

The Determinants of Government Environmental Performance

An Empirical Analysis of Chinese Townships

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Abstract

This paper explores the determinants of government environmental performance at the local level. Chinese township governments, the lowest level in the hierarchical government structure, were selected for this exercise. The performance indicators used in the analyses include the efforts of enforcing government environmental regulations and of providing environmental services to polluting enterprises. The performance determinants identified include environmental performance of upper-level governments, local development status, industrial employment, income of workers in polluting enterprises, local environmental quality, and public pressure for environmental quality improvement. A survey of 85 townships and interviews of 151 township government leaders were conducted in three provinces of China. The statistical results show that:

- The environmental performance of upper-level governments in China strongly and positively influences the environmental efforts of the township governments.

- Public pressure has created incentives for the township governments to improve their efforts in both enforcing environmental regulations and providing environmental services, while the environmental quality did not show significant impacts.

- Higher employment in industries tends to have a negative influence on the regulatory enforcement, but a positive influence on environmental service provision.

- A higher enforcement effort and a lower service provision are associated with higher wages the workers received from industries. This implies that the industries offering higher wages to the workers are subject to more stringent environmental enforcement but receive less environmental services.

- Richer townships tend to have less regulatory enforcement but better environmental services.

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1. Introduction

In order to better understand and improve environmental performance of government, a number of studies have been conducted on the determinants of environmental governance. Public choice theory has been generally employed to address the influence of interest groups on environmental governance (e.g., Stigler, 1971; Becker, 1983; Keohane, 1998), and it is assumed that political interest groups are self-interested utility maximizers. Because of the public good characteristics of environmental regulation, some argue that environmental policies can hardly be fully enforced. Pure environmental interest groups are difficult to organize, while other interest groups may favor environmental benefits only because they have some other rents to seek (Schneider and Volkert, 1999).

The volume of empirical tests on the determinants is relatively small due to the complicated nature of policy makers' interaction with interest groups and the difficulties in quantifying the political supports. Studies by Magat, Krupnick and Harrington (1986) developed a model to empirically test the determinants of the U.S. EPA's effluent standard setting and suggested that neither economic efficiency nor industry participation in the rulemaking process is influential. Instead, trade association that represented the affected industries and also the profitability of the industries exerts great impacts in the standard setting. Cropper et al (1992) in their analysis on U.S. EPA decision making suggest that the intervention by business and environmental groups is significant. Dion et al (1998) found that the regulators' behavior is a function of variables that may not be directly related to abatement cost and damages, but one affected by local labor market conditions.

So far, there seem no substantial studies conducted in developing countries. It is not clear when a local government faces various issues such as pollution, poverty, pressures from industries, residents, upper level governments, and international communities, which factors have actually influenced the enforcement of environmental policies and how. A better understanding of these issues would greatly help design and implement policy measures to improve environmental governance in developing countries.

This study focuses on environmental performance of Chinese township government, the lowest level of government in the Chinese hierarchical government structure, and identifies the determinants. The performance indicators employed in the analyses include the efforts of enforcing government environmental regulations set by the upper-level government agencies and the efforts of providing environmental services to polluting enterprises. The performance determinants identified in this study include environmental performance of upper-level government, local development status, industrial employment, income of industrial workers, local environmental quality, public pressure for environmental quality improvement, etc.

A survey of 85 townships and interviews of 151 township government leaders are conducted in three provinces of China in the year of 2000. The empirical results are generally consistent with expectation. The environmental performance of upper-level government agencies in China is strongly and positively influencing the environmental efforts of the township governments. Public pressure has created positive incentives for the township governments to improve their efforts in both enforcing environmental regulations and providing environmental services, while the environmental quality did not show significant impacts. Higher employment in industries tends to have a negative influence on the regulatory enforcement efforts but a positive influence on environmental services. However, a higher enforcement effort and a lower service effort are associated with higher wages the workers received from industries, which implies that in an area where industries can offer higher wages to the workers, the industries are subject to more stringent environmental enforcement and receive less environmental services. This

would not support a theory that richer polluters have stronger bargaining or lobbying power in environmental protection in China; in fact, the situation is the opposite. And finally, richer townships tend to have less regulatory enforcement but better environmental services by the township governments.

