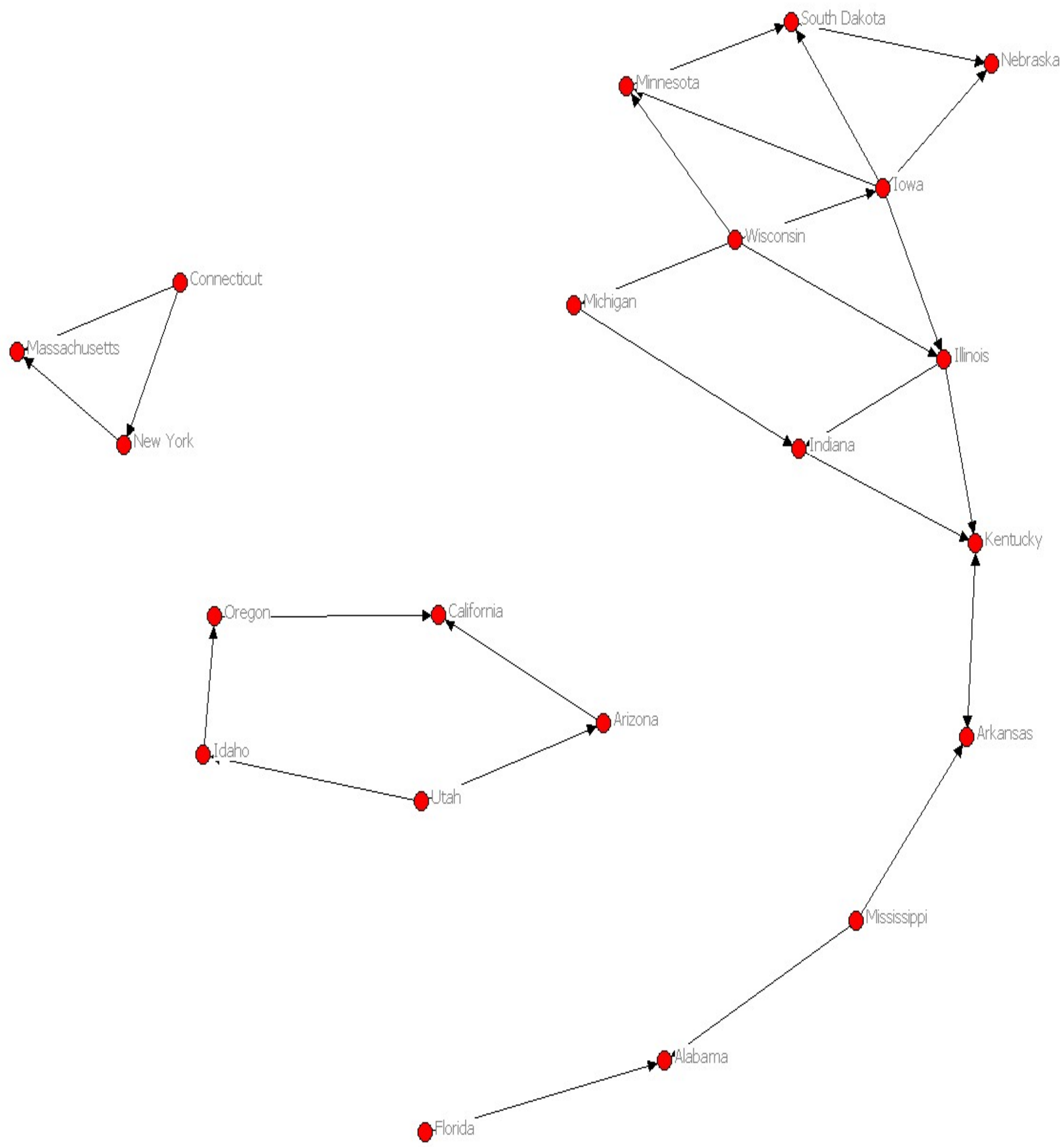
Figure 4. Directions of Pay-for-Performance Diffusion



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