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A STUDY ON EXPENDITURE, EMPLOYMENT, AND WAGE EFFECTS OF CONTRACTING CITIES AND NON-CONTRACTING CITIES: DO ALL CONTRACTING SERVICES HAVE THE SAME RESULTS?

by

Douh Young Lee

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A STUDY ON EXPENDITURE, EMPLOYMENT, AND WAGE EFFECTS OF CONTRACTING CITIES AND NON-CONTRACTING CITIES: DO ALL CONTRACTING SERVICES HAVE THE SAME RESULTS?

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ABSTRACT

The primary purpose of this paper is to examine the effect of contracting on expenditure, employment, and wage levels in municipal government. The most important question is whether contracting cities can reduce expenditures, employment, and wages more than non-contracting cities do, and whether the reductions depend on the monitoring costs of the particular service. If expenditures, employment, and wages were saved by contracting out with the private sector, contracting cities should show the reduction of those economic indicators. A second question is why some services provided by contracting arrangement are not more efficient than those by provided by municipal government. A final question is whether any pervasive demographic, economic, and political factors affect municipal expenditures, employment, and wages.

To test these questions, I used a multiple regression analysis model to estimate the effects of contracting on expenditures, employment, and wages across different services. The primary database available for this paper is the "Alternative

Service Delivery Approaches - 1992," conducted by International City/County Management Association (ICMA).

The major empirical finding presented in this paper is that, in general, contracting out with the private sector does not have significant effects on expenditure, employment, and wage levels in municipal governments; contracting out does not reduce the aggregate expenditures, employment, and wages of municipal government. This empirical evidence is not consistent with the general conclusion that contracting arrangement is more efficient mode, and thus yields cost savings relative to public provision.

Associated with the individual service area, there is weak evidence that contracting effect is somewhat different from the characteristics of public services; individual service contracting does not lead to more efficient municipal government.

One of the most important implications drawn from this paper is that it may be ineffective to try contracting out with private firms to reduce municipal expenditure, employment, and wage levels. In other words, the cost savings obtained from contracting services may be exaggerated; cost savings from contracting services are not realized.

Another implication in relation with Niskanen bureau is that although cost savings from service contracting may be realized, these cost savings from service contracting may be internalized by the department, and the net effect on total municipal expenditure may not be realized. It is hard to monitor the amount saved

mainly due to information asymmetry among principals (elected officials), bureaucrats, and voters. Therefore, the practice of contracting services in municipal government still remains problematic, largely due to the difficulty of tracing the impact on the potential alternative uses of the cost savings from contracting out.

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CHAPTER I

INTRODUCTION

For the last two decades, private sector alternatives to the production of public sector services have been considered popular methods to reduce production costs and to achieve greater productivity improvements of government. A number of scholars and practitioners believe that contracting out with the private sector is an alternative means to deliver governmental services because the private sector would be a more efficient producer. Their arguments are based on two major theoretical models which are derived from the property rights theory pioneered by Alchian and the bureaucratic utility maximization paradigm developed by Niskanen.

First, according to property rights theory, a fundamental distinction between public and private firms is the transferability of property rights.[1] This argument

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1Alchian, Armen. "Some Economics of Property Rights." IL Politico 30 (1965): 816-829.
Alchian, Armen, and Reuben Kessel. "Competition, Monopoly and the Pursuit of Money." in Aspects of Labor Economics, National Bureau of Economic Research, (Princeton: Princeton University Press, 1962),157-175.
Alchian, Armen, and Harold Demsetz. "Production, Information Costs and Economics Organization." American Economic Review 62 (1972): 777-792.
De Alessi, Louis. "Some Implications of Property Rights for Government Investment Choices." American Economic Review 59 (1969): 16-23.
_____. "An Economic Analysis of Government Ownership and Regulation: Theory and the Evidence from the Electric Power Industry." Public Choice 19

emphasizes the fact that ownership rights of public firms are diffused among the public, and no one has the right to sell his or her share. Given this aspect of ownership rights, there is little economic incentive for any owners (citizens) in this institutional setting to monitor the behaviors of their elected officials or bureaucrats. In contrast to this point, the ownership rights of private firms are concentrated on fewer shareholders, and they have the right to sell their shares to capitalize in the future market consequences. As owners of private firms, shareholders will be more motivated to scrutinize management to ensure efficiency in the production of goods and services than the public would be to monitor public managers.[2] As a consequence, public firms will be less efficient than private firms. The lack of property rights to any potential residual provides a disincentive for public managers to produce the efficient output with cost minimization.

Second, Niskanen claims that a bureau supplies an output which is up to

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(1974): 1-42.
_____. "On the Nature and Consequences of Private and Public Enterprises." Minnesota Law Review 67 (1982): 191-209.
Furubotn, Erik, and Svetozar Pejovich. "Property Rights and Economic Theory: A Survey of Recent Literature." Journal of Economic Literature 10 (1972): 137-162.
Frech, Harry. "The Property Rights Theory of the Firm: Empirical Results from a Natural Experiment." Journal of Political Economy 84 (1976): 143-152.

2Crain, Mark, and Asghar Zardkoohi. "A Test of the Property Rights Theory of the Firm: Water Utilities in the United States." Journal of Law and Economics 21 (1978): 395-408.
Caves, Douglas, and Laurits Christensen. "The Relative Efficiency of Public and Private Firms in a Competitive Environment: The Case of Canadian Railroads." Journal of Political Economy 88 (1980): 958-976.

two times as large as the output of a private firm facing the same demand and cost conditions. The oversupply of a bureau would occur to the extent that output levels exceed those required for Pareto optimality - making someone better off without making someone else worse off. In addition, a bureau will produce output at greater than optimal cost.[3]

These arguments lead proponents of the property rights theory and the Niskanen bureau to contend that governmental services should be contracted out to the private sector. Many scholars have tested the expected superior efficiency of private sector through relative comparisons of the efficiency of public and private sectors.

On the other hand, some contend that there is no significant difference in efficiency between public and private firms in a competitive environment, and that regulatory constraints on public firms are even more efficient than private firms. For example, Caves and Christensen contend that competition rather than ownership is the major determinant of efficiency.[4] Averch and Johnson, analyzing the effects of rate-of-return regulatory constraints on the behavior of a

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3Niskanen, William. Bureaucracy and Representative Government. Chicago: Aldine, 1971.
_____. "Bureaucrats and Politicians." Journal of Law and Economics 18 (1975): 617-643.

4Caves and Christensen, "Relative Efficiency," 958-976.

private firm, claim that public firms are not less efficient than private firms.[5] Ferris and Graddy and Sappington and Stiglitz argue that the choice of public versus private provision of services is determined by the components of a service; the effects of contracting out with private sector may be significantly dependent upon the nature of the service (e.g., tangible or intangible output).[6] Given this aspect, when a service produces tangible outputs, both qualitatively and/or quantitatively, monitoring is not so costly. In contrast, when a service has intangible outputs, public sector officials may find that monitoring is costly or that it is impossible to define both the quality and quantity of private contracting services. As a consequence, monitoring costs are important in determining the effectiveness of contracting for services. In fact, we know very little about the potential cost savings through contracting out when considering monitoring costs.

Although a number of scholarly efforts have explored the existence and the extent of relative efficiency between public and private sector, no study of service contracting has been undertaken to compare the potential expenditure, employment, and wage effects of private contract supply on the different city departments which supply the services. While a number of previous studies

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5Averch, Harvey, and Leland Johnson. "Behavior of the Firm Under Regulatory Constraint." American Economic Review 52 (1962): 1052-1069.

6Ferris, James, and Elizabeth Graddy. "Contracting Out: For What? With Whom?" Public Administration Review 46 (1986): 332-344.
Sappington, David, and Joseph Stiglitz. "Privatization, Information and Incentives." Journal of Policy Analysis and Management 6 (1987): 567-582.

focus on a single service area, none compare several services simultaneously. In addition, they only consider economic variables and ignore political variables.

The primary purpose of this paper is to examine the effects of contracting on expenditure, employment, and wage levels in a municipal government department which supplies a portion of its services on contract with private firms versus a department which does not contract with private firms at all. The first and perhaps most important question is whether contracting cities can reduce expenditures, employment, and wages more than non-contracting cities do, and whether the reductions depend on the monitoring costs of the particular service. If expenditure, employment, and wages were saved by contracting out with the private sector, contracting cities should show a reduction in those economic indicators. A second question is why some services provided by contracting arrangement are not more efficient than those provided by municipal government. A final question is whether any pervasive geographic, economic, and political factors affect municipal expenditures, employment, and wages.

This paper's focus is on comparing specific departments in contracting cities to non-contracting cities with private firms. Therefore, this paper does not include intergovernmental contracting. Furthermore, this paper only examines cities with population more than 75,000 because there is no available data on cities with population less than 75,000.

The remainder of this paper is organized as follows:

In chapter II some major theoretical models are reviewed and then are supported

by a large number of empirical studies of various fields of services. In chapter III I develop some estimation models based on the previous empirical studies and theory. It also contains a description of the data and variables. In chapter IV hypotheses derived from the model are empirically tested by estimation on a cross-section of municipal government services. In chapter V this paper concludes with a summary and discussion of the implications.

CHAPTER II

LITERATURE REVIEW

1. Rationales of service contracting out

A number of studies discuss the rationale for superior private efficiency. These studies have insisted that contracting out to the private sector reduces costs without diminishing the quality or quantity of the service. Chamberlin and Jackson contend that "where purchases are frequent, information is abundant, costs of a bad decision are small, externalities are minimal, and competition is the norm, contracting out ought to be pursued."[7]

As Ferris and Graddy note, the conditions of contracting out depend on general service factors and service specific factors. They contend that local government tends to contract out with private firms on the basis of potential cost savings derived from scale economies, sector differences in labor practices, and competition among suppliers.[8]

7Chamberlin, John, and John Jackson. "Privatization as Institutional Choice." Journal of Policy Analysis and Management 6 (1987): 586.

8Ferris, James. "The Public Spending and Employment Effects of Local Service Contracting." National Tax Journal 41 (1988): 207-217.
Ferris, James, and Elizabeth Graddy. "Contracting Out: For What? With Whom?" Public Administration Review 46 (1986): 332-344.
_____. "Production Costs, Transaction Costs, and Local Government Contractor Choice." Economic Inquiry 29 (1991): 541-554.

Ferris and Graddy and others contend that by contracting out scale economies can be obtained through input price savings and capacity utilization. For example, small cities are more likely to contract out for services with a larger producer and benefit from it. Sector differences in labor practices are a second condition to explain potential cost savings through contracting out with private firms. Stevens finds that private contracting firms, in comparison with public firms, are more likely to 1) work more days (237) per year than do public workers (226), 2) use part-time labor wherever possible, 3) use less qualified personnel, 4) give responsibility to managers for equipment maintenance as well as worker activities, 5) give authority to first-line supervisors for hiring and firing workers, and 6) have more worker turnover, indicating a younger, less tenured work force.[9] Poole and Fixler indicate that contracting out may achieve significant cost savings for both public and private firms.[10] Pack argues that public firms are not likely to minimize costs because of the lack of competition and profit incentives.[11] Thus, as Ferris and Graddy note, competition among external suppliers may provide significant cost savings.

9Stevens, Barbara. "Comparing Public- and Private-Sector Productive Efficiency: An Analysis of Eight Activities." National Productivity Review 3 (1984): 402-403.

10Poole, Robert, Jr. and Philip Fixler, Jr. "Privatization of Public-sector Services in Practice: Experience and Potential." Journal of Policy Analysis and Management 6 (1987): 612-625.

11Pack, Janet. "Privatization of Public-Sector Service in Theory and Practice." Journal of Policy Analysis and Management 6 (1987): 523-540.

There are two major approaches to the question of relative efficiency between public and private firms.

1) Property rights theory

The most popular approach to thinking about the relative efficiency of public versus private sector is the property rights approach. This approach contends that there is a significant difference between public and private ownership rights.

A number of previous studies have shown that attenuation of the property rights of the owners in public firms reduces managerial efficiency because managers of public firm choose lower firm wealth and greater non-pecuniary benefits.[12]

12Alchian, Armen. "Some Economics of Property Rights." IL Politico 30 (1965): 816-829.
Alchian, Armen, and Reuben Kessel. "Competition, Monopoly and the Pursuit of Money." in Aspects of Labor Economics. National Bureau of Economic Research, (Princeton: Princeton University Press, 1962), 157-175.
Alchian, Armen, and Harold Demsetz. "Production, Information Costs and Economics Organization." American Economic Review 62 (1972): 777-792.
De Alessi, Louis. "Some Implications of Property Rights for Government Investment Choices." American Economic Review 59 (1969): 16-23.
_____. "An Economic Analysis of Government Ownership and Regulation: Theory and the Evidence from the Electric Power Industry." Public Choice 19 (1974): 1-42.
_____. "On the Nature and Consequences of Private and Public Enterprises." Minnesota Law Review 67 (1982): 191-209.
Furubotn, Erik, and Svetozar Pejovich. "Property Rights and Economic Theory: A Survey of Recent Literature." Journal of Economic Literature 10 (1972): 137-162.
Frech, Harry. "The Property Rights Theory of the Firm: Empirical Results from a Natural Experiment." Journal of Political Economy 84 (1976): 143-152.
Crain, Mark, and Asghar Zardkoohi. "A Test of the Property Rights Theory of the Firm: Water Utilities in the United States." Journal of Law and Economics 21

Alchian argues that "behavior under each institution is different, not because the objectives sought by organizations under each form are different, but instead because, even with the same explicit organization goals, the costs-rewards system impinging on the employees and the <<owners>> of the organization are different...the differences between public and private ownership arises from the inability of a public owner to sell his share of public ownership (and the ability to acquire a share without a purchase of the right)."[13] The non-transferability of ownership in public firms may decrease the reward-cost structure and constrain specialization of ownership. As a consequence, public ownership leads to a weak relationship between managers' personal utility and firm benefit. The lack of property rights to the residuals tends to reduce the incentives for public managers to minimize costs.

De Alessi argues that public firm managers are more likely to increase resources and to use those resources for their own welfare because they have more discretionary behavior than private firm managers. The managers of public firms are not likely to use the inputs to maximize the wealth of owners (citizens). In addition, the incentive to monitor the performance of public firms may be attenuated in some way, because citizenry ownership is collectively held among citizens weakening individuals' property rights to the use of resources. Moreover,

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(1978): 395-408.

13Alchian, "Property Rights," 821-822.

the owners of public sector cannot transfer their rights (e.g., voting rights).

In contrast, the owners of the private sector can sell their rights in the economic market. Private firms have a small number of owners with strong incentives to monitor management to ensure managerial efficiency. The private firms reward their managers in order to achieve the owner's desire to maximize profits. Thus, as Alchian and Kessel note, profit is a more significant criterion for evaluating the managerial behavior of managers in private firms than in public firms.

There are abundant examples in the property rights literature.[14] For example, Crain and Zardkoohi examine public versus private water utilities, and find that operating costs are significantly higher in public water utilities. Comparing public and private school bus transportation, Bails, McGuire and Van Cott, and Ross find that private bus systems are less costly than public bus systems. Based on data from the Social Security Administration contracting with

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14Crain, Mark, and Asghar Zardkoohi. "A Test of the Property Rights Theory of the Firm: Water Utilities in the United States." Journal of Law and Economics 21 (1978): 395-408.
Bails, Dale. "Provision of Transportation Services." Public Choice 34 (1979): 65-68.
McGuire, Robert, and T. Norman Van Cott. "Public versus Private Economic Activity: A New Look at School Bus Transportation." Public Choice 39 (1984) 25-43.
Ross, Randy. Government and the Private Sector: Who Should Do What? New York: Crane Russak and Co., 1988.
Picot, Arnold, and Thomas Kaulmann. "Comparative Performance of Government-owned and Privately-owned Industrial Corporations: Empirical Results from Six Countries." Journal of International and Theoretical Economics 145 (1989): 298-316.

private health insurance firms, Frech finds that as Medicare processing intermediaries, private firms are more efficient than public firms: for instance, public firms show 45 percent higher processing costs per dollar; their processing takes 80 percent longer; and they make 140 percent more errors per dollar processed. Picot and Kaulmann contend that public firms are overall less profitable and less productive. They attribute most of the inefficiency of public firms to the difference in the property rights structure.

2) Niskanen bureau

Niskanen, based on a hypothesis formulated by Downs, Buchanan and Tullock, and Tullock, develops a formal model of bureaucratic supply of public output in which the public firm oversupplies output.[15] Niskanen views bureaucrats as utility maximizers who control allocations of resources that are inconsistent with social optimum size. They are interested in salary, perquisites, prestige, power, and other amenities which are a positive monotonic function of

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15Downs, Anthony. An Economic Theory of Democracy. New York: Harper and Row Publisher, 1957.
Buchanan, James, and Gordon Tullock. The Calculus of Consent: Logical Foundations of Constitutional Democracy. Ann Arbor: University of Michigan Press, 1962.
Tullock, Gordon. The Politics of Bureaucracy. Washington, DC: Public Affairs Press, 1965.
Niskanen, William. Bureaucracy and Representative Government. Chicago: Aldine, 1971.
_____. "Bureaucrats and Politicians." Journal of Law and Economics 18 (1975): 617-643.

the bureau's budget or output size. As utility-maximizing bureaucrats, they use their monopoly power in securing excessive budget and output levels with overspending.

There is some evidence that supports Niskanen's model.[16] Lott argues that "in order to sell their [public firms'] excess production, public firms have to price their output below the competitive price and thereby cause more efficient firms to

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16Ott, Mack. "Bureaucracy, Monopoly, and the Demand for Municipal Services." Journal of Urban Economics 8 (1980): 362-382.
Wagner, Richard, and Warren Weber. "Competition, Monopoly, and the Organization of Government in Metropolitan Areas." Journal of Law and Economics 18 (1975): 670-684.
Borcherding, Thomas, Winston Bush, and Robert Spann. "The Effects on Public Spending of the Divisibility of Public Outputs in Consumption, Bureaucratic Power, and the Size of the Tax-Sharing Group." In Budgets and Bureaucrats: The Sources of Government Growth, Thomas Borcherding, ed., (Durham: Duke University Press, 1977), 211-228.
Orzechowski, William. "Economic Models of Bureaucracy: Survey, Extensions, and Evidence." In Budgets and Bureaucrats: The Sources of Government Growth, Thomas Borcherding, ed., (Durham: Duke University Press, 1977), 229-259.
De Alessi, Louis. "Managerial Tenure under Private and Government Ownership in the Electric Power Industry." Journal of Political Economy 82 (1974): 645-653.
Lentz, Benjamin. "Political and Economic Determinants of County Government Pay." Public Choice 36 (1981): 253-271.
Grunderson, Morley. "Earnings Differentials Between the Public and Private Sectors." Canadian Journal of Economics 12 (1979): 228-242.
Smith, Sharon. "Public-Private Wage Differentials in Metropolitan Areas." In Public Sector Labor Markets, Peter Mieszkowski and George Peterson, eds., (Washington: Urban Institute Press, 1981), 81-102.
Lott, John. "Predation by Public Enterprises." Journal of Public Economics 43 (1990): 237-251.
Grosskopf, Shawna, and Kathy Hayes. "Local Public Sector Bureaucrats and Their Input Choices." Journal of Urban Economics 33 (1993): 151-166.

be eliminated."[17] After surveying Illinois municipalities, Grosskopf and Hayes support Niskanen's model that bureaucrats do not minimize cost; half of their surveyed municipalities show labor-intensive characteristics relative to capital. This finding is consistent with Migue and Belanger's argument that public managers are more likely to have larger staffs.[18]

A principal characteristic of Niskanen's bureau is supply of an output that exceeds up to two times the output of social optimum size. Williamson also views bureaucracy as a non-competitive firm whose output cannot be sold in a market place and exceeds a socially optimum level.[19] A second characteristic is that the bureau's output is supplied at higher than optimal production costs. Miller and Moe note that "in view of all the benefits associated with competition among profit-maximizing firms and all the cost associated with monopoly, it is a short step to the conclusion that governmental supply by monopoly bureaus produces serious social inefficiencies - and another short step to the conclusion that government can reduce social inefficiency through greater reliance upon

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17Lott, "Public Enterprises," 240.