The next section of this paper will discuss the issues of environmental governance in China and provide a background for analyses. Section 3 presents the survey and the survey statistics. A reduced econometric model is presented and discussed in Section 4, while the modeling results are provided in Section 5. Section 6 concludes the paper with discussions and summaries.

2. Environmental Governance in China

Over the last two decades, confronted with increasingly serious environmental threats, China's central government has continued to stress the importance of environmental protection by putting enormous efforts and considerable amount of resources. A relatively comprehensive environmental law and regulatory system has been established by the central government, and various national policy programs have been designed and implemented in order to achieve its environmental quality goals².

Due to the great heterogeneity in various regions of China, Chinese local governments have plenty of discretion powers in local administration by directing local economic development and providing public services³. Environmental Protection Bureaus (EPBs) are created from provincial to municipal and county level governments. They are the major departments of local government responsible for making and implementing environmental regulations and deal with enterprises. The people's

² The policy programs include Environmental Impact Assessment, Three Synchronizations, Pollution Levy System, Pollution Control within Deadlines, Discharge Permit System, Environmental Responsibility System, Assessment of Urban Environmental Quality, and Centralized Control of Pollution. For more discussions, see Ma & Ortolano (2000).

congresses at all levels make environmental statutes and review the work of EPBs. EPBs receive budgets from the corresponding local governments and collect fees from enterprises in their jurisdiction such as the pollution charges.

Despite the strong environmental protection efforts, the environmental quality in China is generally getting worse and worse. One notorious phenomenon is that the industrial pollution has vastly expanded from the urban to the rural areas in the past two decades. The burgeoning of township and village industrial enterprises (TVIEs) in China has boosted economic growth however leads to serious damages to the environmental qualities in rural China. Nationwide, the total output of those 1.2 million TVIEs has exceeded 50% of the total industrial output of the country, but usually TVIEs don't have advanced production technologies and pollution treatment facilities, and have generated more than 50% of the total industrial pollution.

A township government, as the lowest level of government in China, does not have EPBs. The major environmental responsibility of a township government is to help municipal and county EPBs enforce environmental regulations and provide environmental services to industries in its jurisdiction. Many small and scattered TVIEs are not targeted by formal environmental regulation programs, and mostly it has been the responsibility of the township government to push for pollution abatement. However, the township governments have been viewed more as the protectors of the interests of the economy in their jurisdiction when facing environmental enforcements from the upper level governments. To protect for its industries, a township government can either spend less efforts in helping enforce environmental regulations, such as spending less efforts in collecting pollution discharge fees, or negotiate with municipal and county EPBs for less penalties charged on the polluters.

The pollution victims are mainly local residents and they sometimes file complaints to the government. Studies in China have shown that local environmental

³ Article 16 of Chapter 3 of the Environmental Protection Law of China states that: the local people's governments at various levels shall be responsible for the environmental quality of areas under their

policy enforcement is responding to local public demand for cleaner environment and economic development (Wang and Wheeler, forthcoming). Unlike the urban residents, due to the lack of consciousness and the lack of multiple media vehicles, these rural Chinese people usually do not respond as actively to the local environmental pollution or damages, and rely on their township governments to protect the environment. There are very few really organized environmental groups. But still, the township government leaders do feel the public pressures from the local residents.

