

*Do Types of Public Services Matter? Evidence from  
the Expenditures of Direct versus Population-based  
Public Health Services in Georgia Counties*

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**Do Types of Public Services Matter? Evidence from the Expenditures of  
Direct versus Population-based Public Health Services in Georgia Counties**

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# **Do Types of Public Services Matter? Evidence from the Expenditures of Direct versus Population-based Public Health Services in Georgia Counties**

## **Abstract**

The American state of Georgia has a decentralized public health system, with county health departments providing services in cooperation with 18 regionally organized public health districts. Drawing upon the policy typology literature, this paper examines differences in public health expenditures on direct versus population-based services. For direct services that benefit particular individuals and groups, influences by local organized interests might be a relevant factor in the expenditure decision-making process. On the other hand, coordination at the district level is expected to be more important in population-based services which have spillovers across counties. An analysis using county-level expenditure data reports some supporting evidence.

*Key words:* policy typology, direct public health services, population-based public health services, public health districts

# **Do Types of Public Services Matter? Evidence from the Expenditures of Direct versus Population-based Public Health Services in Georgia Counties**

## **INTRODUCTION**

The question of what determines public expenditures of local governments is a highly relevant one in times of performance measurement and accountability. Answering the question requires a well-developed model of indicators of determinants and resultant differentiation of expenditures. In the public health policy area, which is the focus of this paper, public health financing has drawn little attention from academics and practitioners even in the wake of health-care reform efforts (Leviss and Novick, 2004). Even with the most recent health care reform effort in the United States, expenditure decisions of public health at the state and local levels are largely ignored. Because of the underdevelopment of public health finance, it has been an unachievable mission to systematically understand both how public health expenditure decisions are made and the linkage between expenditure decision characteristics and expenditure amounts and their community impacts.

However, a recent development in public health finance (Hepburn et al., 2007), which tries to capture the relationship between budgetary and expenditure decisions and their resultant characteristics regarding public health expenditures, makes it possible to examine the factors that are involved in public health expenditure decisions and the effects their presence in the decision-making process has on the expenditures. Using the National Association of State Budget Officers (NASBO) and the Reforming States Group's categories of public health services upon which the framework depends (NASBO, 2003, 2005), this paper attempts to examine potential differences in the expenditure decision-making processes

in terms of different types of public health services.

In the NASBO categories of public health services, there are two primary types of expenditures: direct public health-care services and population-based health services.<sup>1</sup> Direct services include personal health-care expenditures made in local health clinics such as pharmaceutical assistance for the elderly; administration costs of immunization; chronic disease hospitals and programs; Women, Infant, and Children's (WIC) services; and pregnancy outreach and counseling. Direct services are further sub-categorized according to target populations into Women and Children, Chronic Disease and Aging, and Vulnerable Population. While direct services deal mainly with specific individuals or groups of individuals, population-based services involve mainly the population in general. Population-based services expenditures include funding for such functions as protecting the population and assisting with behavioral and lifestyle changes in the population. These functions include prevention of epidemics, environmental health, chronic disease control (prevention), disaster preparedness and response, and health infrastructure.

According to the policy typology literature, especially those studies that capture the distributive characteristics of costs and benefits of a public policy (Wilson, 1973), factors involving the expenditure decisions of these different types of services may be different, having differential effects on the expenditures. Since direct services target specific individuals and groups, their benefits should be concentrated on small (possibly well-organized) groups. Moreover, the delivery of direct health services functions in the health-care model that is not substantially different from the private health-care system. Therefore, for the direct services, influences by local organized interests might be a more relevant factor in expenditure decision-making since this type of services benefits specifically defined groups of individuals. Direct benefits from public health expenditures might give those beneficiaries incentives to become actively involved in the decision-making process. On the

other hand, population-based services such as those involving chronic disease prevention (control) target the population in general, which organized interests may have less incentive to influence since the benefits from these expenditures are diffused throughout the entire population. In addition, a specific local government's population-based public health issues have the characteristic of spilling over to other jurisdictions. Therefore, coordination by the state or provincial government (for example, the Georgia Division of Public Health (GDPH)) in population-based public health decision-making will have higher relevancy than in direct public health decision-making.