18Migue, Jean-Luc, and Gerald Belanger. "Toward a General Theory of Managerial Discretion." Public Choice 17 (1974): 27-43.

19Williamson, Oliver. The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm. Englewood Cliffs: Prentice-Hall, 1964.

private firms and competitive supply."[20]

The overspending hypothesis of the Niskanen bureau has provided the rationale for the inefficiency in the production of a given set of outputs. Numerous studies comparing bureaucratic performance with private firms show that bureaus are significantly less efficient than private firms.[21] For example, after surveying the Australian airline industry, Davies finds that the average number of passengers transported per employee in a private firm is over 20 percent higher than the mean for a public firm. The productivity of the private firm's freight and mail transportation is approximately 204 percent higher than that of a public firm. Perry and Babitsky find that private transit systems are significantly more efficient in output per dollar than public transit systems. Bennett and Johnson even contend that private firms produce the same level of output as public firms at lower costs; thus we can reduce taxes by returning these cost savings to the taxpayer.

20Miller, Gary, and Terry Moe. "Bureaucrats, Legislators and the Size of Government." American Political Science Review 77 (1983): 305.

21Davies, David. "The Efficiency of Private versus Public Firms: The Case of Australia's Two Airlines." Journal of Law and Economics 14 (1971): 149-165.
Ahlbrandt, Roger. "Efficiency in the Provision of Fire Services." Public Choice 16 (1973): 1-15.
Bennett, James, and Manuel Johnson. "Tax Reduction Without Sacrifice: Private-Sector Production of Public Services." Public Finance Quarterly 8 (1980): 363-396.
Perry, James, and Timlynn Babitsky. "Comparative Performance in Urban Bus Transit: Assessing Privatization Strategies." Public Administration Review 46 (1986): 57-65.

2. Rationales of superior public efficiency

Chamberlin and Jackson contend that public provision is better than private arrangement "where externalities and collective interests abound, natural monopolies are dominant, distributional goals are important, or debate and experience will alter preferences."[22] In addition, Savas notes that contracting out is feasible and works well when the work to be done is specified clearly, potential producers are available to create a competitive climate, and the public sector can easily monitor the contractor's performance. He argues that contracting services foster better management skills in public sector because the cost of contracting services is highly visible in the price of the contract, otherwise the cost of public sector services is not revealed in the marketplace. In this view, unlike Olson's argument that goods or services provided by public sector can not be produced efficiently because there is no clear measure of success or failure in public provision,[23] the public officials know the true cost of service, and produce certain services on the basis of competition that leads to better economic performance. In addition, Schneider argues that "competition between alternative service providers constrains bureaucratically driven growth in the size of government by increasing the incentives and the ability of other actors in a community effectively

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22Chamberlin and Jackson, "Institutional Choice," 586.

23Olson, Mancur. "Evaluating Performance in the Public Sector." in The Measurement of Economic and Social Performance, Milton Moss, ed., (New York: Columbia University Press, 1973), 355-409.

to monitor and limit bureaucratic demands."[24]

A number of studies have disputed the property rights approach[25] and the Niskanen bureau.[26] For example, Fama claims that rational shareholders are

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24Schneider, "Intermunicipal Competition," 616.

25Jensen, Michael, and William Meckling. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." Journal of Financial Economics 3 (1976): 305-360.
Fama, Eugene. "Agency Problems and the Theory of the Firm." Journal of Political Economy 88 (1980): 288-307.
Frech, Harry. "Property Rights, the Theory of the Firm and Competitive Markets for Top Decision-makers." Research in Law and Economics 2 (1980): 49-63.
Grossman, Sanford, and Oliver Hart. "Takeover Bids, the Free Rider Problem and the Theory of the Corporation." Bell Journal of Economics 11 (1980): 42-64.
Wintrobe, Ronald. "The Market for Corporate Control and the Market for Political control." Journal of Law, Economics, and Organization 3 (1987): 435-448.
Anderson, Terry, and Peter Hill. "Privatizing the Commons: An Improvement?" In Charles Rowley, Robert Tollison, and Gordon Tullock, eds., The Political Economy of Rent-Seeking, (Boston: Kluwer Academic Publishers, 1988), 371-388.
Picot, Arnold, and Thomas Kaulmann. "Comparative Performance of Government-owned and Privately-owned Industrial Corporations: Empirical Results from Six Countries." Journal of International and Theoretical Economics 145 (1989): 298-316.
Wittman, Donald. "Why Democracies Produce Efficient Results." Journal of Political Economy 97 (1989): 1395-1424.

26Migue, Jean-Luc, and Gerald Belanger. "Toward a General Theory of Managerial Discretion." Public Choice 17 (1974): 27-43.
Breton, Albert, and Ronald Wintrobe. "The Equilibrium Size of a Budget Maximizing Bureau: A Note on Niskanen's Theory of Bureaucracy. " Journal of Political Economy 83 (1975): 195-207.
_____. The Logic of Bureaucratic Conduct. New York: Cambridge University Press, 1982.
Miller, Gary. "Bureaucratic Compliance as a Game on the Unit Square." Public Choice 19 (1977): 37-51.
Conybeare,John. "Bureaucracy, Monopoly, and Competition: A Critical Analysis of the Budget-Maximizing Model of Bureaucracy." American Journal of Political Science 28 (1984): 479-502.

more likely to diversify their portfolio in a large number of firms, and thus attenuation of property rights may also be a serious problem in private firms.

Concerning managerial discretion in the public sector, Wintrobe argues that competition exists among public managers as well as private counterparts, and that elections are a potential takeover bid by opposition parties. He also claims that the average shareholders have less knowledge about their agents than citizens do about politicians or parties, largely due to the diversification of shareholders' portfolio. Wittman states that "efficiency does not require perfectly informed voters any more than efficient economic markets require all stockholders to know the intimate workings of the firms in which they hold stock or all principals to perfectly monitor their agents."[27] He contends that the voters (owners) have relevant information provided by informed political entrepreneur and developed by party brand names and candidate reputation.

1) Competitive environment

A number of scholars have indicated that public firms show better economic

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Deacon, Robert. "Private Choice and Collective Outcomes: Evidence from Public Sector Demand Analysis." National Tax Journal 30 (1977): 371-386.
De Alessi, Louis. "Some Implications of Property Rights for Government Investment Choices." American Economic Review 59 (1969): 16-23.
Kress, Shirley. "Niskanen Effects in the California Community Colleges." Public Choice 46 (1989): 127-140.
Blais, Andre, and Stephane Dion, eds., The Budget-Maximizing Bureaucrat: Appraisals and Evidence. Pittsburgh: University of Pittsburgh Press, 1991.

27Wittman, "Efficient Results," 1400.

performance if they were subject to competition. For example, Peltzman suggests that "the differences between government monopolies and government firms with private competitors might be greater than the differences between government firms and private firms in competition with one another."[28] In the same vein, Spann argues that "one would expect competition to exert some market pressure on government enterprises to hold down costs (since customers can always opt for the privately produced output if they desire) and to eliminate some of the opportunities for discretionary behavior on the part of bureaucracies."[29] Borcherding et al. claim that "given sufficient competition between public and private producers (and no discriminative regulations and subsidies), the differences in unit cost turn out to be insignificant...We may conclude that it is not so much the difference in the transferability of ownership but the lack of competition which leads to the often observed less efficient production in public firms"[30]

Niskanen claims that when private firms coexist with the public firm, it will reduce any cost advantage associated with private ownership because public

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28Peltzman, Sam. "Pricing in Public and Private Enterprises: Electric Utilities in the United States." Journal of Law and Economics 14 (1971): 147.

29Spann, Robert. "Public versus Private Provision of Governmental Services." in Budgets and Bureaucrats: The Sources of Governmental Growth, Thomas Borcherding, ed., (Durham: Duke University, 1977), 75.

30Borcherding, Thomas, Barry Burnaby, Werner Pommerehne, and Frederick Schneider. "Comparing the Efficiency of Private and Public Production: Evidence from Five Countries." Journal of Economics (1982): 136.

managers are confronted with competitive pressure. Rosenbloom notes that contracting out "can take advantage of market competition when several firms seek to win government contracts for the provision of services...public agencies may be allowed to compete with private firms in this context."[31] Similarly, Poole and Fixler contend that public firms may reduce costs by contracting with the private sector, because contracting raises the competitive environment for both private and public sector bidders.

Donahue contends that the major benefits of contracting out are not derived from private ownership per se, but from the increase of rivalry. He argues that "public versus private matters, but competitive versus noncompetitive usually matters more.[32] Miller and Moe and Schneider[33] contend that bureaucrats facing more competition are less likely to expand their bureau budget than are bureaucrats facing less competition. Bureaucrats operating in more competitive conditions face an environment with more information, thus cannot benefit from information asymmetry. Savas finds that the efficiency of a city government has been increased largely due to competition since contracting out was introduced

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31Rosenbloom, David. "The Evolution of the Administrative State and Transformations of Administrative Law." Unpublished manuscript, (1993): 28.

32Donahue, John. The Privatization Decision: Public Ends, Private Means. (New York: Basic Books, 1989), 78.

33Schneider, Mark. "Intermunicipal Competition, Budget-Maximizing Bureaucrats, and the Level of Suburban Competition." American Journal of Political Science 33 (1989): 612-628.

in municipal government.[34]

Deacon argues that a monopolistic public firm will reduce excessive output to be an efficient producer when alternative service suppliers increase. Wittman claims that competition is an effective tool to reduce opportunistic behavior in the public sector. Public firms with competition may produce more efficiently than those without competition because they are no longer operating as a monopolist.

Vickers and Yarrow claim that competition has a significant role in reducing monitoring costs because we can compare the performance of players in competitive market. They also contend that competition is more important factor than ownership.[35]

A number of studies have empirically examined the effects of competition on public firms. For example, after surveying the effects of competition on public electric utility firms, Primeaux contends that competition matters in public firms. He finds that competition among public electric utility firms reduces operating costs per KWH by 11 percent on average.[36] Caves and Christensen contend that

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34Savas, Edgar. "An Empirical Study of Competition in Municipal Service Delivery." Public Administration Review 37 (1977): 717-724.

35Vickers, John, and George Yarrow. "Economic Perspectives on Privatization." Journal of Economic Perspectives 5 (1991): 111-132.

36Primeaux, Walter. "An Assessment of X-Efficiency Gained Through Competition." Review of Economics and Statistics 59 (1977): 105-113.
_____. "Estimation of the Price Effects of Competition: The Case of Electricity." Resources and Energy 7 (1985): 325-340.
_____. Direct Electric Utility Competition. New York: Praeger Publishers, 1986.

public ownership is not inherently less efficient than private ownership, and that competition rather than ownership is the principal factor to efficiency. They examine the two Canadian railroads-one publicly owned (Canadian National) and the other privately owned (Canadian Pacific)-and present results showing that the frequently observed cost inefficiency associated with public ownership is the result of a lack of competition, not public ownership per se. The inefficiency associated with public ownership is overcome by introducing competition.[37] After surveying OMB's Commercial Activity program, Carrick finds that public sector is not less efficient than private sector. He reviews the outcomes of over 1,700 competitions between public producers and private producers, and concludes that public producer is as efficient as the private supplier. He argues that public firms can achieve efficiency by structuring appropriate internal incentives for public managers in competition with private managers.[38]

Bovbjerg et al. contend that competitive bidding "offers an appealing way of dealing with overpricing per unit of service that comes from "rents"(unduly high profits) or differential inefficiency(across firms). The great virtue of bidding is that it allows the buyer to achieve a price close to the efficient cost of production even

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37Caves, Douglas, and Laurits Christensen. "The Relative Efficiency of Public and Private Firms in a Competitive Environment: The Case of Canadian Railroads." Journal of Political Economy 88 (1980): 958-976.

38Carrick, Paul. "New Evidence on Government Efficiency." Journal of Policy Analysis and Management 7 (1988): 518-528.

though the buyer starts with absolutely no information about production costs."[39] Chamberlin and Jackson contend that rents and rent-seeking behavior are important in deciding whether maintaining the public provision or contracting out with private firm is more efficient. If competition does not increase by contracting out with private firms, it would simply transfer rents from public firms to private firms.

2) Regulatory constraint

A number of previous studies have explored the effects of government regulation on the efficiency of private firms and the economic consequences of public firms.[40]

39Bovbjerg, Randall, Philip Held, and Mark Pauly. "Privatization and Bidding in the Health-Care Sector." Journal of Policy Analysis and Management 6 (1987): 654.

40Averch, Harvey, and Leland Johnson. "Behavior of the Firm Under Regulatory Constraint." American Economic Review 52 (1962):1052-1069.
Alchian, Armen, and Reuben Kessel. "Competition, Monopoly, and the Pursuit of Money." in Aspects of Labor Economics, National Bureau of Economic Research, (Princeton: Princeton University Press, 1962), 157-175.
Spann, Robert. "Rate of Return Regulation and Efficiency in Production: An Empirical Test of the Averch-Johnson Thesis." Bell Journal of Economics and Management Science, 5 (1974): 38-52.
Courville, Leon. "Regulation and Efficiency in the Electric Utility Industry." The Bell Journal of Economics 5 (1974): 53-74.
Peterson, H. Craig. "An Empirical Test of Regulatory Effects." The Bell Journal of Economics 6 (1975): 111-125.
Meyer, Robert. "Publicly Owned Versus Privately Owned Utilities: A Policy Choice." The Review of Economics and Statistics 57 (1975): 391-399.
Hayashi, Paul, and John Trapani. "Rate of Return Regulation and the Regulated Firms's Choice of Capital-Labor Ratios: Further Empirical Evidence on the

The results of empirical studies of relative efficiency in the electric and water utility industry have often confirmed the arguments that public firms are more efficient than private firms, inconsistent with the theoretical hypothesis of property rights theory and the Niskanen bureau. These empirical studies are based on the theoretical background developed by Averch and Johnson. Averch and Johnson analyze the effects of rate-of-return regulatory constraints on the behavior of a private firm, and find that the regulated monopoly private firm may produce with some inefficiency due to the use of an excessive amount of capital relative to other inputs.

Since this argument was introduced by Averch and Johnson, De Alessi notes that "if the firm's unconstrained rate of return is greater than the allowed rate but less than the opportunity cost of capital, then net returns can be increased by using relatively more capital until at least one of these inequalities is removed. There is thus incentive to substitute capital for labor and to use an input combination which does not minimize costs."[41]

Caves et al. contend that "when one controls for the influence of regulation,

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Averch-Johnson Model." Southern Economic Journal 42 (1976): 384-398. Neuberg, Leland. "Two Issues in the Municipal Ownership of Electric Power Distribution System." The Bell Journal of Economics 8 (1977): 303-323. Pescatrice, Donn, and John Trapani. "The Performance and Objectives of Public and Private Utilities Operating in the United States." Journal of Public Economics 13 (1980): 259-276.

41De Alessi, "Regulation," 4.

there is little indication that ownership form influences performance."[42]

Yunker concludes that "both public and private utilities in the U.S. are subject to regulation and to taxation by public authorities, but it is generally agreed that the private firms are regulated more closely and that they certainly are taxed more heavily. It could be argued fairly plausibly that this element of greater control over the private sector tends to induce inefficiency because if a private utility industriously lowers costs and thereby increases profits, the public regulatory agency will perceive the enhanced profits, order a rate reduction, and the fruits of the effort will be lost. Thus, the private utilities are failing to cost minimize because it is not worthwhile for them to do so."[43] By using plant and firm data from private regulated electric utilities, Spann supports the Averch and Johnson hypothesis of overcapitalization. Courville also contends that actual production costs of private regulated electric utility firms exceed efficient production costs by approximately 12 percent.

Pack argues that regulation, combined with contracting out production with private sector, may reduce some problems of private sector activities. In

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42Caves, Douglas, Laurits Christensen, Joseph Swanson, and Michael Tretheway. "Economic Performance of U.S. and Canadian Railroads: The Significance of Ownership and the Regulatory Environment." in Managing Public Enterprises, William Stanbury and Fred Thompson, eds.,(New York: Praeger Publishers, 1982), 146-147.

43Yunker, James. "Economic Performance of Public and Private Enterprises: The Case of U.S. Electric Utilities." Journal of Economics and Business. 28 (1975): 66.

particular, when competition does not exist, regulation may increase the effectiveness of monitoring on performance and limiting rents. Sappington and Stiglitz argue that regulation tends to lower the transaction costs of intervention by regulatory agents relative to unregulated private ownership, because regulators keep monitoring the firm's performance, and gather information to inform policy decisions and limit the firm's rents. The regulator imposes restrictions on rate-of-return and on pricing functions.[44] Russo finds that regulatory monitoring in electric utility industry has a significant effect on the behavior of regulated electrical firms: "the greater the monitoring effort of the regulatory agency, the greater the diversification by the firm. Thus, burdensome environmental relationships do drive expansion into activities out of the reach of that oversight."[45]

Hellman argues that competition is a more efficient manner of producing inexpensive electricity than regulation.[46] However, Nelson contends that competition significantly increases costs in utility firms. By using the variable costs (fuel, labor, and materials), but ignoring the capital costs, Nelson finds that

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44Sappington, David, and Joseph Stiglitz. "Privatization, Information and Incentives." Journal of Policy Analysis and Management 6 (1987): 567-582.

45Russo, Michael. "Power Plays: Regulation, Privatization, and Backward Integration in the Electric Utility Industry." Strategic Management Journal 13 (1992): 24.

46Hellman, Richard. Government Competition in the Electric Utility Industry. New York: Praeger, 1972.

competitive utility firms have from 13.92 to 14.79 percent higher generating costs per KWH than monopoly utility firms.[47]

3. The role of monitoring

A number of previous studies have indicated that the cost of monitoring has a significant impact on the efficiency of contracting out.[48]

47Nelson, Randy. "The Effects of Competition on Publicly-owned Firms." International Journal of Industrial Organization 8 (1990): 37-51.