3. The Survey

In order to understand and improve the environmental performances of industries and governments in rural China, in 2000, we conducted a survey of 85 townships and interviews of 151 township leaders⁴. The survey covers three areas in China: Danyang Municipality of Jiangsu Province, Liupanshui Municipality of Guizhou Province and the northern area of Tianjin Municipality. Danyang is located close to Yangzi River within the coastal area of China, which enjoys favorable geographical conditions and economic policies. Overall, it has the best agricultural and industrial development among the three sample areas. Liupanshui is located in west Guizhou, which is a poor inner province of southwest China. It is one of the areas where many heavy industries have been developed. Those inefficient enterprises have been producing severe pollution to the environment. Tianjin is one of the four municipalities in China that are administered directly by the central government. It is very close to Beijing. The TVIEs in Tianjin have produced more than 85% of total rural income, but many of these TVIEs are heavy polluters. Most of the industries are still non-private enterprises. Tianjin has strong desire to attract more investment, but its infrastructures are not well developed.

There are complete data from 25 townships of Tianjin, 31 townships of Danyang and 29 townships of Liupanshui. For each township, the socio-economic and

jurisdiction and shall take measures to improve the quality of the environment.

environmental statistics in the year of 1999 were compiled. The major variables are listed in Table 1, and the selected variables in the three areas are listed in the Table 2 for comparison.

In each township, two leaders were interviewed. The leaders were asked questions about their perceptions and attitudes towards a certain socio-economic and environmental issues. Most of these leaders have more than five years of experience working at the townships, and are on average better educated than most township residents. They reported the increasing consciousness about environmental issues, and are quite optimistic about the future improvement of environmental status in rural China. Many leaders put environmental protection as one of the top two priorities for their townships (Table 3). Although there could be bias due to the theme of the survey that is about environment, it is still a quite encouraging finding that the leaders of township governments in China, especially of those wealthier townships, have become to recognize the very importance of environmental protection.

4. The Model

4.1 Major Determinants

According to the common agency theory introduced by Grossman and Helpman (1994), the incumbent government that determines the implementation of environmental policies pursues its own goals. From this point of view, we can look at the local governments as maximizers of the sum of aggregate social welfare and political contributions from different interest groups. Besides the severity of local environmental problems, three other aspects of influences on China's township governments' discretion on environmental protection effort can be identified: industrial group, citizen group and the upper level governments.

⁴ The survey was conducted in collaboration with China State Environmental Protection Administration

4.1.1 Political pressures from industries

Although there are no well-identified lobby groups as in elected governments, when making decisions on the stringency of environmental enforcement, China's township governments may still consider the responses from the local industries. For historical reasons⁵, Chinese township governments had been the actual owners of many collective enterprises under its jurisdiction with a claim on the profits of these enterprises (Wong, 1997; Oi, 1999; and Whiting 2001). The local governments' administrative budget and officials' income to some extent depend on the prosperity of these enterprises. This fiscal system creates a lot of desire of the township governments to put more efforts in economic development. In addition, local workers' satisfaction with wage and employment status is a guarantee for social stability. Once the enforcement of environmental regulation imposes threats to the profits and survival of the polluting industries, the township governments will be confronted with substantial pressures.

4.1.2 Public pressure for improving environmental quality

In Chinese townships, there is a clear trend of increasing public pressures on environmental protection although the residents do not have many actually organized environmental groups. They express their discontent mostly through complaining letters or telephone hot lines, and sometimes they also pay visits of government offices (Dasgupta and Wheeler, 1996). Chinese media have also played some significant roles in pressing the local governments for further environmental protection by reporting pollution information to public.

4.1.3 Pressures from the upper level governments

The township governments' behavior is also shaped by the cadre evaluation system in China. The performance criteria of the cadre evaluation system is set by the

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upper level (in this case the county level) government to make the township party and government leaders responsible for the performance of administration. Typically, different weights are put on economic and other public services, which reflect the priorities of county leaders, and the township leaders will be judged by the criteria for promotion or demotion. Whether environmental protection is on the priority list depends on the circumstances of specific townships. As a part of their responsibilities, the township governments should make efforts to reduce or control environmental degradation even when environment protection may not appear on their top priority list. When the upper level government inspect the polluting enterprises or provide environment-related services, the township government may also put considerable efforts to take similar measures.