To examine the influences of different types of public services on public health expenditures, this paper utilizes NASBO-coded community public health expenditures and revenues (known as the Unified Accounting System or UAS) data for the State of Georgia. Georgia has a partly decentralized system of public health with the main responsibility of service delivery placed on the local health departments (LHDs) and local boards of health at the county level. There are 159 counties with as many LHDs. These local health departments are regionally organized into 18 districts under the leadership of GDPH. While the country governments have influence on the appointment of district directors, the director of a public health district supervises the operation of LHDs, providing oversights. The directors are also involved in the local health planning process. In essence, the directors are at the center of the decision-making, implementation, and evaluation of local public health service provision, yet they have no direct role in day-to-day operational expenditure decisions at the local level. This governance aims to achieve not only individually diversified services delivery across country, but also stat-wide policy initiatives through districts.<sup>2</sup>

The remainder of this paper is organized as follows. Sections II and III briefly review the policy typology literature focusing on Lowi's (1964, 1972) and Wilson's (1973) that have relevance in this paper and provide four hypotheses and the study's methodology. Section IV

presents the results of statistical analyses, which is followed by a discussion and a conclusion.

## **POLICY TYPOLOGIES AND PUBLIC HEALTH EXPENDITURES**

The discussion of policy (issues) typology and its utility has its origin in Lowi's seminal works (Lowi, 1964, 1972), which turned the traditional understanding of the relationship between politics and policies upside down. Since these works, serious efforts have been made in the field of policy studies to describe the political characteristics of policy processes as a function of policy issue areas, and various typologies of public policy have been proposed (Hogwood, 1987; Ingram, 1978; Wilson, 1973). Although numerous empirical tests have been produced, these typologies have suffered from difficulties in mutual exclusivity and objectivity. The concept of policy is itself ambiguous, and thus categorizing a policy into a specific type depends on a mental model rather than on "observable and measurable empirical quality" (Smith, 2002). For the purpose of this paper, I examine only two theorists: Lowi (1964, 1972), for the primary idea that policy is an independent variable relative to politics, and Wilson (1973, 1974, 1980a, 1980b), for providing the focus on costs and benefits of policies.<sup>3</sup>

### **Lowi's Typology and Local Public Health Services**

"[T]o define policies in terms of their impact or expected impact on the society" (Lowi, 1964: 689), Lowi (1964, 1972) uses two dimensions: the likelihood of coercion (remote vs. immediate) and the applicability (targets) of the coercion (individual conduct vs. environment of conduct). These dimensions make four types of policies: distributive, regulatory, redistributive, and constituent. While providing researchers with an initial effort to categorize public policy, Lowi's real contribution is not the typology itself but the reversal of

the traditional understanding of the relationship between policies and politics. Since the policy areas represent the “arenas of power,” politics in each of the arenas are to be waged differently. If policies involve individual conduct, the resultant politics are characterized as “decentralized, disaggregated, and local interest identity.” Policies dealing with the environment of conduct invite politics that is characterized as centralized, system level, and cosmopolitan ideology status. With regard to the likelihood of coercion, “remote” coercion comes with party-based politics where electoral organizations and logrolling are important. The likelihood of “immediate” coercion will lead to politics where bargaining among interests groups is relevant.

The afore-mentioned two types of public health services, direct and population-based, are neatly representative of Lowi’s two types of applicability of coercion, individual conduct and environment of conduct. Direct services deal mainly with individuals or groups of individuals who are suffering from diseases or are vulnerable to certain diseases. These services are more about treatment. On the other hand, population-based expenditures aim to improve the health environment or change health-related behaviors that may not be limited to individuals. From these profiles of public health services, politics with respect to direct services are to be waged in decentralized, disaggregated, and local settings. As for public health services in Georgia, county-level variables of organized interests and public attentiveness to public affairs would be relevant. On the other hand, population-based services tend to involve politics of more centralized level. As such, state influences may be more relevant than local determinants in population-based services expenditure decision-making.