48Lindsay, Cotton. "A Theory of Government Enterprise." Journal of Political Economy 84 (1976): 1061-1077.
Williamson, Oliver. "Transaction-Cost Economics: The Governance of Contractual Relations." Journal of Law and Economics 22 (1979): 233-261.
Savas, Edgar. "Intercity Competition Between Public and Private Service Delivery." Public Administration Review 41 (1981): 46-52.
De Alessi, Louis. "On the Nature and Consequences of Private and Public Enterprises." Minnesota Law Review 67 (1982): 191-209.
Borcherding, Thomas, Barry Burnaby, Werner Pommerehne, and Frederick Schneider. "Comparing the Efficiency of Private and Public Production: Evidence from Five Countries." Journal of Economics (1982): 127-156.
Ferris, James, and Elizabeth Graddy. "Contracting Out: For What? With Whom?" Public Administration Review 46 (1986): 332-344.
McGuire, Robert, Robert Ohsfeldt, and T. Norman Van Cott. "The Determinants of the Choice Between Public and Private Production of a Publicly Funded Service." Public Choice 54 (1987): 211-230.
Savas, Edgar. Privatizing the Public Sector: How to Shrink Government. Chatham: Chatham Press, 1982.
_____. Privatization: The Key to Better Government. Chatham: Chatham Press, 1987.
Borcherding, Thomas. "Some Revisionist Thoughts on the Theory of Public Bureaucracy." European Journal of Political Economy 4 (1988): 47-64.
Clarkson, Kenneth. "Privatization at the State and Local Level." in Privatization and State-owned Enterprises: Lesson from the United States, Great Britain and Canada. Paul MacAvoy, W.T. Stanbury, George Yarrow, and Richard Zeckhauser, eds., (Norwell: Kluwer Academic Publishers, 1989), 143-194.
Rehfuss, John. Contracting Out in Government. San Francisco: Jossey-Bass

Ferris and Graddy contend that

> the dilemma of public service contracting is the extent to which the principal (the contracting government) can ensure that the agent (the contractor) will behave so as to meet the principal's objectives in the presence of information asymmetries. The contracting government is not likely to have complete information on the capacity of the different bidders to perform to contract specifications, creating an adverse selection problem. To increase the likelihood of selecting the best contractor, the contracting government will incur costs to gather information. Information asymmetries also create problems at the monitoring and enforcement stage. In cases where it is technically impossible, i.e., the contractor may be inclined to shirk on performance. The contracting government seeks to minimize these problems through contract design and administration, thus incurring transaction costs during contract writing and monitoring.[49]

De Alessi claims that the emphasis on contractual relations is to reduce the possibility of post-contractual opportunistic behavior. Williamson notes that "...contractual gaps will be larger and the occasions for sequential adaptations will increase in number and importance as the degree of uncertainty increases."[50] As Prager notes, "... the most effective monitoring uncovers no discrepancies between the contract provisions and the actual results."[51] However, in practice it

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Inc., 1989.
Ferris, James, and Elizabeth Graddy. "Production Costs, Transaction Costs, and Local Government Contractor Choice." Economic Inquiry 29 (1991): 541-554.
Chandler, Timothy, and Peter Feuille. "Municipal Unions and Privatization." Public Administration Review 51 (1991): 15-22.
Prager, Jonas. "Contracting Out Government Services: Lessons from the Private Sector." Public Administration Review 54 (1994): 176-184.

49Ferris and Graddy, "Contractor Choice," 544.

50Williamson, "Contractual Relations," 254.

51Prager, "Contracting Out," 179.

is often difficult to define and measure the output of services provided by contracting out. Lindsay contends that the fewer the invisible attributes, the lower the production costs. That is, in services where monitoring is difficult and expensive, we expect that there is no significant difference between public and private production. Savas argues that "unless the contract is monitored and administered well, there is a long-term danger that the competitive factor will be weakened and the contract service will degenerate into a private monopoly, which would be no improvement over a public one."[52]

Sappington and Stiglitz contend that monopolistic conditions of public production may reduce the transaction costs. They argue that when output of a service is difficult to monitor, the monitoring costs of contracting out will be high. In the same vein, Williamson argues that if production cost savings of contracting out are small and/or the transaction costs of contracting out are great, contracting out may not deserve serious consideration. He indicates that "...transaction-specific savings can accrue at the interface between supplier and buyer as contracts are successively adapted to unfolding events, and as periodic contract-renewal agreements are reached."[53]

Some argue that the public managers tend not to contract out the services where the cost of monitoring the performance is greater, and thus are more likely

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52Savas, Privatization, 271.

53Williamson, "Contractual Relations," 240.

to produce those services in the public sector.[54] In such instances, Prager notes that "government production would be less costly as the apparent savings from outsourcing are overwhelmed by monitoring and other contracting costs."[55] Bovbjerg et al. argue that "if quality, quantity, and eligibility are not monitored perfectly, the for-profit firm may be able to increase profits by reducing quality or eligibility, then converting the resulting cost savings into profits."[56]

Williamson indicates that "for some transactions, a shift from one structure to another may permit a simultaneous reduction in both the expense of writing a complex contract(which economizes on bounded rationality) and the expense of executing it effectively in an adaptive, sequential way(by attenuating opportunism)."[57] Prager insists that "a service that directly affects an interest group, or even unorganized citizenry, requires less bureaucratic concern and hence lower monitoring outlays from the authorities...Snow removal from street,

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54Borcherding, Thomas, Barry Burnaby, Werner Pommerehne, and Frederick Schneider. "Comparing the Efficiency of Private and Public Production: Evidence from Five Countries." Journal of Economics (1982): 127-156.
De Alessi, Louis. "On the Nature and Consequences of Private and Public Enterprises." Minnesota Law Review 67 (1982): 191-209.
Rehfuss, John. Contracting Out in Government. San Francisco: Jossey-Bass Inc., 1989.
Prager, Jonas. "Contracting Out Government Services: Lessons from the Private Sector." Public Administration Review 54 (1994): 176-184.

55Prager, "Contracting Out," 182.

56Bovbjerg et al. "Privatization," 650.

57Williamson, "Contractual Relations," 246.

filling in road potholes, garbage pickup...are examples of services that the citizenry can monitor effectively, and so keep monitoring costs to a minimum."[58] In this view, interest groups can inform public officials and encourage them to take actions such as rewards or sanctions.[59] Moreover, according to McCubbins, Noll, and Weingast, administrative procedures through constituent complaints ("fire-alarm" monitoring) improve the problem of asymmetric information. Thus, administrative procedures produce greater compliance by lowering the costs of monitoring.[60]

Borcherding also contends that the efficiency of contracting out is subject to the monitoring costs because a reduction in monitoring causes an increase in opportunism. For example, Ferris and Graddy argue that "the more complex the product, the better suited it is to public production. Consequently, governments are more likely to contract out services that can be easily monitored, i.e., services

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58Prager, "Contracting Out," 181.

59Weingast, Barry. "The Congressional-Bureaucratic System: A Principal-Agent Perspective." Public Choice 44 (1984): 147-191.
McCubbins, Mathew, and Thomas Schwartz. "Congressional Oversight Overlooked: Police Patrols vs. Fire Alarms." American Journal of Political Science 28 (1984): 165-179.
Calvert, Randall, Mathew McCubbins, and Barry Weingast. "A Theory of Political Control and Agency Discretion." American Journal of Political Science 33 (1989): 588-611.

60McCubbins, Mathew. "The Legislative Design of Regulatory Structure." American Journal of Political Science 29 (1985): 721-748.
McCubbins, Mathew, Roger Noll, and Barry Weingast. "Administrative Procedures as Instruments of Political Control." Journal of Law, Economics, and Organization 3 (1987): 243-277.

that have tangible and simple outputs."[61] When monitoring cost is not so high, we expect that private production is less expensive than public production; the magnitude of monitoring cost is different from the nature of the service being contracted out. Boardman and Vining claim that "evidence of the greater efficiency of PCs [private corporations] appears to be in the delivery of services where governments' subcontracts to the private sector and their monitoring costs...are relatively low."[62] Chandler and Feuille claim that local governments are contracting out services with the private sector when those services have outputs that are easily monitored.

In relation to the relative efficiency of public versus private firms, Lindsay claims that "when proprietary and government enterprises confront identical demand functions, systematic differences in the behavior of these two types of enterprises will be observed. The output of government enterprises will, in general, contain fewer of those attributes which are "invisible" to Congress, that is, whose presence and quality are not easily monitored."[63] After surveying the U.S. Employment Service (public placement service) and Snelling and Snelling Employment Services (private placement service), Clark's finding supports

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61Ferris and Graddy, "With Whom?" 333.

62Boardman, Anthony, and Aidan Vining. "Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-Owned Enterprises." Journal of Law and Economics 32 (1989): 5.

63Lindsay, "Government Enterprises," 1066.

Lindsay's argument of higher visible output/staff ratios in the public agency.[64]

Clarkson claims that contracting out the delivery of public services sometimes hides the cost associated with monitoring the performance of service. Such cost should be considered.[65] In the same vein, Prager claims that "monitoring entails additional costs, but not monitoring can be even more expensive...Contracting out is inappropriate when the combined contract price and the cost of the contract management exceed the cost of in-house production."[66] Rehfuss and others argue that the cost of monitoring the performance is from 5 to 25 percent of the contract.[67]

However, as DeHoog notes, the departments of local government have inadequate resources to monitor contracting producers.[68] Rehfuss and Praeger

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64Clark, William. "Production Costs and Output Qualities in Public and Private Employment Agencies." Journal of Law and Economics 31 (1988): 379-393.

65Clarkson, Kenneth. "Privatization at the State and Local Level." in Privatization and State-owned Enterprises: Lesson from the United States, Great Britain and Canada, Paul MacAvoy, W.T. Stanbury, George Yarrow, and Richard Zeckhauser, eds., (Norwell: Kluwer Academic Publishers, 1989), 179.

66Prager, "Contracting Out," 179.

67Rhfuss, Jonas. "Contracting Out Government Services: Lessons from the Private Sector." Public Administration Review 54 (1994): 176-184. Comptroller General. Civil Servants and Contract Employees: Who Should Do What for the Federal Government? Washington, DC: U.S. General Accounting Office, 1981.

68DeHoog, Ruth. Contracting Out for Human Services: Economics, Political, and Organizational Perspectives. Albany: State University of New York Press, 1984.

also contend that local government is not interested in finding out or has done little monitoring. When public sector includes monitoring costs in contracting procedure, the superior efficiency of private sector largely derived from cost savings should be reconsidered. For example, Good examines the effects of public production of the transit agency that contracts out with private firms. He finds that transit agencies managed by private contract firm are only 2.6 percent less costly to operate than are public transit firms, less than the monitoring cost claimed by Rehfuss.[69] That is, Van Horn claims that "when pressed, few officials could supply any hard evidence that private contracting was cheaper than government service delivery."[70]

4. Previous empirical studies

1) Refuse collection

The services of refuse collection are easily monitored because their outputs are tangible. It is easy to define and monitor performance of services provided by contracting private firms. Pier et al. indicate that garbage collection service is relatively homogeneous among various localities and easy to monitor the quality

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69Good, David. "Productive Efficiency and Contract Management: Some Evidence from Public Transit Agencies." Public Finance Quarterly 20 (1992): 195-215.

70Van Horn, Carl. "The Myth and Realities of Privatization." in Privatization and Its Alternatives, William Gormley, ed., (Madison: University of Wisconsin Press, 1991), 261-280.

of service provided.

In addition, since refuse collection services are labor-intensive,[71] public firms seek to reduce costs through contracting out with private firms. Hirsch argues in his study that labor is the single most important input in residential refuse collection. Young shows that labor costs of garbage collection service are as high as 78 percent in New York City and 85 percent in Washington, D.C. Stevens indicates that labor productivity is significantly lower in public firm than in private contracting firm.

Savas contends that "the high cost of municipal collection compared with contract collection is apparently due to what some might call "bureaucratic inefficiency" or "governmental inefficiency": compared to private firms with contracts in cities of over 50,000, municipal refuse-collection agencies in such cities have higher employee absentee rates(12 percent vs. 6.5 percent, significant at the 99 percent level); employ larger crews(3.26 men vs. 2.15,

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71Hirsch, Werner. "Cost Functions of an Urban Government Service: Refuse Collection." Review of Economics and Statistics 47 (1965): 87-92.
Young, Dennis. How Shall We Collect the Garbage. Washington, DC: Urban Institute, 1972.
Pier, William, Robert Vernon, and John Wicks. "An Empirical Comparison of Government and Private Production Efficiency." National Tax Journal 27 (1974): 653-656.
Kitchen, Harry. "A Statistical Estimation of an Operating Cost Function for Municipal Refuse Collection." Public Finance Quarterly 4 (1976): 56-76.
Stevens, Barbara. "Comparing Public- and Private-Sector Productive Efficiency: An Analysis of Eight Activities." National Productivity Review 3 (1984): 395-406.
Dubin, Jeffrey, and Peter Navarro. "How Markets for Impure Public Goods Organize: The Case of Household Refuse Collection." Journal of Law, Economics, and Organization 4 (1988): 217-241.

significant at the 99.9 percent level); serve fewer households per shift(632 vs. 686, not significant at the 95 percent level); spend more time servicing each household(4.35 man-hours per year vs. 2.37, significant at the 99.9 percent level); and are less likely to utilize labor-incentive systems(80 percent vs. 89 percent, not significant at the 95 percent level)."[72] Stevens adds that truck capacity for contracting firms is 27.14 cubic yards, and for public firms is 20.63 cubic yards in cities of over 50,000. Finally, Chandler and Feuille contend that local governments are more likely to contract out services that are relatively low-skill jobs, and thus are easy to find private sector alternatives for the public services.

It is evident that the use of alternative service delivery in this service area appears to be an effective way of reducing direct labor costs.

However, with relation to refuse collection, a number of studies have found that public sector is more efficient,[73] while others not mentioned above have

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72Savas, Edgar. "Policy Analysis for Local Government: Public vs. Private Refuse Collection." Policy Analysis (1977): 71.

73Pier, William, Robert Vernon, and John Wicks. "An Empirical Comparison of Government and Private Production Efficiency." National Tax Journal 27 (1974): 653-656.
Savas, Edgar. "Intercity Competition Between Public and Private Service Delivery." Public Administration Review 41 (1981): 46-52.
Dubin, Jeffrey, and Peter Navarro. "How Markets for Impure Public Goods Organize: The Case of Household Refuse Collection." Journal of Law, Economics, and Organization 4 (1988): 217-241.

argued that private sector is more efficient than public sector.[74] Some studies also show no differences among them.[75]

Kitchen finds that refuse collection provided by public sector tends to be much more expensive than contracting out refuse collection with private firms. He indicates that capacity utilization exists in refuse collection; private contracting firms use specialized trucks, resulting in the decrease of unit cost. And he supports the hypothesis that public firms are less efficient because of a lack of

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74Young, Dennis. How Shall We Collect the Garbage. Washington, D.C.: Urban Institute, 1972.
Kitchen, Harry. "A Statistical Estimation of an Operating Cost Function for Municipal Refuse Collection." Public Finance Quarterly 4 (1976): 56-76.
Savas, Edgar. "Policy Analysis for Local Government: Public vs. Private Refuse Collection." Policy Analysis 3 (1977): 49-74.
Spann, Robert. "Public versus Private Provision of Governmental Services." In Budgets and Bureaucrats: The Sources of Governmental Growth, Thomas Borcherding, ed. (Durham: Duke University, 1977), 71-89.
Bennet, James, and Manuel Johnson. "Public versus Private Provision of Collective Goods and Services: Garbage Collection Revisited." Public Choice 22 (1978): 55-63.
Edwards, Franklin and Barbara Stevens. "The Provision of Municipal Sanitation Services by Private Firms: An Empirical Analysis of the Efficiency of Alternative Market Structures and Regulatory Arrangements." The Journal of Industrial Economics 27 (1978): 133-147
Stevens, Barbara. "Comparing Public- and Private-Sector Productive Efficiency: An Analysis of Eight Activities." National Productivity Review 3 (1984): 395-406.
McDavid, James. "The Canadian Experience With Privatizing Residential Solid Waste Collection Services." Public Administration Review 45 (1985): 602-608.

75Hirsch, Werner. "Cost Functions of an Urban Government Service: Refuse Collection." Review of Economics and Statistics 47 (1965): 87-92.
Kemper, Peter, and John Quigley. The Economics of Refuse Collection. Cambridge, MA: Ballinger, 1976.
Collins, John and Bryan Downes. "The Effects of Size on the Provision of Public Services : The Case of Solid Waste Collection in Small Cities." Urban Affairs Quarterly 12 (1977): 333-347.

competition and little desire to minimize cost. In the same vein, Young finds that public garbage collection service is more expensive because the public firm has little competition, and little incentive to improve efficiency.

Savas argues that competitive systems of refuse collection have important advantages over pure systems (all municipal or all contract): 1) increased efficiency, 2) decreased vulnerability to employee actions, 3) decreased vulnerability to contractor failures, 4) protection against monopolistic behavior of contractors and municipal employees, 5) dual yardsticks for measuring and comparing performance, and 6) more substantive knowledge and understanding of service delivery.[76] Savas finds that in cities with population over 50,000 residential refuse collection by contracting arrangement is substantially more efficient than collection by municipal arrangement.[77] He contends that his finding is consistent with the notion of Downs, Tullock, and Niskanen that government bureaucracies are inefficient because of their monopolistic service provisions.

Edwards and Stevens claim that contract arrangement is the most efficient collection system in municipal sanitation services: contract cities save costs from 10 to 41 percent. They contend that the cost savings derive from two factors: 1) economies of scale - cost savings are greatest in cities with population less than 40,000, and 2) economies of contiguity - in large cities contracting arrangement

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76Savas, "Intercity Competition," 50.

77Savas, "Refuse Collection," 71.

may eliminate or reduce the transaction costs associated with a multiple-city operation. They also find an important fact that there is no significant difference in adopting the contract service arrangement between competitive bidding contract city (city assigns collection contracts by competitive bidding) and negotiating contract city (city assigns collection contracts by simply negotiating with would-be collectors); the estimated coefficients for refuse collection price per household are -.772 (competitive bidding contract city) and -.715 (negotiating contract city).

Bennett and Johnson find that public refuse collection services charge $126.80 per year on average, while private firms charge $85.76 per year on average. Stevens finds that public provision is 43 percent (Street Cleaning), 56 percent (Traffic Signal Maintenance), 73 percent (Janitorial), 96 percent (Asphalt Overlay Construction), and 37 percent (Street Tree Maintenance) more expensive than those services provided by private firm. Stevens finds that the public sector or competitive arrangement is from 26 percent to 48 percent (27 percent to 37 percent in cities with population over 50,000) more expensive than the private sector. She draws this conclusion from the facts that the private firm uses a smaller crew with a larger collection vehicle than does the public firm. The absentee rate is higher in public provision cities than in private arrangement cities. A further difference in production techniques occurs only in larger cities.[78]

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78 Stevens, Barbara. "Scale, Market Structure, and the Cost of Refuse Collection." The Review of Economics and Statistics 60 (1978): 447.

A cross-Canadian survey conducted by McDavid shows that residential solid waste collection by public agency is less efficient than contract arrangement: costs per household by government collection are 50.9 percent higher than contract collection. Public crews are less productive, and their equipment is less efficient as well.