4.1.4 Other factors

Oates and Schwab (1988, 1991, and 1996) construct a series of models in which local jurisdictions compete for mobile capitals in order to increase the local wage income and to expand the local tax base. Their models predict that public services, including environmental goods, will be under-supplied in the inter-jurisdiction competition. Qian and Roland (1998) in their study on China argue that in the inter-jurisdiction competition for foreign capital and grants from the central government, local governments will have incentives for too much infrastructure investment and too few local public goods investment for a given budget. However, the pressure of township government in competing for mobile capital should be a relatively trivial factor in determining the environmental performance at the level we look at in this study, because of the small scale of a town and the very limited budget with a township government.

The determinants discussed above are not exclusive but complementary. All may contribute to the results of local governments' revealed preference for environmental governance. It should be an important task to clarify the causal effects of these factors,

⁵ The abolition of People's communes in 1983 reinstated the township as a level of rural government. (Wong, 1997) The situation is changing when more and more TVIEs are privatized in recent years.

and inform interest groups in China, as well as in other countries and communities, the relevant influence of the determinants.

4.2 Hypotheses

Most of the public choice models are based on the assumption of elected government, and the “private” motivation of local government is confined to seeking political supports for being reelected. The motivations of local governments in China may deviate from this assumption. Nonetheless, as we discussed in the previous section, local governments may still seek to maintain the balance of interests of various groups and reduce political frictions when enforcing environmental policies, if we define the interest groups as those who exert pressures on the overall implementation of environmental policies, i.e. the industrial groups, upper level government and the residents.

The effort of enforcing environmental policies can be viewed as one proxy of governments’ environmental performance at the township level. While making new environmental regulations is usually beyond the responsibility of a township government, helping the municipal and county EPBs enforce the existing regulations is clearly a mandate for a township government. Township government leaders can help put stronger pressures on the industries for further pollution abatement by paying visits to polluting companies, doing pollution inspections or collecting pollution charges or fines.

Another proxy for environmental performance of township governments is the provision of environmental services to the polluting companies, such as technological information, training, and consulting services, etc.. These services are normally provided with the government budget.

Overall we would expect:

Hypothesis 1: The more severe the environmental problems are, the more seriously a township government will consider the environmental protection work, and therefore the higher efforts in environmental enforcement and the more environmental services they will provide.

Hypothesis 2: The richer the polluting plants, or the better the industrial development, the less a township government will be concerned about industrial development, and therefore, the higher efforts in enforcing environmental protection. The impact of industrial development on the provision of environmental services may be an empirical issue, because the better the industrial development, the more advanced technologies they will use and therefore the less the environmental services are needed, however, the more budget a township government can use to provide the services. This is somehow different from the cases with elected governments, where the richer the polluting plants, the more money they can spend in lobbying, and therefore, the less efforts a government may spend on environmental enforcement. But this later hypothesis is not tested either.

Hypothesis 3: Public pressures should push a township government to spend more efforts to enforce environmental regulations and provide environmental services to polluting firms.

Hypothesis 4: If the upper level governments make more efforts in environmental protection, a township government would put more emphases on environmental enforcement and services too.

4.3 Econometric models

The test of the hypotheses listed above can be conducted with the following reduced-form econometric model:

$$P = \beta_0 + \beta_1 UP + \beta_2 GDP + \beta_3 Emp + \beta_4 Wage + \beta_5 PP + \beta_6 Q + \beta_7 Location + \varepsilon$$

Where

P is the environmental performance of township government;

UP is the environmental performance of upper level governments;

GDP is the per capita GDP of a township;

Emp is the ratio of employment in industries;

Wage is the wage of workers employed in industries;

PP is public pressure;

Q is environmental quality of last year;

Location is a dummy variable for sample areas;

β 's are the coefficients of the explanatory factors;

ε is the error term.