In terms of the likelihood of coercion, direct services are of “remote” coercion, rendering them distributive, whereas population-based services are more like regulatory policy. From the predictions by Lowi (1964, 1972), politics involving direct services are

expected to be waged by parties, politics of population-based services by interest groups. However, a dichotomous distinction between direct versus population-based services in association with the “remote” and “immediate” likelihood of coercion is not readily available. Moreover, since how much local public health expenditures are influenced by partisan interests is not clear and the relevant data is not available, testing these predictions by the likelihood of coercion should be beyond the limit of this paper. However, at least for population-based services, it is possible that they invite centralized system-level politics as well as interest-group-based politics. The question of which factors are more relevant for population-based services will be tested in this paper.

### **Wilson’s Typology and Local Public Health Services**

While admitting “Lowi’s fundamental insight—that the substance of a policy influences the role of organization in its adoption” (Wilson, 1973: 330), Wilson modified Lowi’s typology by introducing a distinction between new policy adoption and the amendment of an existing one and by considering the costs and benefits of a policy. For the purposes of this paper, Wilson’s latter contribution will be focused on.

Wilson (1973) noted that costs and benefits may be widely distributed or narrowly concentrated. Based on the incidence of costs and benefits, Wilson devised a typology of politics that result from such incidence: majoritarian, client, entrepreneurial, and interest-group politics (Wilson, 1980a). If the costs and benefits of a policy are widely diffused among unspecified individuals and groups, the policy will be relatively easily adopted without significant organizational intervention since the advocacy for such a policy is emergent from public opinion. On the other hand, the combination of widely diffused costs and concentrated benefits of a policy will lead to client politics, where support from the organizations of the beneficiaries is active, but opposition from the bearers of the costs is

none or negligible. In such a situation, the client politics is to be dominated by the well-organized clientele groups.<sup>4</sup>

The dimensions of the incidence of costs and benefits are relevant in the distinction of direct versus population-based public health services: while the costs are widely diffused among taxpayers, the benefits from the services are distributed differently. The benefits from direct services are narrowly concentrated on those who get treatment and counseling services and those who provide such services. That is, it is more likely for direct public health services to be associated with client politics in the Wilson's typology. In the context of a decentralized service provision system as in Georgia, the local groups that represent those who benefit from the services may have incentives to get involved in the process of decision-making. For example, for public health services for women and children, groups representing women and children and organizations of local pediatricians and gynecologists may pursue higher expenditures for the services through lobbying at the local boards of health. Their efforts will be rewarded since the benefits from expanded expenditures are to be reaped by the groups involved. Given that there is a wide variation of organized interest groups regarding public health services across Georgia's 159 counties, there may be a wide variation as well in the expenditures of direct public health services across those counties.

There is another reason that influences from local organized groups would be prevalent in local direct public health expenditure decisions: the benefits from direct services will be localized, which is not true of population-based services. One of the primary characteristics of population-based services is that their benefits are widely diffused among the general population, not targeted to specific beneficiary groups. Population-based services consist of both distributing benefits, such as with immunization and cancer screening, and inducing behavioral changes, such as with tobacco control and dietary education. Even in the case of providing benefits to specific individuals, there is a significant amount of spillover to

other individuals. As there are spillovers in population-based services, the provision of those services at the county level will not be socially optimal since each of the counties can reap only part of the total benefits from the services.

According to the literature on optimal government size, if there are externalities (spillovers) with a service, it is more efficient for the service to be provided by a higher-level government (Oates, 1972). In Georgia, population-based public health services are provided by the LHDs along with direct services instead of by the higher-level GDPH. However, it is the case in Georgia that the state policy priority of population-based services is still prevalent in the expenditure decision-making processes since the Georgia system of public health is mediated by 18 regionally organized districts that are intended to function as coordinator as well as overseer. In this case, the effect of districts on population-based services expenditures should be to reduce differences across districts as well as counties. That is, the district differences in expenditures for population-based services are expected to be smaller than those for direct services expenditures.