After surveying 129 Connecticut communities, Kemper and Quigley contend that contract refuse collection is 13 to 38 percent cheaper than municipal collection. Savas argues that competitive market forces can be utilized to improve public sector efficiency. He shows that contracting city devotes attention to monitoring the performance of the private contracting firms. The contracting city of Minneapolis calculates its cost of monitoring to be equivalent to 3 percent of contracting cost. He finds important evidence that competition and close monitoring do matter; 1) at the inception of the competitive environment, the cost per ton is lower in contracting refuse collection service ($28.91) than in public collection service ($32.08), 2) the contracting city has been closing the gap of costs between private contract and public collection service by declining ratio of municipal to contract costs, and 3) since competition was introduced, the increasing rate of cost per ton for public collection has been dropping sharply. The cost per ton for public collection is $37.97, while the cost per ton for private contracting collection is $37.44. Tons per shift by public employees increase from 5.74 to 7.35, whereas contracting collection is relatively static, from 6.11 to 6.69.

Pier et al. find that public collection of garbage is more efficient than private collection of garbage in Montana communities with population over 1,750: "with respect to labor, public collection was more efficient at all output levels. With respect to capital, the public sector was less efficient at low output scales and more efficient at higher scales of output."[79] Dubin and Navarro contend that private market arrangement is substantially more costly than contract, franchise, or municipal alternatives. They find that the household refuse collection provided by private market arrangement charges 2.7 cents more per yard than contract arrangement.

In sum, refuse collection services are easily monitored because their outputs are tangible. Therefore, it is easy to define and monitor performances of the services produced by private contracting firms. In addition, since refuse collection services are labor-intensive, public firms may reduce labor costs using alternative service delivery - contracting out. The majority of previous comparative studies indicate that private sector is less costly to produce refuse collection services than public sector.

2) Public safety

Public safety services are relatively easy to define and monitor because most of outputs are visible. These services are labor-intensive, and thus the

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79Pier et al., "Government and Private Production," 653.

contracting out with private sector may effectively reduce labor costs. In addition, these services are intermittently demanded, and thus the cost savings through contracting out with private firms are expected. Private contracting firms may increase cost savings by utilizing capacity.

Poole and Fixler find that "a recent study of the private provision of security and police-support services reports that 44 percent of public-law-enforcement officials surveyed indicate that local and state governments in their jurisdictions contract out for the protection of public property such as schools, libraries, hospitals, parks, parking lots, housing projects, and government buildings."[80] Gage surveys contracting police service with private firms in Reminderville, Ohio, and finds that private contracting service is 50 percent less costly than public service without reducing the service.[81]

In the early 1970s, Ahlbrandt argues that "separation of the demand and supply units may create market pressures that resemble those in a competitive environment. The producer has an incentive to combine resources in the least-cost manner and to attain a scale of operation commensurate with minimum average costs of production."[82] After surveying fire protection services in Scottsdale, Arizona, he supports his argument that competitive supply, induced

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80Poole and Fixler, "Privatization," 618.

81Gage, Theodore. "Cops, Inc." Reason 14 (1982): 23-28.

82Ahlbrandt, Rogers. "Efficiency in the Provision of Fire Services." Public Choice 16 (1973): 2.

by a contractual arrangement, is more efficient than publicly provided supply: competitive supply provides fire protection services 47 percent (a cost reduction of $3.32 per capita) less than the bureaucratic producer. He finds that predicted fire protection cost per capita is $7.10, while the cost of the contractual arrangement is $3.78.

Poole and Fixler state that approximately 36 jurisdictions provide municipal or public airport fire-protection service by contracting arrangements with the private sector. And this trend has expanded more in specialized fire-protection services than in municipal fire service because public employee unions oppose contracting out to private sector.[83]

In sum, there are few comparative studies in public safety service. For some public safety services (e.g., fire protections) it is relatively easy to measure the outputs of contracting services, while others (e.g., crime reduction) are not so easy to measure. In addition, public safety services are labor-intensive and intermittently demanded. Thus, we may expect that private contracting firms may increase cost savings by reducing labor costs and by utilizing capacity.

3) Parks and recreation

Parks and recreation services are easy to define and outputs are easy to

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83Hodge, Scott. "Privatizing Fire Protection." Heartland Case Study No. 1, Chicago, IL: Hartland Institute, May 6, 1986, p. 2, quoted in Poole and Fixler, p. 618.

monitor. One characteristic of park and recreation services is seasonal demand. Therefore, we may expect to reduce costs by utilizing capacity through contracting out with private firms.

As Savas notes, contracting services are more efficient because they allow flexibility in adjusting the quantity of service to seasonal demand.[84] As a consequence, we may expect to save costs by utilizing capacity and labor through contracting out with private firms.

There are few public and private comparative studies of municipal park and recreation services. For one example, in Detroit, the municipal government contracts with private firms to maintain trees on the street and in public parks. Hayes finds that contracting private firms are significantly more efficient; they have one-third the unit costs of the public firm.[85]

Stevens surveys public versus contracting park turf maintenance, and finds that private contracting service is 40 percent lower cost than public service. She argues that the major cost differences are attributed to the different labor practices between public and private firms. Baim finds that the cost to construct private sports arenas is $1,333 per seat, whereas $1,946 per seat for public sports arenas. Private arenas are 31.5 percent less costly than public sports

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84Savas, Privatization, 109.

85Hayes, Fredrick. Productivity in Local Government. (Lexington: Heath, 1977), 43.

arena.[86]

In sum, for parks and recreation services, it is evident that the use of alternative service delivery (contracting out) leads to cost savings. Because it is easy to define and monitor the outputs of parks and recreation services provided by contracting out.

4) Health and human service

For health care service, it is difficult to define and monitor the quality of the contracting services since the output of health care service is complex and intangible, which raises service monitoring problems. Bovbjerg et al. contend that the essence of the argument about contracting out is that

> the quality of both care and administration is difficult to specify in advance and or monitor after the fact. Not only do public officials find it technically difficult or impossible to specify quality for most medical services, but they also find it politically unattractive to specify explicitly anything less than the best available-even where some measures of quality are feasible.... If quality is not monitored well but business goes to the lowest bidder, quality will be set as low as permitted by the quality-monitoring mechanism. Given that level of quality (whatever it is), the bid price will be close to minimum costs of production.[87]

Although the outputs of health and human services are invisible, these services are labor-intensive. Contracting private firms can manage their labor forces on a more flexible basis. Therefore, it may reduce costs by contracting

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86Baim, Dean. Comparison of Privately and Publicly Owned Sports Arenas and Stadiums. Chicago: Heartland Institute, 1985.

87Bovbjerg et al., "Health-Care Center," 654.

out for these services with private firms. This argument is supported by Schlesinger and Dorwart who note that "... cost differential between the public and private facilities is large but may well be the result of the differences in staffing ratios rather than of differences in efficiency."[88]

Clarkson and Rushing find evidence on input utilization in for-profit hospitals. Clarkson finds that public hospital administrators are less likely to spend time on supervisory control and other administrative responsibilities. In contrast, private hospital administrative staff members are more likely to devote time to duty at night and more time to the unpleasant task of supervising employees. Rushing finds that for-profit hospitals have larger proportion of production personnel and smaller proportion of administrative and staff personnel, while public hospitals have larger proportion of administrative personnel.[89]

Bovbjerg et al. contend that "...the manager of a governmental hospital acts as agent for the politicians and taxpayers."[90] The manager is not likely to use the inputs to maximize the wealth of owners(citizens). Under public enterprises, the

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88Schlesinger, Mark, and Robert Dorwart. "Ownership and Mental-health Services: A Reappraisal of the Shift toward Privately Owned Facilities." The New England Journal of Medicine 311 (1984): 963.

89Rushing, William. "Differences in Profit and Nonprofit Organizations: A Study of Effectiveness and Efficiency in General Short-stay Hospitals." Administrative Science Quarterly 19 (1974): 474-484.

90Bovbjerg et al. "Privatization," 651.

incentive to monitor the manager's performances may be attenuated in some way, because citizenry ownership is diffused among all the citizens weakening individuals' property rights to the use of resources. As a consequence, public ownership leads to a weak relationship between managerial utility and firm benefit. De Alessi also argues that under their supervision public enterprise managers are more likely to increase resources and to use those resources for their own welfare because they have more discretionary behavior than private enterprise managers.

The application of contracting to health and human services has grown in the last three decades. Poole and Fixler argue that "the privatization of health and human services is much harder than, for instance, public-works functions because of the greater difficulty in developing objective specifications. Furthermore, health and human services are much more complex services because they have vulnerable human beings as their clients. Nevertheless, the contracting out of complex services seems to be on the increase."[91]

Some have argued that public hospitals are more efficient,[92] while others

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91Poole, Robert, Jr. and Philip Fixler, Jr. "Privatization of Public-sector Services in Practice: Experience and Potential." Journal of Policy Analysis and Management 6 (1987): 617.

92Pattison, Robert, and Hallie Katz. "Investor-owned and Not-for-profit Hospitals: A Comparison Based on California Data." The New England Journal of Medicine 309 (1983): 347-353.
Feder, Judith, Jack Hadley, and Ross Mullner. "Poor People and Poor Hospitals: Implications for Public Policy." Journal of Health Politics, Policy and Law 9 (1984): 237-250.

have concluded that there is no difference among them,[93] or that private hospitals are more efficient than public hospitals.[94]

Valdmanis, Vivian. "Sensitivity Analysis for DEA Models: An Empirical Example Using Public vs NFP Hospitals." Journal of Public Economics 48 (1992): 185-205.
White, Stephen. "The Effects of Competition on Hospital Costs in Florida." Policy Studies Journal 15 (1987): 375-393.

93Sloan, Frank, and Robert Vraciu. "Investor-owned and Not-for-profit Hospitals: Addressing Some Issues." Health Affairs (Spring 1983): 25-37.
Becker, Edmund, and Frank Sloan. "Hospital Ownership and Performance." Economic Inquiry 23 (1985): 21-36.
Tuckman, Hoard, and Cyril Chang. "Cost Convergence Between For-profit and Not-for-profit Nursing Homes: Does Competition Matter?" Quarterly Review of Economics and Business 28 (1988): 50-65.

94Clarkson, Kenneth. "Some Implications of Property Rights in Hospital Management." Journal of Law and Economics 15 (1972): 363-384.
Hrebiniak, Lawrence, and Joseph Alutto. "A Comparative Organizational Study of Performance and Size Correlates in Inpatient Psychiatric Departments." Administrative Science Quarterly 18 (1973): 365-382.
Rushing, William. "Differences in Profit and Nonprofit Organizations: A Study of Effectiveness and Efficiency in General Short-stay Hospitals." Administrative Science Quarterly 19 (1974): 474-484.
Lindsay, Cotton. "A Theory of Government Enterprise." Journal of Political Economy 84 (1976): 1061-1077.
Hsiao, William. "Public versus Private Administration of Health Insurance: A Study in Relative Economic Efficiency." Inquiry 14 (1978): 379-387.
Frech, Harry. "The Property Rights Theory of the Firm: Empirical Results from a Natural Experiment." Journal of Political Economy 84 (1976): 143-152.
_____. "Property Rights, the Theory of the Firm and Competitive Markets for Top Decision-makers." Research in Law and Economics 2 (1980): 49-63.
_____. "The Property Rights Theory of the Firm: Some Evidence from the U.S. Nursing Home Industry." Journal of Institutional and Theoretical Economics 141 (1985): 146-166.
Frech, Harry, and Paul Ginsburg. "The Cost of Nursing Home Care in the United States: Government Financing, Ownership, and Efficiency." in Health, Economics, and Health Economics, Jacques Van Der Gaag and Mark Perlman, eds., 1981, 67-81.
Bays, Carson. "Cost Comparisons of Forprofit and Nonprofit Hospitals." Social

Lindsay hypothesizes that principals (i.g., trustees and legislators) of Veterans' Administration hospitals(VA) have little incentive to monitor the level of patient service, supporting the attenuation of property rights theory. He argues that even though the quality of care is much lower in the VA than the private hospital, VA hospitals show lower costs than proprietary hospitals. Lindsay also shows that staff/patient ratios and average costs of patient service are relatively lower for VA hospitals. He contends that the average length of stay is much larger in VA than in private hospitals for the same surgical procedure.

White finds that for-profit hospitals in Florida have higher costs than non-profit or government hospitals. Feder et al. find that public hospitals are more efficient than profit hospitals because governments impose budget constraints on

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Science and Medicine 13 C (1979): 219-215.
Bishop, Christine. "Nursing Home Cost Studies and Reimbursement Issues." Health Care Financing Review 1 (1980): 47-64.
Wilson, George, and Joseph Jadlow. "Competition, Profit Incentives and Technical Efficiency in the Provision of Nuclear Medicine Services." Bell Journal of Economics 13 (1982): 472-482.
Lee, A. James, Howard Birnbaum, and Christine Bishop. "How Nursing Homes Behave: A Multi-equation Model of Nursing Home Behavior." Social Science and Medicine 17 (1983): 1897-1906.
Schlesinger, Mark, and Robert Dorwart. "Ownership and Mental-health Services: A Reappraisal of the Shift toward Privately Owned Facilities." The New England Journal of Medicine 311 (1984): 959-965.
Schulz, Rockwell, James Greenley, and Robert Peterson. "Differences in the Direct Costs of Public and Private Acute Inpatient Psychiatric Services." Inquiry 21 (1984): 380-393.
Herzlinger, Regina, and William Krasker. " Who Profits from Nonprofits?" Harvard Business Review 65 (1987): 93-106.
Tuckman, Howard, and Cyril Chang. "Cost Convergence Between For-profit and Not-for-profit Nursing Homes: Does Competition Matter?" Quarterly Review of Economics and Business 28 (1988): 50-65.

public hospitals. Using the data provided by the California Health Facilities Commission, Pattison and Katz contend that both costs and charges of patient-days or admissions are higher in private hospitals than not-for-profit hospitals. Valdmanis finds that the mean scale efficiency measure for government hospitals is 0.970 to 1.000, while that for non-profit hospitals is 0.830 to 0.940. Consequently, government hospitals are more scale efficient than non-profit hospitals. Lee et al. survey nursing homes and conclude that contracting out is more expensive than private nursing homes because of "unobserved amenity-type services."

Sloan and Vraciu find that there is no significant difference between profit and not-for-profit hospitals. They contend that regardless of the type of ownership, both hospitals are virtually identical in terms of costs to the community, profitability, and willingness to treat low-income patients. Becker and Sloan suggest that "the property rights paradigm does not fit the hospital industry well."[95] They find that hospital cost is quite similar among alternative ownership forms - public hospital, for-profit hospital, and not-for-profit hospital.

Clarkson uses property rights theory to examine the differences in managerial behavior between non-profit and profit hospitals. He argues that the constraints facing decision-makers in private hospitals are different from those in

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95Becker and Sloan, "Hospital Ownership," 31.

public hospitals producing similar products. In private hospitals, the owners appoint managers who are delegated authority over the choice of inputs and outputs. The owners impose rules and regulations in order to reduce shirking behavior of the appointed managers. In addition, the owners will give the managers incentives to behave in the interests of the principals - the owners.

On the other hand, in public hospitals, the managers have no incentive for the future benefits and potential residual claims. This weakens the relationship between the interests of public hospitals and the wealth of manager. This weaker relationship results in less cost minimization behavior in public hospitals. In the same vein, following public choice theory (Niskanen bureau), Valdmanis notes that public hospitals may be less efficient than private hospitals if they seek budget maximization rather than cost minimization. Clarkson finds that managers in nonprofit hospitals have much more flexibility than their counterparts in profit hospitals: managers in nonprofit hospitals tend to maximize their individual utilities and inhibit any common production technique. Consequently, the combination of inputs used in public hospitals show greater variance than that of private hospitals.

Bays argues that there are significant organizational differences in the cost functions of public and private hospitals, and confirms that forprofit hospitals in general are significantly less costly than nonprofit hospitals.[96] Schlesinger and

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96Bays, Carson. "Cost Comparisons of Forprofit and Nonprofit Hospitals." Social Science and Medicine 13 (1979): 219-225.

Dorwart find that ownership does matter in psychiatric hospitals. Services provided by government hospitals are more expensive than those provided in private institutions. They argue that the staff/patient ratio of psychiatric hospitals is widely different between public (staff/patient ratio = 0.8 percent) and private facilities (staff/patient ratio = 4.8 percent).

After surveying 338 inpatient psychiatric departments in public and private hospitals, Hrebiniak and Alutto find that the psychiatric departments in private hospitals have lower costs than the psychiatric departments of government hospitals, measured on the basis of cost per discharge and cost per patient-day. They suggest that the observed cost differences between public and private inpatient psychiatric departments are to be attributed to the fact that the psychiatric departments in private hospitals are subject to monitor by the hospital. Frech and Ginsburg and Frech, after surveying for-profit, non-profit, and government-owned nursing homes, contend that government-owned nursing homes are the most expensive. They explain the result that government-owned nursing homes have more access to tax financed subsidies from local governments and overpay their employees more than the private nonprofit firms. Frech finds that the costs of government-owned nursing homes are 51 percent higher in flat rate states and 34 percent higher in the cost based states than profit nursing homes. In addition, he finds that government nursing homes pay approximately 6.6 percent more to their government workers than do private

nursing homes.[97] Bishop finds that nonprofit voluntary and government nursing homes show higher costs than for-profit private homes because private nursing homes are more likely to produce similar outputs with fewer inputs and thus with lower costs.

In sum, the results from the literature on health and human service are mixed. There is some support for the conclusion that the public sector is more efficient than private sector. In relation to monitoring problems, the output of health care service is complex and intangible. Therefore, it is difficult to define and monitor the quality of contracted service. On the other hand, health and human services are labor-intensive; contracting private firms can manage their labor forces on a more efficient and flexible basis. Thus, we can reduce costs by contracting out for health and human services.

These mixed results suggest that the returns to contracting out in health and human services are elusive.

5) Public utilities

A utility industry is a local monopoly, and thus it is usually regulated by a state commission. A privately-owned utility industry is subject to rate-of-return regulatory constraints in which profits may not exceed a mandated rate of return

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97Frech, Harry. "The Property Rights Theory of the Firm: Some Evidence from the U.S. Nursing Home Industry." Journal of Institutional and Theoretical Economics 141 (1985): 146-166.

on invested capital. Consequently, the industry suffers some inefficiency mainly due to the expanding the size of the capital.

Hanke notes that a natural monopoly is not guaranteed more efficiency by simply shifting ownership from public to private sector.[98] A privately-owned utility monopoly, in which a private utility firm provides services to all residents of a given geographic area and is paid by the public agency, is neither responsive to consumer preferences nor subject to normal market mechanisms. Kettle claims that "private monopolies are just as subject to inefficiencies as the government monopoly."[99] McDavid contends that service monopolies are more likely to be high cost producers whether they are public or private firm. Under private monopoly, it is very difficult to measure and monitor a private producer's performance, which raises significant control problems. As a consequence, we expect that there is a similarity in the performance of a public and private monopolistic utility firm.

De Alessi contends that regulated privately-owned firms are subject to a profit constraint which weakens owners' property rights. The results of empirical studies of relative efficiency in the utility industry have often confirmed the

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98Hanke, Steve. "Privatization at the State and Local Level: Comment." in Privatization and State-owned Enterprises: Lesson from the United States, Great Britain and Canada, Paul MacAvoy, W.T. Stanbury, George Yarrow, and Richard Zeckhauser, eds., (Norwell: Kluwer Academic Publishers, 1989), 199.

99Kettle, Donald. Sharing Power: Public Governance and Private Markets. (Washington, D.C.: The Brookings Institute, 1993), 162.

production inefficiency among regulated privately-owned utility firms, consistent with the theoretical prediction of the rate-of-return regulatory model.