The dependent and explanatory variables are constructed as follows:

Environmental Performance:

As discussed in last section, there are two proxies for this dependent variable. One is constructed by dividing the number of township leaders' visits / inspections on polluting enterprises by the number of industries (VISITTOWN), which indicates the effort of enforcing environmental policies. The other is the effort of environmental service (SERVTOWN). In the leaders' interviews, we asked the leaders the existence of various environmental services, from which we get binary (0-1) variables: Training of industrial managers by the township government, training of industrial workers by the township government, consulting services by the township government, information services by the township government, and financial support. We add up these variables and derive as the proxies for the services provided by township level government (SERVTOWN).

Upper Level Government Performance:

We use the frequency of inspections on polluting enterprises by upper level government (VISITUP) as the proxy of upper level government influence in enforcement equation. It is constructed from dividing the total number of national, provincial, county and regular inspections on polluting enterprises by the number of polluting enterprises in a township.

For the service equation, we aggregate the five variables of county level services: training, consulting, information, and financial support and derive the proxies for the services provided by county level government (SERVEUP). In order to control for the similar services provided by other organizations or academia, a variable SERVOTH is also constructed in a similar manner.

GDP

GDP per capita reflects the level of economic development and the wealth of the town, and is correlated with the township government budget.

Employment:

Variable Employ is constructed as a percentage of adult population employed in industries. This variable tells us about the level of industrialization of a township, and it is also related to the capacity of absorbing labors of the industrial enterprises. Therefore, it reflects the pressure from the workers when the enforcement of environmental policy could affect their employment status and in turn the social stability.

Wage:

Wage of workers reflects the richness of the group of people employed by industries. The richer the workers, the more power they would have to lobby, but the less

protection they may receive from a government in enforcing environmental policies and in providing environmental services.

Public Pressure:

In the leaders' survey, questions are asked about how they felt the public pressures on the township government in pollution control. A variable *PRESSURE* is defined to be equal to 1 if the leaders feel no pressure, 2 if they feel some pressure and 3 if they feel strong pressure. For the enforcement equation, the variable *PRESSURE* is averaged for each township because the dependent variable of the enforcement equation (*VISITTOWN*) is at the level of township.

Environmental quality:

We use the annual average concentration of sulfur dioxide (SO_2) and total suspended particulate (TSP) in the last year as the control variables of the township environmental quality.

Data in the year of 1999 are used for the analyses. When there are missing values, 1998 data are used. The descriptive statistics of the variables for the enforcement equation and the service equation are list in Table 4 and Table 5 respectively.

5. Results

The results of OLS regressions with robust standard errors are presented in Table 6. The sample size puts a severe constraint on the precision of our statistic analyses. For the enforcement equation, 68 townships can enter into the regression; for the service equation, answers from 144 township leaders can be used for the modeling. However, the existence of substantial variance in the townships we surveyed still enable the tests of the hypotheses and leads to some important findings:

The performance of the upper level government is significantly, positively correlated with that of the township government. When the county level government or other organizations provide more environmental services, or there are more environmental inspections on the local enterprises by the upper level governments, there will be more pressure on or collaboration from the township government.

Although not very significant, we found that the signs of coefficients of public pressures are as expected, with more efforts of environmental enforcement and more government provision of environmental services under a higher public pressure.

Employment also has signs as expected. When economic and environmental factors are controlled, more employment in the industries is associated with less enforcement of regulations and better services from the township government. The township governments want to protect the employment in the industries and maintain the social stability.

Worker's wage has a significant positive sign in the enforcement equation and a significant negative sign in the service equation; this is also as expected. The township governments in China put higher pressure on rich firms for pollution abatement but provide less environmental services.

GDP per capita has a negative, insignificant impact on enforcement efforts, but has a significant positive effect on environmental services. This can be understood as that, the higher the GDP per capita, the richer the township government, and therefore the more environmental services the township governments can provide to polluting enterprises, and the less likely the government would use regulatory approaches to force pollution control.