## **HYPOTHESES AND METHODS**

The aforementioned considerations of the predictions from Lowi's (1964, 1972) and Wilson's (1973) typologies make it possible to generate a set of hypotheses about the relationships between several indicator variables and expenditure characteristics. First, since direct services expenditures are influenced primarily by county-specific characteristics while population-based services are mediated through statewide policy priorities, it is expected that there is greater variation in the former than in the latter since the state is unevenly populated with different degrees of concentration of diverse population.

*Hypothesis 1: The variation across counties in direct services expenditures*

*is greater than in population-based expenditures.*

Although it is not clear how much the level of expenditures on population-based services is influenced by local organized interests, theoretically direct services expenditures are a function of local interests. If both types of services are driven by local interests, the magnitude of the effects should be greater for direct services expenditures. This paper operationalizes local organized interests by the number of physicians per 100,000 people and the number of hospital beds and nursing home beds per 1,000 people.

*Hypothesis 2: Proxies of organized interests such as physician rate, hospital beds, and nursing home beds have greater effects on direct services expenditures than on population-based services expenditures.*

Hypothesis 3 regards population-based services as more “public” than direct services since it delivers goods that are indivisible and non-rivalrous. If the county constituents are attentive to what is going on in the public arena, they may be more supportive of the county undertaking public goods provision. On the other hand, since organizations for population-based services are theoretically supposed not to be well organized, expenditure decisions for population-based services would be more sensitive to the residents’ confidence in the county government. Public attentiveness has been focused on in explaining individuals’ attitudes toward government institutions (Stein, Johnson and Post, 2002), in which case it tends to be measured by self-reported ordinal scales. In this paper, it is operationalized by the voter registration rate at the county level. Given that property tax revolt during 1970s and 1980s were understood as resulting in part from declining confidence in the government (Lowery, 1982a, 1982b), public confidence in the government is here measured by the millage of property tax.

*Hypothesis 3: Proxies of public attentiveness of public affairs and public confidence in the county government have greater effects on population-based services expenditures than on direct services expenditures.*

Hypothesis 4 takes into account that the district system of Georgia serves the policy priorities of the state government (GDPH) in the decentralized governance of public health policy. Because of spillovers across counties, GDPH has an incentive to internalize the spillovers. On the other hand, organized interests may want to exert their influence at the district level, which will magnify district differences in expenditure amounts. Therefore, differences in population-based services expenditures across districts would be smaller than those in direct services expenditures across districts.

*Hypothesis 4: Differences in expenditures across districts should be greater for direct services than for population-based services.*

To test the hypotheses, this study utilizes per capita expenditures on services for children and pregnant women (direct) and on chronic disease control (prevention) at the county level. The per capita expenditure amount is more representative of how each county spends for public health purposes than the absolute expenditure amount since it controls differences in population size.

To test the hypotheses, a Least Square Dummy Variable model (LSDV) is specified. In the model, several county-specific demographic variables such as per capita income, percent of rural population, proportions of males and blacks, proportions of those aged 4 or under and 65 or over, and several health status variables (infant mortality rate, morbidity rate, birth rate, and death rate) are controlled. In addition to those controls, the model includes county dummies to capture political and other differences at the county level and year dummies to control time effects. To examine non-linear relationships, a series of squared

terms of the key independent variables are added. Furthermore, to see the differential effects between direct and population-based services, a set of interactions terms are also placed in the model.

The data for the dependent variables is from the NASBO-coded community public health expenditures, based on the UAS data for Georgia for FY 2000–2004<sup>5</sup>. The independent variables are obtained from the Georgia Statistical System, which is maintained by the Center for Agribusiness and Economic Development, Cooperative Extension Service, University of Georgia. Descriptive statistics of the key variables are provided in Table 1. Each of the counties spends about \$14.64 for women’s and children’s services while spending \$9.72 on chronic disease control.