Some have argued that publicly-owned utility firms are substantially more efficient than privately-owned utility firms,[100] while others have concluded that privately-owned utility firms are more efficient.[101] A number of studies also show

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100Meyer, Robert. "Publicly Owned Versus Privately Owned Utilities:A Policy Choice." The Review of Economics and Statistics 57 (1975): 391-399.
Neuberg, Leland. "Two Issues in the Municipal Ownership of Electric Power Distribution System." The Bell Journal of Economics 8 (1977): 303-323.
Pescatrice, Donn, and John Trapani. "The Performance and Objectives of Public and Private Utilities Operating in the United States." Journal of Public Economics 13 (1980): 259-276.
Mann, Patrick, and John Mikesell. "Tax Payments and Electric Utility Prices." Southern Economic Journal 38 (1971): 69-78.
Bruggink, Thomas. "Public versus Regulated Private Enterprise in the Municipal Water Industry: A Comparison of Operating Costs." Quarterly Review of Economics and Business 22 (1982): 111-125.
Pint, Ellen. "Nationalization vs. Regulation of Monopolies: The Effects of Ownership on Efficiency." Journal of Public Economics 44 (1991):131-164.

101Shepherd, William. "Utility Growth and Profits Under Regulation." in Utility Regulation: New Directions in Theory and Practice, William Shepherd and Gies, eds., (New York: Random House, 1966), 3-57.
Moore, Thomas. "The Effectiveness of Regulation of Electric Utility Prices." Southern Economic Journal 36 (1970): 365-375.
Peltzman, Sam. "Pricing in Public and Private Enterprises: Electric Utilities in the United States." Journal of Law and Economics 14 (1971): 109-147.
De Alessi, Louis. "An Economic Analysis of Government Ownership and Regulation: Theory and Evidence from the Electric Power Industry." Public Choice 19 (1974): 1-42.
_____. "Ownership and Peak-load Pricing in the Electric Power Industry." Quarterly Review of Economics and Business 17 (1977): 7-26.
Morgan, William. "Investor Owned vs. Publicly Owned Water Agencies: An Evaluation of the Property Rights Theory of the Firms." Water Resources Bulletin 13 (1977): 775-781.
Crain, Mark, and Asghar Zardkoohi. "A Test of the Property Rights Theory of the Firm: Water Utilities in the United States." Journal of Law and Economics 21

no difference or ambiguous results among them.[102]

Peltzman finds that municipal electric utilities charge lower prices than regulated privately-owned electric power firms. Meyer finds that publicly-owned utility firms have lower per unit costs than private utility firms.

Pescatrice and Trapani suggest that public electric utility firms minimize

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(1978): 395-408.
_____. "Public Sector Expansion: Stagnant Technology or Attenuated Property Rights?" Southern Economic Journal 46 (1980): 1069-1082.

102Mann, Patrick. "Publicly Owned Electric Utility Profits and Resource Allocation." Land Economics 46 (1970): 478-484.
Yunker, James. "Economic Performance of Public and Private Enterprise: The Case of U.S. Electric Utilities." Journal of Economics and Business 28 (1975): 60-67,
Spann, Robert. "Public versus Private Provision of Governmental Services." in Budgets and Bureaucrats: The Sources of Governmental Growth, Thomas Borcherding, ed. (Durham: Duke University Press, 1977), 71-89.
Pescatrice, Donn, and John Trapani. "The Performance and Objectives of Public and Private Utilities Operating in the United States." Journal of Public Economics 13 (1980): 259-276.
Dilorenzo, Thomas, and Ralph Robinson. "Managerial Objectives Subject to Political Market Constraints: Electric Utilities in the U.S." Quarterly Review of Economics and Business 22 (1982): 113-125.
Lindsay, Bruce. "New Hampshire Water Systems: Environmental and Ownership Consideration." Water Resources Bulletin 20 (1984): 901-904.
Feigenbaum, Susan, and Ronald Teeples. "Public Versus Private Water Delivery: A Hedonic Cost Approach." The Review of Economics and Statistics 65 (1983): 672-678.
Fare, Rolf, Shawna Grosskopf, and James Logan. "The Relative Performance of Publicly-Owned and Privately-Owned Electric Utilities." Journal of Public Economics 26 (1985): 89-106.
Atkinson, Scott, and Robert Halvorsen. "The Relative Efficiency of Public and Private Firms in a Regulated Environment: The Case of U.S. Electric Utilities." Journal of Public Economics 29 (1986): 281-294.
Teeple, Ronald, and David Glyer. "Cost of Water Delivery Systems: Specification and Ownership Effects." Review of Economics and Statistics 69 (1987): 399-408.

cost to 24-33 percent lower per unit costs than their privately owned counterparts. This cost differential may result from the failure of rate-of-return regulation of the privately owned firms. They indicate that rate-of-return regulation may be an expensive means of dealing with the natural monopoly. For the New Hampshire experience, Lindsay finds that the privately-owned water system has $49.08 greater per unit residential costs than publicly-owned water systems. He suggests that privatizing the New Hampshire water systems may not be an economically good policy. Mann and Mikesell survey cost differences between publicly-owned and privately-owned water supply utilities in the United States. They find that privately-owned water firms have higher operating costs than do publicly-owned water firms, mainly due to wage differentials. Using Cobb-Douglas cost functions on the distribution rather than generation of electric power, Neuberg finds that the publicly-owned electrical firm shows optimal output and lower consumer rates for electricity.

On the other hand, De Alessi shows that electric power generated by public firms has more capital and labor per unit production than do private firms.[103] His finding is consistent with his argument that "managers of political firms have greater opportunity to increase their own welfare at the expense of the employer's (citizen's) wealth."[104] Crain and Zardkoohi insist that "the evidence is

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103De Alessi, "Government Ownership and Regulation," 1-42.

104De Alessi, Louis. "Managerial Tenure Under Private and Government Ownership in the Electric Power Industry." Journal of Political Economy 82

quite consistent with the theoretical argument that the nontransferability of ownership shares in public firms reduces the incentive to detect and police managerial conduct and, hence, leaves such enterprises particularly susceptible to less efficient operation. This inefficiency in public firms appears to affect a level of operating costs that is higher than operating costs in private firms, in spite of the regulatory constraints imposed on the latter type of firms."[105] They find that output per employee on water utilities in the United States is 82.40 in public firms and 112.01 in private firms. They also find that the operating cost difference between public and private water utility firm is attributable to differences in labor productivity.

Pint compares the effects of public ownership vs. a regulated private firm on the production decisions of a monopoly firm. He finds that public firms use relatively more labor as an input factor, while regulated private firms use relatively more capital as an input factor. He also finds that public firms produce more output and set lower prices than regulated private firms. As a consequence, consumer surplus in public ownership is higher than in private firms, and profits are lower or even negative in public firms.

De Alessi shows the evidence regarding the consequences of government ownership in utility industry;

(1974): 646.

105Crain and Zardkoohi, "Property Rights Theory," 406.

> Relative to regulated private firms, municipal electric utilities in the United States generally charge lower prices; have greater capacity; spend more on plant construction; have higher operating costs; engage in less wealth-maximizing price discrimination, including fewer peak-related tariffs; relate price discrimination less closely to the demand-and-supply conditions applicable to each group of users; favor business relative to residential users; favor voters to nonvoters; offer smaller variety of output; change prices less frequently and in response to larger changes in economic determinants; adopt cost-reducing innovations less readily; maintain managers in office longer; and exhibit greater variation in rates of return.[106]

Feigenbaum and Teeples suggest that most of previous studies inadequately control the environmental variables in the production process, and contend that public and private water utilities are equally efficient, indicating no significant difference in the relative efficiency of public and private firms. Fare et al. find that there are no significant differences in overall cost efficiency between publicly-owned and privately-owned electric utilities. They also find that publicly-owned utilities show better purely technical efficiency, but less congestion and scale efficiency than privately-owned utilities. Atkinson and Halvorsen, using shadow and actual cost functions, find that publicly-owned and privately-owned electric utilities are equally cost inefficient in the United States.

In contrast, Nelson contends that competition has a significant cost increases in utility firms. By using the variable costs (fuel, labor, and materials), but ignoring the capital costs, Nelson finds that competitive utility firms have from 13.92 to 14.79 percent higher generating costs per KWH than monopoly utility

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106De Alessi, "Property Rights," 41.

firms.[107]

In sum, the utility industry is a local monopoly. It is usually regulated by a state commission. Its output is not easily monitored. The results of previous comparative studies are mixed. These mixed results contend that contracting arrangement plays only a modest role in influencing municipal expenditures, employment, and wages, or that its effect is hard to capture because of monitoring problems.

Overall, the theoretical arguments imply that contracting out with private sector is an efficient alternative mode to deliver public services. Because contracting out reduces production costs, and achieves greater productivity improvements of municipal government. Therefore, the proponents of property rights theory and Niskanen Bureau claim that governmental services should be contracted out with private firms. However, a number of studies argue that the effects of contracting out may be considerably dependent on the nature of public services (e.g., tangible or intangible, or regulatory constraints).

Given the theoretical arguments above, when a service has intangible outputs, public officials may find that monitoring is costly, or that it is very difficult to define both the quality and quantity of private contracting services. On the other hand, monitoring is not so costly when a service produces tangible outputs. Consequently, the key argument in this paper is that monitoring costs are

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107Nelson, Randy. "The Effects of Competition on Publicly-owned Firms." International Journal of Industrial Organization 8 (1990): 37-51.

important in determining the effectiveness of contracting for services. Given this aspect, for public services like refuse collection, public safety, and parks and recreation, we can hypothesize that contracting arrangement is more efficient than public provision. However, for public services like health and human services and public utilities, we can hypothesize that there is no significant difference between contracting mode and public provision.

5. Determinants of municipal expenditure, employment, and wage levels

1) The influence of the median voter

Black states that with single-peaked preferences in a unidimentional space the outcome of majority voting reflects the preferences of the median voter.[108] Downs demonstrates that electoral competition for office leads representatives to adopt choices that are favored by a median voter.[109] The median voter model assumes that each voter votes for his or her preferred alternative on a single issue. The alternatives are assumed to be ranked on a single dimension and voters have single-peaked preferences in this dimension. The electoral process is assumed to follow the majority rule election.

108Black, Duncan. The Theory of Committees and Elections. Cambridge: Cambridge University Press, 1958.

109Downs, Anthony. An Economic Theory of Democracy. New York: Harper and Row Publisher, 1957.

Developed by Borcherding and Deacon[110] and Bergstrom and Goodman,[111] the estimating equation derived from the median voter model shows that local government expenditures are at least partly determined by the median voter. Bahl et al. state that "median voter models are based on the notion that individual voters are the basic determinant of political decisions within a democracy. Politicians, who make tax and expenditure decisions, reflect the preferences of their constituents. They do so not to maximize community welfare, but to attain and remain in elected office. The elected decision makers thus search for the fiscal package that will attract a winning coalition of voters at election time."[112] Many previous studies have claimed that the median voter model is useful to explain local expenditures.[113] They argue that, empirically, local expenditures

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110Borcherding, Thomas, and Robert Deacon. "The Demand for the Services of Non-Federal Governments." American Economic Review 62 (1972): 891-901.

111Bergstrom, Theodore, and Robert Goodman. "Private Demands for Public Goods." American Economic Review 63 (1973): 280-296.

112Bahl, Roy, Marvin Johnson, and Michael Wasylenko. "State and Local Government Expenditure Determinants: The Traditional View and a New Approach." in Public Employment and State and Local Government Finance, Roy Bahl, Jesse Burkhead, and Bernard Jump, eds., (Cambridge: Ballinger Publishing Co., 1980), 69.

113Pommerehne, Werner. "Institutional Approaches to Public Expenditure: Empirical Evidence from Swiss Municipalities." Journal of Public Economics 9 (1978): 255-280.
Pommerehne, Werner, and Bruno Frey. "Two Approaches to Establishing Public Expenditures." Public Finance Quarterly 4 (1978): 395-407.
Inman, Robert. "Testing Political Economy's 'As IF' Proposition: Is the Median Income Voter Really Decisive?" Public Choice 33 (1978): 45-65.

appear to reflect the desires of the median voter.

Sass finds that voter preferences determine the level of city expenditures. Holcomb analyzes the Michigan millage referenda and finds that the actual millage rate (22.6 %) in the average district is significantly similar to the median voter's most preferred rate (24.1 %). Gramlich and Rubinfeld find that in the Detroit area two-thirds of the voters do not want to change the level of public expenditure which is consistent with the median voters who favor no change; only 19 percent of the voters want to increase or decrease of public expenditures. Reid contends that the median voters' expenditure demands in a single-dimensional public good world is consistent with actual expenditure decisions. He argues that form of government does not significantly affect municipal expenditure decisions.

Some scholars, however, have critical views of the median voter approach

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Pack, Harold, and Janet Pack. "Metropolitan Fragmentation and Local Public Expenditures." National Tax Journal 31 (1978): 349-361.
Vehorn, Charles. "Market Interaction Between Public and Private Goods: The Demand for Fire Protection." National Tax Journal 21 (1979): 29-40.
Holcomb, Randall. "An Empirical Test of the Median Voter Model." Economic Inquiry 19 (1980): 260-274.
Gramlich, Edward, and Daniel Rubinfeld. "Micro Estimates of Public Spending Demand Functions and Tests of the Tiebout and Median-voter Hypotheses." Journal of Political Economy 90 (1982): 536-560.
Reid, Gary. "Tests of Institutional versus Non-institutional Models of Local Expenditure Determination." Public Choice 70 (1991): 315-333.
Sass, Tim. "The Choice of Municipal Government Structure and Public Expenditure." Public Choice 71 (1991): 71-87.

to local expenditures.[114] Romer and Rosenthal review empirical studies based on the median voter model and argue that most of the results have failed to support the superiority of the model due to methodological problems and are inadequately tested against competing models of political institutions.

2) The influence of government structure

The goal of the municipal government reform movement in the early twentieth century "was to take local government out of politics and to put it on a businesslike basis through the use of the council-manager form of government, nonpartisan elections, selection of councilmen from the city at large rather than from separate wards, and selection of administrative employees according to merit."[115] Reid argues that "the form of government affects the degree to which power is concentrated in the executive versus the legislative branch, the

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114Deacon, Robert. "Private Choice and Collective Outcomes: Evidence From Public Sector Demand Analysis." National Tax Journal 30 (1977): 371-386. Inman, Robert. "The Fiscal Performance of Local Governments: An Interpretative Review." in Current Issues in Urban Economics, Peter Mieszkowski and Mahlon Straszheim, eds., (Baltimore: Johns Hopkins University Press, 1979), 270-321. Mueller, Dennis. Public Choice. Cambridge: Cambridge University Press, 1979. Romer, Thomas and Howard Rosenthal. "The Elusive Median Voter." Journal of Public Economics 12 (1979): 143-170.
Bucovetsky, Sam. "Choosing Tax Rates and Public Expenditure Levels Using Majority Rule." Journal of Public Economics 46 (1991): 113-131.

114Farnham, Paul. "Form of Government and the Median Voter." Social Science Quarterly 68 (1987): 571.

professionalization of administration, and the means of representation."[116] In the same vein, under council-manager government form, Morgan and Watson (1992) find that the appointed city managers have a more "commanding position" and thus more a favorable position to exercise "policy leadership."

In general, city managers are more likely to reduce municipal expenditures than elected mayors, because, as Zax notes, city managers are less subject to political influence of special interest.[117] In contrast, elected mayors are assumed to be more susceptible to political pressures for increased expenditure. For example, Alford and Lee show that voting turnout is higher in cities where municipal government is mayor-council. They argue that council-manager cities are less likely to be influenced by electoral politics.[118]

A number of previous studies have explored the effects on expenditure levels of government structures.[119] Some previous studies have claimed that

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116Reid, "Local Expenditure," 320.

117Zax, Jeffrey. "Reform City Councils and Municipal Employees." Public Choice 64 (1990): 167-177.

118Alford, Robert, and Eugene Lee. "Voting Turnout in American Cities." American Political Science Review 62 (1968): 796-813.

119Booms, Bernard. "City Government Form and Public Expenditures." National Tax Journal 19 (1966): 187-199.
Lineberry, Robert, and Edward Fowler. "Reformism and Public Policies in American Cities." American Political Science Review 61 (1967): 701-716.
Cole, Richard. "The Urban Policy Process: A Note on Structural and Regional Influences." Social Science Quarterly 52 (1971): 646-655.
Bryant, Stephen. "The Dimensions of Reformism in Urban Policy Analysis." Urban Affairs Quarterly 12 (1976): 117-124.

council-manager form of municipal government shows lower levels of expenditure,[120] while others contend either no effects,[121] or higher levels of

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Lyons, William. "Reform and Response in American Cities: Structure and Policy Reconsidered." Social Science Quarterly 59 (1978): 118-132.
Pommerehne, Werner. "Institutional Approaches to Public Expenditure: Empirical Evidence from Swiss Municipalities." Journal of Public Economics 9 (1978): 255-280.
Pommerehne, Werner, and Bruno Frey. "Two Approaches to Establishing Public Expenditures." Public Finance Quarterly 4 (1978): 395-407.
Morgan, David, and John Pelissero. "Urban Policy: Does Political Structure Matter?" American Political Science Review 74 (1980): 999-1006.
Shapiro, Perry, and Jon Sontelie. "Representative Voter or Bureaucratic Manipulation: An Examination of Public Finances in California Before and After Proposition 13." Public Choice 39 (1982): 113-142.
Megdal, Sharon. "The Determination of Local Public Expenditures and the Principal and Agent Relation: A Case Study." Public Choice 40 (1983): 71-86.
Deno, Kevin, and Stephen Mehay. "Municipal Management Structure and Fiscal Performance: Do City Managers Make a Difference?" Southern Economic Journal 53 (1987): 627-642.
Farnham, Paul. "Form of Government and the Median Voter." Social Science Quarterly 68 (1987): 569-582.
Santerre, Rexford. "Representative versus Direct Democracy: A Tiebout Test of Relative Performance." Public Choice 48 (1986): 58-63.
_____. "Representative versus Direct Democracy: Are There Any Expenditure Differences?" Public Choice 60 (1989): 145-154.
Grossman, Philip. "Federalism and the Size of Government." Southern Economic Journal 55 (1989): 580-593.
Zax, Jeffrey. "Reform City Councils and Municipal Employees." Public Choice 64 (1990): 167-177.
Reid, Gary. "Tests of Institutional versus Non-institutional Models of Local Expenditure Determination." Public Choice 70 (1991): 315-333.

120Booms, Bernard. "City Government Form and Public Expenditures." National Tax Journal 19 (1966): 187-199.
Lineberry, Robert, and Edward Fowler. "Reformism and Public Policies in American Cities." American Political Science Review 61 (1967): 701-716.
Lyons, William. "Reform and Response in American Cities: Structure and Policy Reconsidered." Social Science Quarterly 59 (1978): 118-132.
Baker, David, and David Colby. "The Politics of Municipal Employment Policy: A Comparative Study of U.S. Cities." American Journal of Economics and

municipal expenditures.[122]

Booms argues that the expenditure of municipal government varies across the form of government (manager or mayor), and finds that manager cities spend $16.49 less per capita for public expenditures than mayor cities. Lyons finds that cities which prefer reform government (e.g., council-manager) are more likely to be less expensive municipal governments. Baker and Colby finds that council-manager (reformed) cities are more labor-intensive activities to provide jobs as a reward for political support. Tucker claims that reformed cities are more efficient on the whole, but less responsive to particular individuals and groups. Those scholars argue that manager cities (reform municipal institutions) produce desired municipal services more efficiently than mayor cities (traditional

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Sociology 40 (1981): 249-263.
Tucker, Sharon. "The Organizational Dynamics of Service Provision in a Machine and a Reform County Agency." Human Relations 35 (1982): 1015-1042.