Poor air quality does not impose great pressures on the enforcement efforts or the provision of environmental services. Environmental quality should be endogenous in the

equations, because it is also determined by the township government's environmental performance. The air quality data in the previous year (i.e., 1998) are used in the analyses, which should have helped solve some of the endogeneity problem.

6. Summary and Discussion

This paper explores the determinants of government environmental performance at a local level. Chinese township governments, the lowest level of government in the Chinese hierarchical government structure, are selected for this exercise. The performance indicators employed in the analyses include the efforts of enforcing government environmental regulations and the efforts of providing environmental services to polluting enterprises. The performance determinants identified include environmental performance of upper-level governments, local development status, industrial employment, income of workers in polluting companies, local environmental quality and public pressure for environmental quality improvement, etc.

A survey of 85 townships and interviews of 151 township government leaders were conducted in three provinces in China. The statistical results show that the environmental performance of upper-level governments in China has strongly and positively influenced the environmental efforts of the township governments; public pressure has created positive incentives for the township governments to improve their efforts in both enforcing environmental regulations and providing environmental services, while the environmental quality did not show significant impacts; higher employment in polluting industries tends to have a negative influence on the regulatory enforcement efforts but a positive influence on providing environmental services; a higher enforcement effort and a lower service effort are associated with higher wages the workers received from polluting industries, which implies that industries offering higher wages to the workers receive more stringent environmental enforcement and less environmental services; and finally, richer townships tend to have less regulatory enforcement but better environmental services.

The results above at least suggest two important avenues that can help improve the environmental performance of China township governments, and therefore improve the overall environmental qualities in the rural areas of China. One avenue is through the upper-level governments. Capacity building of environmental authorities in the county and municipal level governments is one of the keys to the improvement of environmental performance of county and municipal governments and can help improve the town governments' environmental performance. The other channel is through public pressure. Environmental information disclosure, environmental education, establishment of environmental non-government organizations, establishment of public participation mechanism or programs for environmental protection may all be effective means to enhance the capacity for the public to generate pressures on the township governments as well as on the polluting firms. Capacity building of local environmental authorities and empowerment of the public with better information and education can be two of the most important ways to improve the environmental governance in China as well as in other countries.

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**Table 1. Socioeconomic and Environmental Background of the Townships
(1999 Data)**

Variable	Obs	Mean	Std. Dev.	Min	Max
Urban Area (hectare)	69	59.4	47.7	10	270
Agricultural Area (hectare)	71	2,130	4,225	40	32,146
Population	75	43,247	93,091	7,103	800,879
Number of people employed in industries	75	4,428	3,459	250	15,898
Number of farmers	68	13,090	11,132	1,056	51,737
Illiterate rate (%)	60	2.6	4.9	0	35
Average Life expectancy	63	74.2	6.0	61	90
GDP (10,000yuan)	73	51,569	56,973	1,642	255,285
Per capita GDP (10,000 yuan/person)	73	1.79	2.10	0.09	11.5
Industrial GDP(10,000yuan)	74	47,719	59,112	362	239,462
Farmers' annual average income (yuan/year)	71	3,002	1,617	365	7,504
Workers' annual average income (yuan/year)	75	5,643	1,850	1,200	10,500
Total Number of industries	74	252	495	5	4072
Waste water emission (10,000 tons)	73	367	1,416	1	11,071
COD emission (ton)	73	304	1,417	1	11,857
TSS emission (ton)	72	953	4,686	1	38,768
Air pollution emission (10,000 m ³)	66	138,759	424,082	30	3160,558
SO ₂ emission (ton)	73	1,755	9,659	1	81,042
Pollution levy collected(10,000yuan)	73	24	78	1	648
Township inspections on polluting enterprises	71	10	22	1	180