<table 1 about here>

## **ANANYTICAL FINDINGS**

### **Variation across Counties**

To test the first hypothesis, the coefficients of variation (see Table 2) for direct and population-based services expenditures has been calculated, based on means and standard deviations of the expenditures on these two types of services, respectively. The larger the coefficient of variation, the more widely per capita expenditures will be distributed across counties. The result confirms the first hypothesis: there is more variation in direct services expenditures than in population-based expenditures. There are two reasons supporting this result. First, direct services expenditures are more likely to be influenced by organized

interests at the county level, including services beneficiaries and those who are private partners in the delivery of public health services. Organized interests tend to be geographically unevenly distributed, resulting in different influences on public health expenditure decisions at the county level. Second, there would be greater incentive for GDPH to provide statewide population-based services because of the externality effects of such services. Moreover, since benefits from population-based services are diffused throughout the population in general, it is expected that there may be smaller incentives for the beneficiaries of such services to organize themselves to influence decisions.

<table 2 about here>

### **Organized Interests and Direct Services Expenditures**

To test the hypotheses 2 through 4, I used a LSDV model with robust standard errors whose outputs are reported in Tables 3 and 4. The R-squared value is 0.85, which indicates that the specified model explains 85% of the variation in the dependent variable. It is found that the relationship between the indicators of local organized interests and per capita expenditures is curvilinear. First, population-based services expenditures are associated with indicators of organized interests as well as those of public attentiveness and financial capacity. Second, service types make a difference in the association of the indicators with per capita expenditures: the coefficients of all five interaction terms with the service type variable are statistically significant at the 0.05 level, and four of them confirm the research hypotheses.

The effects from *physician rate* are more complex than the others. For counties with a physician rate of less than 165 (136 counties: 85.5%), as the physician rate increases, per capita expenditure decreases at a decreasing rate. On the other hand, for counties with a physician rate greater than 165, the effects are positive. It seems there are both

complementary and supplementary effects: if the physician rate is below 165, public health expenditures are supplementary to private health-care services availability; alternatively, there might be a threshold in the exertion of influences by organized interests. The interaction term `direct*physician` indicates that, as hypothesized, the effect from physician rate is greater for direct services expenditures than for population-based services expenditures.

<table 3 about here>

The effects from *hospital beds per 1,000 people* are mixed: as the number of hospital beds increases up to 3.7 (116 counties: 73%), per capita expenditure increases at a decreasing rate; over 3.7, expenditure begins to decrease at an increasing rate. The effects from this variable are greater on direct services expenditures than on population-based expenditures. Overall, this result confirms hypothesis 2. There is no significant association between *nursing home beds per 1,000* and per capita expenditure on population-based expenditures. However, the coefficient of the interaction term between `direct` and this variable shows that the more nursing home beds there are, the larger per capita expenditure on direct services is. A higher number of nursing home beds leads to more expenditure on direct services expenditures as hypothesized.

### **Public Attentiveness and Confidence in Government**

Table 3 shows that the results are mixed as far as public attentiveness and confidence in the government are concerned: 1) as predicted, the voter registration rate has a dampening effect on direct services expenditures and 2) the property tax millage has more positive effects on direct services than on population-based services, which is the opposite of the hypothesis.

*Voter registration rate* is positively related with expenditures because the effect is minimized at the registration rate of 39.53, but there are only two counties with a registration rate less than 39.53. Therefore, the effect from voter registration rate is positive for public health expenditures for all the range of voter registration rate. However, the effect is differentiated between direct and population-based services: the positive effect for direct services expenditures is about \$6.40 smaller than that for population-based services, which is consistent with hypothesis 3. *Property tax millage* is positively associated with expenditures on public health. As the millage increases, per capita expenditures on public health increase at a decreasing rate. The effect could be maximized at a millage of 54.5, which is greater than the maximum value of 49.89. The positive effect from millage is greater on direct services expenditures than on population-based services expenditures. This result might be explained by the nature of the property tax, which is essentially a benefit tax. A benefit tax benefits those who pay the tax. Since the property taxpayers and the primary beneficiaries of direct services are residents of the county, it makes sense that the millage rate has greater effect on direct services expenditures than on population-based services expenditures.