121Cole, Richard. "The Urban Policy Process: A Note on Structural and Regional Influences." Social Science Quarterly 52 (1971): 646-655.
Morgan, David, and John Pelissero. "Urban Policy: Does Political Structure Matter?" American Political Science Review 74 (1980): 999-1006.
Farnham, Paul. "Form of Government and the Median Voter." Social Science Quarterly 68 (1987): 569-582.
Deno, Kevin, and Stephen Mehay. "Municipal Management Structure and Fiscal Structure: Do City Managers Make a Difference?" Southern Economic Journal 53 (1987): 627-642.
Reid, Gary. "Tests of Institutional versus Non-institutional Models of Local Expenditure Determination." Public Choice 70 (1991): 315-333.
Langbein, Laura, Philip Crewson, and Charles Brasher. "Rethinking Ward and At-Large Election in Cities." October, 1993, Unpublished Manuscript.

122Zax, Jeffrey. "Reform City Councils and Municipal Employees." Public Choice 64 (1990): 167-177.

institutions) because of superior management techniques and less influencing political pressures.

Morgan and Pelissero find that there is no effect on expenditures of municipal government structure. Deno and Mehay contend that the council-manager form of government has no significant effect on local public expenditures. Farnham finds that structural variation in forms of government show only a modest influence on local expenditures or their impact is difficult to prove by aggregate expenditure analysis. Grosskopf and Hayes find that the form of local government (mayor-council vs. city manager) does not influence the effects of government inefficiency. Langbein et al. find that ward versus at-large election does not affect per capita spending for divisible, desirable public services although the size of the city council, no matter how it is elected, does.

A number of previous studies have investigated the effect of differing government structures on the wage level of municipal employees. Some find that municipal employee compensation is higher in professionally managed cities.[123] Ehrenberg contends that the structure of municipal government affects

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123Ehrenberg, Ronald. "The Demand for State and Local Government Employees." American Economic Review 63 (1973): 366-379.
Ehrenberg, Ronald, and Gerald Goldstein. "A Model of Public Sector Wage Determination." Journal of Urban Economics 2 (1975): 222-245.
Anderson, John. "Bargaining Outcomes: An IR System Approach." Industrial Relations 18 (1979): 127-143.
Ichniowski, Casey. "Economic Effects of the Fire fighter's Union." Industrial and Labor Relations Review 33 (1980):198-211.
Edwards, Linda, and Franklin Edwards. "Public Unions, Local Government Structure and the Compensation of Municipal Sanitation Workers." Economic

the compensation of municipal employees; 1) professional city managers are more efficient negotiators than elected politicians, and 2) in producing municipal services from a given number of employees, city managers are more efficient producers than mayors or commissioners. Ehrenberg and Goldstein find that average monthly wages are from 0 to 17 percent higher in cities managed by managers than by mayor-council cities.

Edwards and Edwards support the result that municipal employee compensation is higher in cities with professional managers. They argue that professional managers pay higher wages to their employees because they have a more rational view of fairness in compensation. Zax argues that reform city councils do not have negative effects on the levels of city employment and the compensation of municipal employees. He finds that council-manager form of municipal governments are more likely to reward municipal employees with higher compensation because municipal employees have relatively more electoral power in reform city councils than in traditional councils.

Inquiry 20 (1982): 405-425.
Zax, Jeffrey. "Reform City Councils and Municipal Employees." Public Choice 64 (1990): 167-177.

CHAPTER III

MEASUREMENT AND METHODOLOGY

1. Hypotheses development

A majority of studies have contended that a contracting arrangement is more efficient than public provision at least when monitoring costs are low. For example, Stevens argues that public provision is 37 percent to 96 percent more expensive than contracting arrangement.

Schneider claims that competition has a significant role for limiting the level of local government employment, thus improving the public sector efficiency.[124] Given this aspect of explanation, if municipal governments reduce the expenditures by contracting arrangement, the government may somewhat shrink. That is, municipal government employee levels may be decreased, and thus public employees' wages as well. Moreover, since those contracting services such as refuse collection, public safety, parks and recreation are easily monitored, we expect that contracting arrangement by private sector may more efficient than public provision in those public services. In addition, they are labor-intensive services, and thus we may expect cost reduction by contracting out.

124Schneider, Mark. "Intercity Competition and the Size of the Local Public Work Force." Public Choice 63 (1989): 253-265.

Thus, the major hypothesis tested is that when a service produces tangible outputs, and thus, monitoring is not so costly, the expenditure, employment, and wage levels of contracting cities are lower than those of non-contracting cities.

Therefore, contracting arrangement and the level of municipal government expenditure, employment, and wage should be inversely related.

As a consequence, the hypotheses are as follows:

H_1 : Overall, contracting cities have lower expenditure, employment, and wage levels than non-contracting cities.

$H_{1\text{-}1}$: In particular, contracting cities in combined three services (refuse collection, public safety, and parks and recreation) have lower expenditure, employment, and wage levels of those combined services than non-contracting cities.

H_2 : Contracting cities in refuse collection have lower expenditure, employment, and wage levels of refuse collection than non-contracting cities.

H_3 : Contracting cities in public safety services have lower expenditure, employment, and wage levels of public safety than non-contracting cities.

H_4 : Contracting cities in parks and recreation services have lower expenditure, employment, and wage levels of parks and recreation services than non-contracting cities.

The government regulatory agencies review output and pricing decisions of utility firms. A number of theoretical and empirical studies have confirmed that

public utility firms are not less efficient than private utility firms. Consequently, those cities contracting with private utility firms will not accrue cost savings. In addition, Savas contends that if the contract is not monitored well, the competitive factor is more likely to be weakened. Thus, the contracting service will result in a private monopoly.

Therefore, we expect that there is no significant difference between public and private production in health and human services and public utility services.

As a consequence, the hypotheses are as follows:

H_5 : Contracting cities and non-contracting cities in health and human services have no significant difference among expenditure, employment, and wage levels.

H_6 : Contracting cities and non-contracting cities in utility services have no significant difference among expenditure, employment, and wage levels.

2. Data

The primary database available for this paper is the survey of "Alternative Service Delivery Approaches-1992," conducted by International City/County Management Association (ICMA). The ICMA survey data provide information about the status of municipal services, and whether the individual services are contracted out by private sectors or not. The effects of contracting on municipal expenditure, employment, and wage levels are examined for a national sample of

86 municipal governments with population of 75,000 or more.

The data for population (POP), form of government (FOG), geographic region (GRN), and contracting out (CON) are all drawn from Alternative Service Delivery Approaches - 1992. The data for personal income per capita (PEI), population growth (POG), geographic size (GES), rate of serious crimes per 100,000 resident population (CRI), and average monthly wage of private manufacturing employees (PRW) are drawn from State and Metropolitan Area Data Book 1991. The data for federal grants per capita (FGT), state grants per capita (SGT), city tax revenues per capita (TXS), total expenditure per capita (EXT), and individual service expenditure per capita (EXP) for public works (PWK), public safety (PST), parks and recreation service (PRN), and public utilities (PUT) are all drawn from City Government Finance: 1990-91.

The data for median household income (MHI) are drawn from Census of Population and Housing 1990. The data for percentage total vote for Democratic presidential candidate (DEM) are drawn from American Votes 20. The expenditure per capita for health and human services (HHS) is drawn from City Government Finance: 1987-88. The data for percent below poverty level (PVT) is drawn from County and City Data Book, 1988. The total percentage of public employees unionized (UNI), percentage of unionized refuse collection employees (UNR), percentage of unionized public safety employees (UNP), and employment per 1,000 population (EMP) and wages per 1,000 population (WGE) for health and human services (HHS) are drawn from Census of Governments

1987.

The data for total employment per 1,000 population (EMT), individual service employment per 1,000 population (EMP) for public works (PWK), public safety (PST), parks and recreation service (PRN), and public utilities (PUT), total wage per 1,000 population (WGT), and individual service wages per 1,000 population (WGE) for public works (PWK), public safety (PST), parks and recreation service (PRN), and public utilities (PUT) are all drawn from City Employment: 1991.

3. Description of variables

Population(POP): As McGuire et al. note, demographic variables (POP and POG) are included to maintain continuity with the public expenditure literature although there is no significant theoretical rationale for including them except economies of scale and publicness coefficient. Stein notes that population size "provides information about the economies of scale associated with service production. A positive coefficient for the population parameter is evidence that per unit costs of production increases with a larger population size. A negative coefficient indicates that per unit costs decline with a larger scale of population."[125]

125Stein, Robert. Urban Alternatives: Public and Private Markets in the Provision of Local Services. (Pittsburgh: University of Pittsburgh Press, 1990), 162.

As population becomes larger, more public services should be provided in such an area. Some studies show that larger cities can achieve economies of scale, reducing per capita expenditures, while others show that economies of scale are not likely to be supported because of labor intensive characteristics of local government services. Stevens and Edwards and Stevens find that economies of scale in refuse collection are greatest in small cities, with populations of less than 20,000(Sevens) and with populations of less than 40,000(Edwards and Sevens). Kitchen finds that "average costs increased in municipalities with populations of up to 324,000 and only to fall when cities exceeded this size."[126]

Langbein et al. also find that there is a nonlinear relationship between population and per capita spending. Gonzalez and Mehay find no economies of scale in consumption for local services. They also find that large cities are not more efficient than smaller cities.[127] Dubin and Navarro, however, find no evidence for economies of scale.

Prager contends that "contracting out needs to be considered whenever the government entity cannot take advantage of the economies of scale or scope."[128]

126Kitchen, "Refuse Collection," 56.

127Gonzalez, Rodolfo, and Stephen Mehay. "Bureaucracy and the Divisibility of Local Public Output." Public Choice 45 (1985): 89-101.

128Prager, "Contracting Out," 180.

Population growth(POG): POG measures population growth in the jurisdiction from 1980 to 1990. Population growth may affect local government expenditures through local demand for services.

Santerre finds that school expenditure per pupil is inversely related to population growth in New England since rapid changes in population growth can not accommodate the relatively high adjustment costs. Similarly, Gonzalez and Mehay find that population change is negatively significant in public safety expenditures, indicating that municipal expenditures may lag behind population change when population growth rates are rapid. On the other hand, they find that there is a positive relationship between population growth and parks and recreation expenditures.

Benton and Menzel argue that the population change has a positive and significant impact on the private contracting arrangement. They find that rapidly growing areas are more likely to increase the contracting out services.[129]

Geographic region(GRN): As Schneider notes, geographic variables are included to control for unmeasured determinants shared by neighboring cases and different economic growth rates in local economies. In the same vein, Farnham contends that geographic variables represent attitudinal or cultural factors not measured by other variables.

129Benton, Edwin, and Donald Menzel. "Contracting and Franchising County Services in Florida." Urban Affairs Quarterly 27 (1992): 436-456.

Some argue that geographic regions matter.[130] Among them, Schneider finds that geographic regions explain 18 percent of the variance in local expenditures. Gonzalez and Mehay find that the southern states are positively related to municipal expenditures, but negatively related to municipal wages. Stevens, however, finds that geographic regions are not significant factor to explain the costs of refuse collection. Poole and Fixler contend that local governments located in the western part of the United States are more likely to use contracting out.

Geographic regions are a set of dummy variables representing city location in one of four regions (Northeast, North Central, South, and West) defined by ICMA.[131]

Geographic size(GES): The Tiebout model based on the mobility of citizen/consumers across multiple locations provides a rationale of competition between municipalities. Tiebout argues that if citizen/consumers are not satisfied with either the composition or the cost of municipal services, they will move to other political jurisdiction which provides services to meet their preferences. Moving is less costly when cities are smaller; hence, smaller jurisdictions tend to

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130Gonzalez and Mehay, "Local Monopoly Power," 245-255.
Poole and Fixler, "Privatization," 612-625.
Schneider, "Intermunicipal Competition," 253-265.

131Northeast: the New England and Mid-Atlantic divisions.
South: the South Atlantic and the East and West South Central divisions.
North Central: the East and West North Central divisions.
West: the mountain and pacific coast divisions.

be more competitive and to have lower expenditures, employment, and wages.

Epple and Zelenitz find that citizens can move costlessly to more efficient and responsive jurisdictions. According to Gonzalez and Mehay and Schneider[132], municipal expenditure tends to be higher in a larger geographic area. Gonzalez and Mehay find that municipal wages are significantly increased in municipal governments experiencing a larger land area. Langbein et al. find that geographic size has no significant impact on municipal expenditures per capita. Schneider finds that competition between local governments has a significant effect on limiting the size of the public sector work force and its wages.

Personal income per capita(PEI): Income affects both the need for local services and the ability to pay the services. Bahl et al. contend that "higher per capita incomes may reflect the demand for a higher level of services...or...higher per capita incomes may mean that average wage rates in the public sector must be higher to maintain some degree of parity with the private sector, and, therefore, expenditures for any particular function will be higher."[133] According to Peterson, personal income of local population is an important factor of municipal fiscal capacity.

132Schneider, Mark. "Fragmentation and the Growth of Local Government." Public Choice 48 (1986): 255-264.

133Bahl et al., "Public Employment," 816.

Ferris [134] and Poole and Fixler argue that municipal governments tend to contract out with private firms when they are confronting fiscal pressures. This result is consistent with Morgan and Hirlinger's finding; the higher the per capita income, the higher the constituency's demand for city services.

Ferris and Graddy argue that poorer cities are more likely to contract out with private firms since they can not afford services internally. In contrast, Lindsay contends that although public sector provides services at lower cost than those of private sector, its quality is relatively lower; higher income cities may seek higher quality services through contracting out with private firms. Consequently, contracting out is more popular in the poorest and the wealthiest cities.

Average monthly wage of private manufacturing employee(PRW): Ehrenberg, Ehrenberg and Goldstein, and Schneider contend that private sector wage is the baseline labor cost in the local area. Ferris notes that "...public employee salaries increase with opportunity wages, as proxied by private sector salaries in the manufacturing sector..."[135] Thus, the wage of private employee is expected to be positively related to the wage of public employees. Courant et al. contend that the increase in public employee wages is highly constrained by the mobility of private employees.

134Ferris, James. "The Decision to Contract Out: An Empirical Analysis." Urban Affairs Quarterly 22 (1986): 289-311.

135Ferris, James. "The Public Spending and Employment Effects of Local Service Contracting." National Tax Journal 41 (1988): 214.

They find that, given a budgetary constraint, public sectors employ fewer workers at higher wages or more workers at lower wages.[136] Freeman finds that the wages of municipal employees are slightly higher than those of private sector employees.[137]

City tax revenues per capita(TXS): It is a per capita measure of municipal government taxes. The tax variable is an important determinant of municipal government's capacity and ability to raise revenue. The expected sign of the coefficient could be either positive or negative. Higher per capita taxes cause a strong constituency resistance to municipal government expenditures. Consequently, tax revenues are negatively related to municipal expenditure and employment levels. However, taxes also reflect capacity: Schneider finds that local taxes are positively related to municipal expenditures.

Ferris and Graddy argue that "tax payer resistance to higher taxes is causing local government officials to reassess service delivery arrangements."[138] They find that city taxes per capita has positive impact on the likelihood of contracting out. Thus, when taxes per capita are high, we may expect that such

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136Courant, P, E. Gramlich, and D. Rubinfeld. "Public Employees Market Power and the Level of Government Spending." American Economic Review 69 (1979): 806-817.

137Freeman, Richard. "How do Public Sector Wages and Employment Respond to Economic Conditions?" in Public Sector Payrolls, D.A. Wise ed., (Chicago: University of Chicago Press, 1987), 183-213.

138Ferris, James, and Elizabeth Graddy. "Production Choices for Local Government Services." Journal of Urban Affairs 10 (1988): 282.

cities are more likely to contract public services with private firms.

Federal grants per capita(FGT) and
state grants per capita(SGT): FGT is total intergovernmental grants per capita from the federal government. SGT is total intergovernmental grants per capita from the state government. Federal and state grants are a very important source of revenue to municipal governments. Chubb finds that grants affect local expenditure decisions.[139] Schneider finds that state grants especially have a significant impact on the expenditures of municipal government.

A number of studies have demonstrated the hypothesis that the employment levels of municipal government are influenced by federal and state governments.[140] Gonzalez and Mehay find that intergovernmental grants are

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139Chubb, John. "The Political Economy of Federalism." American Political Science Review 79 (1985): 994-1015.

140Bahl, Roy, Donald Campbell, David Greytak, and Michael Wasylenko. "Intergovernmental and Functional Aspects of Public Employment Trends in U. S." Public Administration Review 32 (1972): 815-832.
Ehrenberg, Ronald. The Demand for State and Local Government Employees, Lexington: Heath, 1972.
Gustely, Richard. Municipal Public Employment and Public Expenditure. Lexington: Heath, 1974.
U. S. Advisory Commission on Intergovernmental Relations. Federal Grants: Their Effects on State-Local Expenditures, Employment Levels, and Wage Rates. Washington, DC: U. S. Government Printing Office, 1977.
Inman, Robert. "The Fiscal Performance of Local Governments: An Interpretative Review." in Current Issues in Urban Economics, P. Mieszkowski and M. Straszheim, eds., (Baltimore: The Johns Hopkins University Press, 1979), 270-321.
Stein, Robert. "Municipal Public Employment: An Examination of Intergovernmental Influences." American Journal of Political Science 28 (1984) 636-653.
Chubb, John. "The Political Economy of Federalism." American Political Science

positively significant in total municipal expenditures, public safety expenditures, and parks and recreation expenditures. Sass contends that intergovernmental grants are expected to raise total per pupil expenditures on education, and finds that federal and state grants per pupil have significant impact on municipal expenditures.

Heclo contends that the growth of public employment in local governments is not directly influenced by local factors, but by federal grant policies.[141] Stein finds that federal and state grants to municipal government have a significant effect on the level of municipal employment. Spizman finds that "when per capita intergovernmental revenues increase, 52 % of the increase will be allocated to the employment budget, the other 48 % going to other aspects (capital or transfer payment) of government."[142]

Intergovernmental grants are obviously a crucial factor to fiscal behavior of municipal government. It has an impact on the fiscal burden on city residents, possibly lowering their fiscal stress by higher grants.

Form of government(FOG): It has been argued among many scholars that there are significant differences in managerial efficiency between cities managed

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Review 79 (1985): 994-1015.

141Heclo, Hugh. "Issue Networks and the Executive Establishment." In The New American Political System, Anthony King, ed., (Washington, DC: American Enterprise Institute, 1979), 82-124

142Spizman, "Public Employees," 434.

by professional managers and cities managed by mayors. Manager cities (reform municipal institutions) produce desired municipal services are thought to more efficient than mayor cities (traditional institutions) because of superior management techniques and fewer political pressures; professional managers and an indirectly elected chief executive are more likely to reduce the level of expenditures.[143] On the other hand, Deno and Mehay find that cities managed by professional managers have no significant effect on local expenditures. Ehrenberg and Goldstein argue that city managers may have lower public employees' wages than elected mayors because managers face different political pressure, and are professionally well trained. However, they find opposite result; mayoral cities have lower public wages than manager cities.