Table 2. Comparison of the townships in three provinces

Mean	Liupanshui	Tianjin	Danyang	Total
Per capita GDP (yuan 10,000)	0.51	2.93	2.42	1.79
Industrialization (industrial GDP/total GDP)	0.54	0.75	0.68	0.65
Industrial Employment / adult population	0.13	0.22	0.26	0.20
Workers' annual average income (yuan)	4,631	6,709	5,951	5,643
Township inspections per polluting firm	0.13	0.02	0.22	0.14
Capital of private-owned firms / industrial GDP	0.59	0.13	0.38	0.41

Table 3. Top two priorities for the townships

%	Poverty	Education	Medicare	Environment	Employment	Safety	Transportation
Liupanshui	60.3	55.2	8.6	19.0	29.3	3.4	24.1
Tianjin	12.5	35.4	12.5	43.8	52.1	22.9	10.4
Danyang	24.6	19.7	21.3	57.4	39.3	23.0	9.8
Total	33.5	36.5	14.4	40.1	39.5	16.2	15.0

Table 4. Descriptive Statistics of Variables in the Regressions

Variables	Definition	Obs	Mean	Std. Dev.
VISITTOWN	Visits per firm by township leaders	71	0.14	0.28
VISITUP	Visits per firm by upper level governments	74	0.34	0.63
PCGDP	Per capita GDP (10,000RMB)	73	1.8	2.1
LNWKI	Log annual average workers' income	75	8.6	0.4
EMPLOY	Percentage of adult population employed by industries	75	20.1	15.3
PRESSURE	Public pressure	74	2(median)	0.4
RANKSO2	Sulfur dioxide concentration rank	75	3(median)	1.8
RANKTSP	Total suspended particulates concentration rank	75	5(median)	1.4

Table 5. Statistics of Environmental Services

Questions	Answers
Training of industrial managers by township	=1 YES 117 =0 NO 34
Training of industrial managers by upper level governments	=1 YES 136 =0 NO 15
Training of industrial managers by other organizations	=1 YES 78 =0 NO 73
Training of industrial workers by the township	=1 YES 103 =0 NO 48
Training of industrial workers by upper level governments	=1 YES 99 =0 NO 52
Training of industrial workers by other organizations	=1 YES 74 =0 NO 77
Consulting services by the township government	=1 YES 135 =0 NO 16
Consulting services by upper level governments	=1 YES 141 =0 NO 10
Consulting services by other organizations	=1 YES 94 =0 NO 57
Information services by the township government	=1 YES 108 =0 NO 43
Information services by upper level governments	=1 YES 120 =0 NO 31
Information services by other organizations	=1 YES 89 =0 NO 62
Financial support by the township government	=1 YES 95 =0 NO 56
Financial support by upper level government	=1 YES 101 =0 NO 50
Financial support by other organizations	=1 YES 66 =0 NO 85

Table 6. Regression results for government performance

Explanatory Variables	Dependent Variables	
	VISITTOWN	SERV TOWN
VISITUP	0.19* (0.12)	-
SERVUP	-	0.48*** (0.00)
SERVOTH	-	0.14*** (0.04)
LNWKI	0.16* (0.11)	-1.02*** (0.01)
EMPLOY	-0.13 (0.40)	1.04 (0.25)
PCGDP	-0.02 (0.23)	0.07* (0.14)
PRESSURE	0.07 (0.36)	0.37* (0.14)
RANKSO2	0.06 (0.26)	-0.07 (0.63)
RANKTSP	-0.0005 (0.99)	0.04 (0.58)
Danyang dummy	0.24 (0.31)	-0.16 (0.83)
Tianjin dummy	0.11 (0.58)	0.37 (0.61)
Constant	-1.70** (0.098)	9.02*** (0.005)
Obs.	68	144

* Significant at the 0.15 level; ** Significant at the 0.10 level; *** Significant at the 0.05 level

Note: the P-values are listed in the brackets. SERV TOWN, SERVUP and SERVOTH are the summations of the service answers listed in table 5 by township government, upper level government and other organizations respectively.

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