### **Differences in District Effects**

As agents of GDPH, the district offices pursue statewide policies, with which there might be significant spillovers across counties and districts, meaning that districts tend to decrease differences in the amount of public health expenditures across counties. However, since each of the districts is unique in its political factors, leadership, and managerial characteristics, there may be differences in public health expenditures at the district level. Given these considerations, it is hypothesized that organized interests from the health-care industry would try to influence expenditure decisions at the district level as well as at the county level. Given the differences in per capita expenditure amounts across the health

districts, those in direct services expenditures are expected to be greater than those in population-based services expenditures.

<table 4 about here>

The results confirm the hypothesis 4. 1) Even in population-based services expenditures, there are differences in per capita expenditures at the district level. Most of the coefficients of the district dummies are positive, indicating that these districts spend more on population-based services on a per capita basis than the most urban Fulton district, where the city of Atlanta sits. 2) The coefficients of the interaction terms between `direct` and district dummies are statistically significant and all positive. This is interpreted as indicating that district differentials in direct services expenditures are much greater than those in population-based services expenditures. The difference in population-based services expenditures between the Fulton district and the other districts is on average \$15.76 per capita. The difference in direct services expenditures is even bigger, at \$31.12 per capita.

There may be two countervailing forces causing this observation. The first factor is the local interests such as physicians and hospitals that benefit from a higher level of direct services expenditures. Another factor is the state priority to impose state-wide policies that may have spillovers across counties and districts. In such a case, expenditure differences across districts in direct services will be greater than those in population-based services.

## **DISCUSSION AND CONCLUSION**

This paper is an effort to apply the insights from Lowi's (1964, 1972) and Wilson's (1973) typologies of public policy to the area of public health expenditures at the local level. A recent development in the public health financing framework, which incorporates the

NASBO definitions of public health services, makes it possible to examine different political influences in expenditure decision-making in terms of different types of public health services.

The results confirm the following points: 1) there is more variation in the per capita expenditures of direct services than in population-based services across Georgia's 159 counties; 2) local organized interests get more involved in the expenditure decisions regarding direct services than those of population-based services; 3) public attentiveness as measured by voter registration rate has a greater effect on population-based services expenditures than on direct services expenditures; 4) public confidence in the local government as measured by property tax millage is more relevant in the expenditure decisions of direct services; and 5) differences in expenditures across districts are larger for direct services than for population-based services.

All of these findings constitute evidence that the theoretical arguments of policy typologies are relevant and empirically testable, although they are not mutually exclusive. However, the results from the previous analysis are not confined to the discussion of the typology literature. According to the typology literature, policy causes politics. While building upon this argument, this paper goes further, to the extent that policy outputs are also dependent on how the politics are waged. This may constitute a tautology: policy itself causes its outputs. One way of avoiding the tautology is to regard the policy issue as an intervening variable that plays the role of a switch that turns on or off the influences of specific independent variables. Conceptually speaking, among various political, institutional, financial, and socioeconomic factors, a specific policy issue knocks out some factors while activating others. In the example of public health expenditures, population-based services activate the importance of the public's policy awareness while dampening the role of organized interests. Therefore, it would be more accurate to say that policy types are not independent but a

moderator variable relative to politics. As such, the traditional understanding that policy outputs are dependent on politics is still valid.

Another issue that might be raised from this analysis is the relationship between public and private health care services. Is the relationship complementary or supplementary? Sufficiently provided, public health services may at least partially obviate the need for private health care. On the other hand, to provide public health services may require private partners in such cases of cancer screening and treatment, for example. Moreover, well-organized private interests may seek greater expenditures in public health since the service provision will involve private partners. In this paper, it is found that well-organized private health interests have an effect on the provision of public health services as well, indicating that the relationship might be a complementary one. However, the result is not conclusive, given that the model specified does not include indicators of private health spending, where follow-up research is needed.