Morgan and Hirlinger and Ferris and Graddy find that city governments operating with a council-manager are more likely to contract out than any other form of government. Benton and Menzel also find that a reformed government favors contracting out with private firms.

Public employees union(UNI): Public employees union represents the degree of political influence by organized public employees. Union variable for this paper is the total percentage of unionized municipal employees (UNI),

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143Ehrenberg, Ronald. "Municipal Government Structure, Unionization and the Wage of Fire fighters." Industrial and Law Relations Review 27 (1973) 36-48.
Morgan, David. Managing Urban America. North Scituate: Duxbury Press, 1979.

percentage of unionized refuse collection employees (UNR), and percentage of unionized public safety employees (UNP). Spizman claims that organized public employees have a significant political power to influence the employment decisions. Public employee union's activities are believed to cause higher labor and service costs. Schmenner, Freund, and Spizman find that public employees union influences employment and wage decisions.

Some contend that there is a significant negative relationship between wage rates and the level of public employment.[144] For example, Ehrenberg and Goldstein and Stein argue that public employee unions are more likely to favor higher wages over the expansion of employment. Ehrenberg and Goldstein find that average wage of unionized municipal employees is 2 to 16 percent higher than that of unorganized public employees. Ehrenberg finds that hourly wages of fire fighters are between 2 and 8 percent higher in cities with union contracts. Edwards and Edwards find that in comparing union/nonunion compensation differentials, unionism in municipal sanitation workers shows 1 to 63 percent higher compensation level. They also confirm that in the increase of total compensation unionism has more great impact in cities without professional managers (12 percent) than with professional managers (4 percent). Stein contends that "... the percentage of unionized public employees is negatively

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144Ehrenberg, Ronald. The Demand for State and Local Government Employees. Lexington: Heath, 1972.
Gustely, Richard. Municipal Public Employment and Public Expenditure, Lexington: Heath, 1974.

related to the size of the municipal work force. In association with this, the relatively slight negative relationship between wages and the number of public employees suggests that union activities were directed at securing wage increases rather than swelling the ranks of the public work force."[145]

Dubin and Navarro argue that "the objective of rent seeking should lead labor interests to lobby policy makers in support of government intervention in the form of public monopoly because this form of noncompetitive market organization is more likely to generate distributable rents than a competitive private market or a competitively bid private monopoly arrangement."[146] They find that public employee unions prefer the municipal provision as the best rent generator.

Public employees are concerned about displacement by contracting out. This displacement is the major reason for public employee union to oppose contracting out with private sector.[147] Chandler and Feuille argue that "the relationship between public employee unions and contracting decisions encompasses two conflicting dimensions. The cost-increasing effects of unions increase the public employer's incentive to contract the expensive services, but the union's ability to function as an organized political interest group enables the affected employees to effectively express their opposition to contracting

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145Stein, "Public Employment," 647-648.

146Dubin and Navarro, "Refuse Collection," 221.

147Poole, Robert. "Objectives to Privatization." Policy Journal (1983): 113-119.

proposals."[148] As Pack notes, public employees may resist contracting out although substantial cost savings are expected through the expansion of private sector to provide public services.[149] Transportation officials argue that transit workers' labor protections supported by the section 13(c) of the 1964 Urban Mass Transportation Act inhibit the possibility of contracting out with private sectors. Luger and Goldstein find that the Act does not significantly affect the decision of local transit agencies to contract out with private firms. However, transit workers' labor protections may increase the cost of public provisions by strengthening transit labor union's bargaining power.[150] Chandler and Feuille contend that unionization has an impact on a local government's decision to contract out with private sector. They find that the presence of city sanitation union is more likely to reduce the possibility of contracting out sanitation services. In addition, the potential contracting arrangement tends to be considered and to be implemented in cities where the relationship between the managers and the unions have been adversarial.[151]

Thus, the municipal employee union variable is expected to have a

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148Chandler, Timothy, and Peter Feuille. "Municipal Unions and Privatization." Public Administration Review 51 (1991): 17.

149Pack, "Privatization," 532.

150Luger, Michael, and Harvey Goldstein. "Federal Labor Protections and the Privatization of Public Transit." Journal of Policy Analysis and Management 8 (1989): 229-250.

151Chander and Feuille, "Municipal Unions," 15-22.

significant impact on the provision of services provided by city government and on their benefits. Ferris and Graddy find that the municipal employee union is adversely affected by contracting out. Consequently, the more unionized their labor force, the less would be municipal governments' cost savings.

Median household income(MHI): Under single-peaked preferences in a single dimension, a median voter, according to Enelow and Hinich, is a decisive voter.[152] Bergstrom and Goodman claim that "in each municipality, the quantity supplied of the municipal commodity is equal to the median of the quantities demanded by its citizens...In each municipality the median of the quantities demanded is the quantity demanded by the citizen with the median income for that municipality."[153]

Using Bergstrom and Goodman's argument, Inman tests the hypothesis that the median quantity demanded is identical with the quantity preferred by the median income voter. He applies the individual utility maximizing paradigm to the median income family to analyze municipal government expenditures. After surveying a sample of 58 Long Island school districts, Inman finds that the median voter has a median income in the community.[154] He contends that this

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152Enelow, James, and Melvin Hinich. The Spatial Theory of Voting. Cambridge: Cambridge University Press, 1984.

153Bergstrom, Theodore, and Robert Goodman. "Private Demands for Public Goods." American Economic Review 63 (1973): 281.

154Inman, Robert. "Testing Political Economy's 'As IF' Proposition: Is the Median Income Voter Really Decisive?" Public Choice 33 (1978), pp. 45-65.

assumption "produces an analytically powerful new 'as if' proposition; a proposition which stands as political economy's counterpart to the market economy's supposition that firms are profit maximizers."[155]

Gonzalez and Mehay find that median family income is positively significant in municipal expenditures. Stein contends that municipal demands for services and labor are determined by median family income. He finds that change in median family income is negatively significant to public employment, which implies that the increase of median family income has a negative effect on the change of public employment. Schneider uses median family income variable in order to represent the local demand for public services, and finds that it is statistically significant.

Bahl et al. also contend that the median voter is the person identical with the median income.[156] Stiglitz notes that median voter "is the one for whom the number of individuals who prefer a higher level of expenditure (the number of individuals who have a higher income) is exactly equal to the number of individuals who prefer a lower level of expenditure (the number of individuals who have lower income)... the majority voting equilibrium level of expenditures is the

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155Ibid., 46.

156Bahl, Roy, Marvin Johnson, and Michael Wasylenko. "State and Local Government Expenditure Determinants: The Traditional View and a New Approach." in Public Employment and State and Local Government Finance, Roy Bahl, Jesse Burkhead, and Bernard Jump, eds., (Cambridge: Ballinger Publishing Co., 1980), 65-120.

level that is most preferred by the median voter."[157]

Percentage total vote for Democratic presidential candidate(DEM): Party affiliation is used for a proxy of ideological preferences in the economic dimension.[158] Political party represents the degree of political party control in a certain political jurisdiction. DEM is defined as the total percentage of votes cast in a political jurisdiction (county) for Democratic candidates in 1992 presidential elections. Savas notes that conservatives believe that public sector is too big, and thus should be reduced.[159] Dubin and Navarro claim that "we expect that conservative communities will prefer use of the private market or, given government intervention, of a market

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157Stiglitz, Joseph. Economics of the Public Sector. (New York: W.W. Norton & Company, Inc.,1988), 154-155.

158Friedman, Milton. Capitalism and Freedom. Chicago: University of Chicago Press, 1962.
Volkomer, Walter. The Liberal Tradition in American Thought. New York: Capricorn Books, 1970.
Nash, George. The Conservative Intellectual Movement. New York: Basic Books, 1976.
Petroick, John. Party Coalitions. Chicago: University of Chicago Press, 1981.
Shaeffer, William. "Party and Ideology in the U.S. House of Representatives." Western Political Quarterly 35 (1982): 92-106.
Navarro, Peter. The Policy Game. New York: John Wiley and Son, 1984.
Fleishman, John. "Types of Political Attitude Structure." Political Opinion Quarterly 50 (1986): 371-386.
Dubin, Jeffrey, and Peter Navarro. "How Markets for Impure Public Goods Organize: The Case of Household Refuse Collection." Journal of Law, Economics, and Organization 4 (1988): 217-241.

159Savas, Edgar. Privatizing the Public Sector: How to Shrink Government. Chatham: Chatham Press, 1982.

mechanism to deliver impure public goods."[160]

Consequently, conservative political jurisdiction may support contracting out more than liberal jurisdictions. Ferris contends that cities are more likely to contract out with private sector when political opposition is weak.

Rate of serious crimes per 100,000 population(CRI); Mehay and Gonzalez contend that crime rate is used for alternative proxy of the output of public safety services. They find that crime rate is negatively related to local expenditures.[161]

Percent below poverty level(PVT): Poor families may have different demands for public services. For example, they need more welfare programs, which indicate that it may require greater cost of providing local health and human services. Consequently, we can expect that where the level of PVT is higher, cities spend more expenditures in health and human services.

Deacon finds that percent of low income family is inversely related to total expenditures, but positively significant in police expenditure, indicating that the expenditure of police protection service rises with the fraction of lower households incomes. Sass finds that poverty level is not statically significant, which implies that there is no relationship between percent of economically disadvantaged students and municipal expenditures.

160Dubin and Navarro, "Refuse Collection," 222.

161Mehay, Stephen, and Rodolfo Gonzalez. "Economic Incentives Under Contract Supply of Local Government Services." Public Choice, 46 (1985): 79-86.

Contracting out(CON): CON is the frequency of city services which are contracted out with private firms. For example, if a municipal government contracts out 10 municipal services, the frequency for the city will be 10. If a certain city does not contract out any service, the frequency of the city will be 0. This measure is based on the ICMA survey response of how many of 28 municipal services are contracted out with private firms. These services cover five categories of municipal services: refuse collection, public safety, parks and recreation, health and human services, and public utilities.[162]

Random error(e): The effect of unobserved variables may be contained in the random error term, e which is assumed to be normally distributed.

4. Regression model

To test the hypotheses, I used a multiple regression model to estimate the

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162The refuse collection category includes three services: residential solid waste collection, commercial solid waste collection, and solid waste disposal. Public safety category includes five services: crime prevention/patrol, police/fire communications, fire prevention/suppression, emergency medical service, and ambulance service. Parks and recreation category includes three services: operation and maintenance of recreation facilities, parks landscaping and maintenance, and operation of convention centers and auditoriums. Health and human services category includes eleven services: sanitary inspection, insect/rodent control, animal control, operation of animal shelters, operation of daycare facilities, child welfare programs, programs for the elderly, public health programs, drug and alcohol treatment programs, operation of mental health/mental retardation programs and facilities, and operation of homeless shelters. Public utilities category includes six services: water distribution, water treatment, gas operation and management, electricity operation and management, utility meter reading, and utility building.

effects of contracting on expenditures, employment, and wages across different services. There are three dependent variables to estimate the effects of contracting cities and non-contracting cities: expenditure, employment, and wage.

1) Expenditure equation

I developed a total expenditure model that predicts the effects of contracting out. The total expenditure equation is estimated for aggregate municipal spending. Expenditures are measured per capita, using estimate of city population in 1990. The equation is estimated by the ordinary least square procedure (OLS). Variables are expressed in a linear model.

Cities vary widely geographic, economic, and political characteristics, and these characteristics are incorporated in the estimating equation because they influence the cities' expenditure, employment, and wage.

The following total expenditure equation was estimated:

$$EXT = a_0 + b_1CON + b_2POP + b_3POG + b_4GES + b_5NTC +$$
$$b_6SOT + b_7WST + b_8FOG + b_9PEI + b_{10}TXS +$$
$$b_{11}FGT + b_{12}SGT + b_{13}MHI + b_{14}DEM + b_{15}UNI + e$$

where the variables are defined as follows:

EXT = total municipal expenditure per capita
a = constant term
CON = frequency of city services contracted out
POP = population, 1990
POG = population growth, 1980 to 1990

GES = square mile of land area, 1990
NTC = 1 equal to North central cities and 0 otherwise
SOT = 1 equal to Southern cities and 0 otherwise
WST = 1 equal to Western cities and 0 otherwise
FOG = 1 equal to council-manager and 0 otherwise
PEI = personal income per capita
TXS = tax revenues per capita
FGT = federal grants per capita
SGT = state grants per capita
MHI = median household income
DEM = percentage of total vote for Democratic candidate in presidential election, 1992
UNI = total percentage of public employees union
e = random error term

In addition, five separate expenditure functions are estimated for municipal expenditure of different services - refuse collection, health and human services, public safety, parks and recreation, and public utilities.[163]

$$EXP_{(i,j)} = a_0 + b_1CON_i + b_2POP_i + b_3POG_i + b_4GES_i + b_5NTC_i + b_6SOT_i + b_7WST_i + b_8FOG_i + b_9PEI_i + b_{10}TXS_i + b_{11}FGT_i + b_{12}SGT_i + b_{13}MHI_i + b_{14}DEM_i + b_{15}UNR/UNP_i + b_{16}PVT_i + b_{17}CRI_i + e$$

$EXP_{(i,j)}$ = municipal expenditure for service j in municipality i.

The following equation was estimated to observe the expenditure effects of

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163Notes:
UNR = percentage of unionized refuse collection employees. UNR is used only for refuse collection service equation.
UNP = percentage of unionized public safety employees. UNP is used only for public safety service equation.
PVT = percent below poverty level. PVT variable is used only for health and human service equation.
CRI = rate of serious crimes per 100,000 resident population. CRI variable is used only for public safety equation.
k = combined three public services - refuse collection, public safety, and parks and recreation services.

combined three public services.

$$EXP_{(i,k)} = a_0 + b_1CON_i + b_2POP_i + b_3POG_i + b_4GES_i + b_5NTC_i + b_6SOT_i + b_7WST_i + b_8FOG_i + b_9PEI_i + b_{10}TXS_i + b_{11}FGT_i + b_{12}SGT_i + b_{13}MHI_i + b_{14}DEM_i + b_{15}UNR/UNP_i + b_{16}PVT_i + b_{17}CRI_i + e$$

$EXP_{(i,k)}$ = municipal expenditure for combined three services k in municipality i.

2) Employment equation

The total public employment equation was estimated for aggregate the number of municipal employees. As a labor intensive nature of local services, we may expect that municipal governments with higher labor costs will result in higher public expenditures, ceteris paribus.

The employment figure is expressed as full-time equivalents. The following total employment equation was estimated:

$$EMT = a_0 + b_1CON + b_2POP + b_3POG + b_4GES + b_5NTC + b_6SOT + b_7WST + b_8FOG + b_9PEI + b_{10}TXS + b_{11}FGT + b_{12}SGT + b_{13}MHI + b_{14}DEM + b_{15}UNI + e$$

where the variables are defined as follows:

EMT = total municipal employees per 1,000 population
a = constant term
CON = frequency of city services contracted out
POP = population, 1990
POG = population growth, 1980 to 1990
GES = square mile of land area, 1990
NTC = 1 equal to North central cities and 0 otherwise
SOT = 1 equal to Southern cities and 0 otherwise
WST = 1 equal to Western cities and 0 otherwise

FOG = 1 equal to council-manager and 0 otherwise
PEI = personal income per capita
TXS = tax revenues per capita
FGT = federal grants per capita
SGT = state grants per capita
MHI = median household income
DEM = percentage of total vote for Democratic candidate in presidential election, 1992
UNI = total percentage of public employees union
e = random error term

In addition, five separate employment functions are estimated for municipal employees of different services - refuse collection, health and human services, public safety, parks and recreation, and public utilities.[164]

$$EMP_{(i,j)} = a_0 + b_1CON_i + b_2POP_i + b_3POG_i + b_4GES_i + b_5NTC_i + b_6SOT_i + b_7WST_i + b_8FOG_i + b_9PEI_i + b_{10}TXS_i + b_{11}FGT_i + b_{12}SGT_i + b_{13}MHI_i + b_{14}DEM_i + b_{15}UNR/UNP_i + b_{16}PVT_i + b_{17}CRI_i + e$$

$EMP_{(i,j)}$ = municipal employment for service j in municipality i.

The following equation was estimated to observe the employment effects of combined three public services.

164Notes:
UNR = percentage of unionized refuse collection employees. UNR is used only for refuse collection service equation.
UNP = percentage of unionized public safety employees. UNP is used only for public safety service equation.
PVT = percent below poverty level. PVT variable is used only for health and human service equation.
CRI = rate of serious crimes per 100,000 resident population. CRI variable is used only for public safety equation.
k = combined three public services - refuse collection, public safety, and parks and recreation services.

$$EMP_{(i,k)} = a_0 + b_1CON_i + b_2POP_i + b_3POG_i + b_4GES_i + b_5NTC_i + b_6SOT_i +$$
$$b_7WST_i + b_8FOG_i + b_9PEI_i + b_{10}TXS_i + b_{11}FGT_i + b_{12}SGT_i +$$
$$b_{13}MHI_i + b_{14}DEM_i + b_{15}UNR/UNP_i + b_{16}PVT_i + b_{17}CRI_i + e$$

$EMP_{(i,k)}$ = municipal employment for combined three services k in municipality i.

3) Wage equation

The total public employee wage equation was estimated for aggregate municipal wage. Given the labor intensive local public services, municipal government will have higher expenditures when it faces higher labor costs. The following total public employee wage equation was estimated:

$$WGT = a_0 + b_1CON + b_2POP + b_3POG + b_4GES + b_5NTC +$$
$$b_6SOT + b_7WST + b_8FOG + b_9PEI + b_{10}TXS + b_{11}FGT +$$
$$b_{12}SGT + b_{13}MHI + b_{14}DEM + b_{15}PRW + b_{16}UNI + e$$

where the variables are defined as follows:

WGT = total municipal wages per 1,000 population
a = constant term
CON = frequency of city services contracted out
POP = population, 1990
POG = population growth, 1980 to 1990
GES = square mile of land area, 1990
NTC = 1 equal to North central cities and 0 otherwise
SOT = 1 equal to Southern cities and 0 otherwise
WST = 1 equal to Western cities and 0 otherwise
FOG = 1 equal to council-manager and 0 otherwise
PEI = personal income per capita
TXS = tax revenues per capita
FGT = federal grants per capita
SGT = state grants per capita
MHI = median household income

DEM = percentage of total vote for Democratic candidate in presidential election, 1992
PRW = average monthly wage of private manufacturing employee(full time equivalent)
UNI = total percentage of public employees union
e = random error term

In addition, five separate public employee functions are estimated for municipal employee wages of different services - refuse collection, health and human services, public safety, parks and recreation, and public utilities.[165]

$$WGE_{(i,j)} = a_0 + b_1CON_i + b_2POP_i + b_3POG_i + b_4GES_i + b_5NTC_i + b_6SOT_i + b_7WST_i + b_8FOG_i + b_9PEI_i + b_{10}TXS_i + b_{11}FGT_i + b_{12}SGT_i + b_{13}MHI_i + b_{14}DEM_i + b_{15}UNR/UNP_i + b_{16}PRW_i + b_{17}PVT_i + b_{18}CRI_i + e$$

$WGE_{(i,j)}$ = municipal wages for service j in municipality i.