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**Table 1. Descriptive Statistics of the Variables**

	<b>Mean</b>	<b>Std. Deviation</b>	<b>Min</b>	<b>Max</b>
Women and children (\$)	14.64	16.69	1.6	176.94
Chronic disease control (\$)	9.89	9.72	1.12	103.06
Voter registration rate (%)	61.83	8.17	15.8	82.25
Property tax millage	26.04	5.65	10.5	49.89
Physician rate	107.46	87.94	0	592.9
Hospital bed per 1,000	2.24	2.09	0	9.2
Nursing bed per 1,000	6.96	5.36	0	39.35

**Table 2. Coefficients of Variation**

<b>Types of Services</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Coefficient of Variation</b>
Women & Children	14.64	16.69	1.14
Chronic Disease Control	9.89	9.72	0.98

**Table 3. Regression Results: Part I**

<b>Dependent Variable: Per Capita Expenditures</b>	<b>Coefficients</b>
(Voter registration rate) <sup>2</sup>	.025 ***
Voter registration rate	-1.974 ***
(Property tax millage) <sup>2</sup>	-0.012 *
Property tax millage	1.300 **
(Physician rate) <sup>2</sup>	0.0002 **
Physician rate	-0.067 *
(Hospital beds per 1,000) <sup>2</sup>	-0.999 ***
Hospital beds per 1,000	7.461 ***
(Nursing beds per 1,000)	0.010 **
Nursing beds per 1,000	-0.207
Direct services	-17.748 ***
Direct *voter registration rate	-6.401 ***
Direct*property tax millage	0.233 ***
Direct*Physician rate	0.034 ***
Direct*Hospital beds per 1,000	0.600 ***
Direct*Nursing beds per 1,000	0.6 ***
R-squared: 0.85	
* p <.10    ** p<.05    *** p< .01	

**Table 4. Regression Results: Part II**

<b>District Dummies</b>	<b>Coefficients</b>	<b>Interactions with direct services expenditures</b>	<b>Coefficients</b>
District 11	16.474***	Direct*District 11	20.208***
District 12	30.936***	Direct*District 12	20.496***
District 20	9.58***	Direct*District 20	16.504***
District 31	16.586***	Direct*District 31	12.137***
District 33	26.294***	Direct*District 33	15.554***
District 34	4.522	Direct*District 34	14.112***
District 35	8.389***	Direct*District 35	5.554***
District 40	-8.069**	Direct*District 40	16.533***
District 51	27.471***	Direct*District 51	14.404***
District 52	22.166***	Direct*District 52	15.747***
District 60	7.265**	Direct*District 60	15.538***
District 70	17.798***	Direct*District 70	13.806***
District 81	27.87***	Direct*District 81	14.191***
District 82	14.607***	Direct*District 82	14.422***
District 91	14.483***	Direct*District 91	16.047***
District 92	-2.576	Direct*District 92	20.482***
District 100	34.089***	Direct*District 100	15.445***
Reference: District 32 (Fulton County)			
* p<.10    ** p<.05    *** p<.01			

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<sup>1</sup> The definitions of the types of public health services depend on NASBO (2003; 2005).

<sup>2</sup> This governance arrangement of public health system in Georgia fits with the correspondence principle of federalism. If and when the individuals who benefit from the service are locally limited, then the decisions for providing such services are better to be given to the jurisdiction of those individuals. On the other hand, the benefits are spilt over to the neighboring jurisdictions, then the services are handled by a higher level of government (Oates 1972)

<sup>3</sup> Typologies serve specific research purposes: Lowi's and Wilson's typologies do not consider an important policy dimension the degree of complexity and technical or expert knowledge (Parsons, 1995). There may be a difference in this dimension between direct vs. population-based services that gives a unique characteristic to the expenditure decision-making process, but it is not addressed in this paper.

<sup>4</sup> Wilson's the other two types of politics are not considered in this paper since they involve situations where costs are narrowly concentrated on small groups. While public health funds come from various sources such as federal and state grants, county participation, and fees and insurance, it is not readily identifiable who bears the burden of the costs of a public health service. This study assumes that the costs are widely diffused among citizens.

<sup>5</sup> Although the data is a little bit outdated, since there has been no substantial institutional revamping over the latter half of the decade, the results from the empirical analysis would be as valid as with more recent data.