The following equation was estimated to observe the wage effects of combined three public services.

165Notes:
UNR = percentage of unionized refuse collection employees. UNR is used only for refuse collection service equation.
UNP = percentage of unionized public safety employees. UNP is used only for public safety service equation.
PVT = percent below poverty level. PVT variable is used only for health and human service equation.
CRI = rate of serious crimes per 100,000 resident population. CRI variable is used only for public safety equation.
k = combined three public services - refuse collection, public safety, and parks and recreation services.

$$WGE_{(i,k)} = a_0 + b_1CON_i + b_2POP_i + b_3POG_i + b_4GES_i + b_5NTC_i + b_6SOT_i + b_7WST_i + b_8FOG_i + b_9PEI_i + b_{10}TXS_i + b_{11}FGT_i + b_{12}SGT_i + b_{13}MHI_i + b_{14}DEM_i + b_{15}UNR/UNP_i + b_{16}PVT_i + b_{17}CRI_i + e$$

$WGE_{(i,k)}$ = municipal wages for combined three services k in municipality i.

CHAPTER IV

EMPIRICAL FINDINGS

1. Contracting effects on municipal government

The results of a contracting effect on total expenditure, employment, and wage levels of municipal government are presented in Table 1.

The total expenditure coefficient for contracting cities (CON) is positive, indicating that contracting cities spend approximately $14 more on total expenditures than non-contracting cities, but it is not statistically significant. CON does not constrain municipal expenditures, which indicates that there is no relationship between contracting out and total municipal expenditures. Western cities (WST), state grant (SGT), and tax revenue (TXS) are statistically significant. These variables are positively related to total expenditure per capita of municipal government. The geographic dummy variable is entered to account for regional differences in municipal expenditures; western cities have higher total expenditures. SGT has a positive effect on total expenditures, indicating that where state government gives more money, municipal government spend more. However, federal grants (FGT) are not statistically significant to total municipal expenditures. TXS has a significant and positive effect on total expenditures levels; cities which have higher tax burdens have slightly higher public

expenditures. The percentage of unionized public employees (UNI) is negatively related to total municipal expenditures. The negative sign of the coefficient on UNI indicates that the higher percentage of unionized public employees tend to reduce municipal expenditure levels. Variables such as population (POP), geographic size (GES), the Democratic party (DEM), and median household income (MHI) do not have a significant effect on municipal expenditures. The contracting variable has a negative but insignificant effect on total employment levels. State grants (SGT), tax revenues (TXS), and percentage of public employees union (UNI) are statistically significant. SGT has a significant effect on municipal employment. This finding supports Stein's argument(1984) that there is a strong and consistent relationship between state grants and municipal public employment. The estimated coefficient of UNI is negatively significant, which indicates that as the higher percentage of public employee unionized increases, the number of public employees decreases. This implies that public employee levels are lower in municipal governments with greater public employee unionization. This confirms Stein's study (1984) that the percentage of public employee unionized has a negative effect on the size of municipal public employment. This negative employment effect may be lead to cost savings.

The total wage coefficient for contracting out is not statistically significant, indicating that having a contracting arrangement is not associated with lower wage levels. Wage levels are positively affected by population (POP), state grants (SGT), and tax revenues (TXS). UNI has a significant and negative

Table 1.--Contracting effects on total expenditure, employment, and wage levels for municipal government

Variable	EXT	EMT	WGT
CON	14.93	-.137	.320
	(.647)	(-.565)	(.672)
Demographic/geographic			
POP	1.901E-04	1.673E-06	7.893E-06
	(1.054)	(.895)	(2.171)**
POG	-5.060	-.028	-.019
	(-1.033)	(-.571)	(-.200)
GES	-.089	-.005	-.010
	(-.124)	(-.719)	(-.720)
NTC	380.153	3.342	5.251
	(1.271)	(1.083)	(.891)
SOT	73.459	2.904	3.070
	(.260)	(.994)	(.549)
WST	577.293	3.209	8.704
	(1.931)*	(1.044)	(1.408)
Economic			
PEI	.036	-3.115E-04	7.302E-04
	(1.063)	(-.873)	(.977)
FGT	1.888	.014	.027
	(1.321)	(1.008)	(.981)
SGT	.742	.018	.046
	(2.315)**	(5.379)***	(7.081)***
TXS	1.532	.019	.036
	(4.106)***	(4.944)***	(4.970)***
PRW			.003
			(.758)
Political			
DEM	-2.108	-.022	-.123
	(-.031)	(-.295)	(-.854)
FOG	211.423	1.029	2.505
	(1.074)	(.508)	(.645)
MHI	-.012	6.545E-05	-2.324E-04
	(-.749)	(.373)	(-.668)
UNI	-5.823	-.117	-.185
	(-1.643)*	(-3.221)***	(-2.652)**

"Table 1-Continued."

Variable	EXT	EMT	WGT
(Constant)	42.768 (.078)	11.319 (2.016)*	4.193 (.378)
R Square	.772	.879	.906
F	8.582***	18.044***	21.864***
N	86	86	86

Notes:
T values are shown in parentheses.
* significant at < .10 level, two-tailed test
** significant at < .05 level, two-tailed test
*** significant at < .01 level, two-tailed test

effect on wage levels. This result indicates that the increase of UNI in a municipal government lowers municipal wage levels. The average monthly wage for private manufacturing employees (PRW) has no effect on total public wage levels.

Table 2 presents the results of a contracting effect on expenditures, employment, and wages of combined three public services (refuse collection, public safety, and parks and recreation).

Contracting out is not statistically significant in expenditure, employment, and wage levels for combined three public services. State grants (SGT) and tax revenues (TXS) are statistically significant for expenditure levels. Geographic regions matter; municipal governments in other regions of the United States have higher employment than those in the Northeast. Southern and Western cities

Table 2.--Contracting effects on expenditure, employment, and wage levels for combined three public services

Variable	EXP	EMP	WGE
CON	.857	.061	.296
	(.043)	(.209)	(.609)
Demographic/geographic			
POP	2.838E-05	6.138E-07	4.124E-06
	(.302)	(.449)	(1.784)*
POG	-3.319	-.029	-.014
	(-1.305)	(-.809)	(-.233)
GES	-.092	-.005	-.009
	(-.244)	(-.996)	(-1.047)
NTC	135.764	4.341	5.937
	(.876)	(1.925*	(1.584)
SOT	161.061	5.292	10.008
	(1.097)	(2.775)***	(2.809)***
WST	216.706	4.829	10.400
	(1.401)	(2.146)**	(2.776)***
Economic			
PEI	.018	-3.133E-04	4.157E-04
	(1.096)	(-1.247)	(.883)
FGT	.903	.014	.024
	(1.214)	(1.297)	(1.356)
SGT	.799	.019	.049
	(4.637)***	(7.663)***	(11.723)***
TXS	1.297	.018	.033
	(6.657)***	(6.666)***	(7.019)***
PRW			.005
			(1.902)*
Political			
DEM	3.050	-.034	-.131
	(.834)	(-.655)	(-1.485)
FOG	77.383	-.855	-1.512
	(.756)	(-.574)	(-.610)
MHI	-.005	7.457E-05	-2.218E-04
	(-.646)	(.583)	(-1.014)
UNI	.765	-.043	-.055
	(.417)	(-1.627)	(-1.255)

"Table 2-Continued."

Variable	EXP	EMP	WGE
(Constant)	-254.634	4.440	-4.585
	(-.913)	(1.094)	(-.663)
R Square	.895	.917	.953
F	21.085***	27.382***	45.734***
N	86	86	86

Notes:
T values are shown in parentheses.
* significant at < .10 level, two-tailed test
** significant at < .05 level, two-tailed test
*** significant at < .01 level, two-tailed test

have higher public wage levels than Northeastern cities. There is weak relationship between average monthly wage of private manufacturing employees (PRW) and wage levels in combined three public services.

2. Contracting effects on refuse collection

As reported in Table 3, contracting out is not statistically significant in expenditure, employment, and wage levels for refuse collection.

Percentage of total vote for Democratic candidate in presidential election (DEM) and tax revenues (TXS) are statistically significant. The estimated coefficient of DEM is positively significant, indicating that higher percentage of total vote for Democratic presidential candidate increases, the wage levels of refuse collection service employees increase. TXS is inversely related to wage

Table 3.--Contracting effects on expenditure, employment, and wage levels for refuse collection

Variable	EXP	EMP	WGE
CON	5.891	.042	.066
	(.416)	(.483)	(.372)
Demographic/geographic			
POP	-1.607E-05	-6.682E-08	-1.145E-07
	(-.511)	(-.343)	(-.293)
POG	-1.600	.002	.012
	(-1.425)	(.370)	(.884)
GES	.018	-7.090	5.909E-04
	(.138)	(-.086)	(.348)
NTC	-1.999	-.507	-.915
	(-.032)	(-1.307)	(-1.134)
SOT	4.219	-.221	-.692
	(.067)	(-.565)	(-.803)
WST	86.690	-.388	-.612
	(1.455)	(-1.053)	(-.787)
Economic			
PEI	.010	6.665	2.413E-04
	(.960)	(.997)	(1.682)
FGT	-.190	-.001	-.004
	(-.631)	(-1.014)	(-1.268)
SGT	.020	-5.166E-04	-.001
	(.294)	(-1.181)	(-1.606)
TXS	-.044	-9.662E-04	-.002
	(-.410)	(-1.438)	(-1.779)*
PRW			-8.842E-05
			(-.140)
Political			
DEM	-1.225	.011	.036
	(-.780)	(1.147)	(1.777)*
FOG	.736	-.212	-.236
	(.023)	(-1.065)	(-.603)
MHI	-.003	-2.883E-05	-8.183E-05
	(-.931)	(-.086)	(-1.643)
UNR	.193	-.001	4.337E-04
	(.337)	(-.428)	(.061)

"Table 3-Continued,"

Variable	EXP	EMP	WGE
(Constant)	26.249	.844	-.094
	(.214)	(1.111)	(-.057)
R Square	.376	.360	.378
F	.685	.639	.608
N	82	82	82

Notes:
T values are shown in parentheses.
* significant at < .10 level, two-tailed test

levels, which implies that tax revenues limit wages of refuge collection service employees. Average monthly wage of private manufacturing employee (PRW) is not statistically significant. This suggests that the wages of public employees do not reflect the wages of private manufacturing employees.

3. Contracting effects on public safety

The estimated coefficients for contracting public safety services is presented in Table 4.

The contracting out variable is not associated with lower expenditures, employment, and wages for public safety services. The major crime rate (CRI) is statistically significant in raising expenditure levels. The resulting coefficient is .01, which suggest that CRI has a weak effect on expenditures. North central cities (NTC) are inversely related to public safety expenditures, indicating that

Table 4.--Contracting effects on expenditure, employment, and wage levels for municipal public safety services

Variable	EXP	EMP	WGE
CON	.077	-.201	.730
	(.007)	(-1.362)	(.755)
Demographic/geographic			
POP	1.017E-05	-1.455E-07	2.154
	(.478)	(-.494)	(1.200)
POG	.104	-.027	-.025
	(.150)	(-2.823)**	(-.437)
GES	.009	1.802E-04	-.003
	(.107)	(.146)	(-.377)
NTC	-122.011	-.992	2.133
	(-1.753)*	(-1.030)	(.365)
SOT	-127.002	-.956	-.128
	(-1.626)	(-.884)	(-.020)
WST	-113.979	-1.047	-.986
	(-1.584)	(-1.050)	(-.165)
Economic			
PEI	.003	6.516E-05	-3.761E-04
	(.617)	(.904)	(-.706)
FGT	.123	-.005	.055
	(.444)	(-1.425)	(2.444)**
SGT	.220	-.956	.006
	(1.600)	(-.884)	(.522)
TXS	.147	.002	.016
	(1.555)	(2.270)**	(2.161)**
PRW			.004
			(1.296)
Political			
DEM	.415	-6.621E-04	-.107
	(.375)	(-.043)	(-1.184)
FOG	52.735	-.202	1.623
	(1.532)	(-.424)	(.573)
MHI	.001	-2.414E-05	4.629E-05
	(.428)	(-.645)	(.209)
UNP	.214	-.009	.104
	(.317)	(-1.053)	(1.868)*

"Table 4-Continued,"

Variable	EXP	EMP	WGE
CRI	.017	1.752E-04	5.923E-04
	(2.473)**	(1.824)*	(.977)
(Constant)	-39.278	3.951	-11.462
	(-.418)	(3.306)***	(-1.344)
R Square	.752	.867	.692
F	3.982***	8.592***	2.653**
N	86	86	86

Notes:
T values are shown in parentheses.
* significant at < .10 level, two-tailed test
** significant at < .05 level, two-tailed test
*** significant at < .01 level, two-tailed test

cities in North Central region have lower expenditures than those in the Northeast.

Population growth (POG), tax revenues (TXS), and rate of serious crimes (CRI) are statistically significant for public safety employment. The estimated coefficient of POG is negatively significant in public safety employment. There is a weak positive relationship between CRI and public safety employment, which indicates that as the percentage of major crime rate increases, the number of public safety employees increase.

The coefficient for cities contracting public safety services is positively related to wage levels but is not statistically significant. Federal grants (FGT) and percentage of unionized public safety employees (UNP) are positively

significant in public safety employees' wage level. UNP is associated with higher wage levels of public safety service employees. This result is consistent with the conclusion that public employees union activities are more likely to secure wage increases rather than strengthening the job security.

4. Contracting effects on parks and recreation services

Table 5 presents the results from an estimating equation of parks and recreation services for a sample of 85 cities.

The estimated coefficient for the contracting variable is not statistically significant, which indicates that having a contracting arrangement in parks and recreation services does not affect expenditure, employment, or wage levels.

Form of government (FOG) is negatively significant for parks and recreation service expenditures. This result implies that form of government has an influence on municipal expenditure levels; manager cities spend less than mayoral cities. The geographic dummy variables are positively significant, indicating that municipal governments in other regions of the United States have higher expenditure, employment, wage levels in parks and recreation service that those in the Northeast.

Tax revenues (TXS) are statistically significant for expenditures, employment, and wages of parks and recreation services. This indicates that a higher tax revenues lead to more expenditures, employment, and wages in parks and recreation services. Personal income (PEI) is positively significant for parks

Table 5.--Contracting effects on expenditure, employment, and wage levels for municipal parks and recreation services

Variable	EXP	EMP	WGE
CON	13.744	.048	.017
	(1.290)	(.567)	(.113)
Demographic/geographic			
POP	7.251E-06	2.856E-08	-4.356E-08
	(.246)	(.121)	(-.101)
POG	.270	-.003	-.004
	(.437)	(-.740)	(-.513)
GES	-.119	-5.576E-04	-.001
	(-1.104)	(-.644)	(-1.022)
NTC	124.375	1.088	1.565
	(2.903)***	(3.173)***	(2.508)***
SOT	158.712	1.378	1.943
	(3.765)***	(4.083)***	(3.164)***
WST	132.871	1.332	2.012
	(3.050)***	(3.821)***	(3.166)***
Economic			
PEI	.010	3.297E-05	1.883E-04
	(2.370)**	(.958)	(2.692)***
FGT	-.088	-.001	-.002
	(-.426)	(-1.122)	(-.915)
SGT	-.042	-3.953E-05	-.001
	(-.861)	(-.099)	(-1.612)
TXS	.146	.001	.003
	(2.772)***	(3.522)***	(4.226)***
PRW			-7.563E-04
			(-1.972)*
Political			
DEM	-.800	3.371	.006
	(-.919)	(.048)	(-.552)
FOG	-39.463	-.295	-.515
	(-1.701)*	(-1.589)	(-1.505)
MHI	-.003	-5.893E-05	5.276E-06
	(-1.537)	(-.319)	(.155)

"Table 5-Continued,"

Variable	EXP	EMP	WGE
(Constant)	-102.863 (-1.363)	-.635 (-1.051)	-1.220 (-1.075)
R Square	.308	.324	.403
F	2.232**	2.401***	3.110***
N	85	85	85

Notes:
T values are shown in parentheses.
* significant at < .10 level, two-tailed test
** significant at < .05 level, two-tailed test
*** significant at < .01 level, two-tailed test

and recreation service expenditures and wages. This is consistent with Bahl et al.'s (1972) argument - higher per capita incomes result in higher public sector wage rates to maintain parity with private sector, and , thus, higher expenditures for any particular functions.

5. Contracting effects on health and human services

Table 6 presents the results of an estimating equation for health and human services. The estimated coefficient for the contracting variable is not statistically significant. Apparently, having a contracting arrangement in health and human services does not affect expenditure, employment, or wage levels.

The geographic dummy variables are negatively significant, indicating that municipal governments in other regions of the United States have lower

Table 6.--Contracting effects on expenditure, employment, and wage levels for municipal health and human services

Variable	EXP	EMP	WGE
CON	-1.323	-.003	.072
	(-.083)	(-.011)	(.162)
Demographic/geographic			
POP	-1.829	2.274E-07	4.138E-06
	(-.302)	(.059)	(.726)
POG	2.320	-.001	.012
	(.818)	(-.024)	(.188)
GES	.165	-2.786E-04	-.004
	(.716)	(-.049)	(-.553)
NTC	-188.653	-5.438	-9.306
	(-1.812)*	(-2.856)***	(-3.284)***
SOT	-127.452	-2.838	-5.119
	(-1.331)	(-1.688)*	(-2.023)**
WST	-137.007	-4.559	-8.810
	(-1.401)	(-2.559)**	(-3.308)***
Economic			
PEI	.003	1.692E-05	-8.175E-05
	(.241)	(.080)	(-.234)
FGT	.026	.008	.005
	(.051)	(.816)	(.352)
SGT	.096	.002	.003
	(.821)	(1.159)	(1.110)
TXS	.030	-.002	-.002
	(.225)	(-1.114)	(-.602)
PRW			8.979E-04
			(.448)
PVT	-12.067	-.382	-.625
	(-1.425)	(-2.579)**	(-2.832)***
Political			
DEM	3.102	.056	.134
	(1.139)	(1.199)	(1.927)*
FOG	79.218	1.582	3.482
	(1.403)	(1.539)	(2.198)**
MHI	-.011	-1.656E-04	-2.156E-04
	(-1.141)	(-1.090)	(-.929)

"Table 6-Continued,"

Variable	EXP	EMP	WGE
(Constant)	331.629	9.880	11.273
	(.990)	(1.819)*	(1.384)
R Square	.291	.347	.460
F	.824	1.242	1.817*
N	51	51	51

Note:
T values are shown in parentheses.
* significant at < .10 level, two-tailed test
** significant at < .05 level, two-tailed test
*** significant at < .01 level, two-tailed test

employment, wage levels in health and human service than those in the Northeast. In addition, cities in North Central region have lower expenditures in health and human service than those in the Northeast. Poverty level (PVT) is inversely related to employment and wage levels of health and human services.

Form of government (FOG) has a significant and positive effect on the wages of health and human service employees. This implies that municipal health and human service employees' wages are higher in manager cities than mayoral cities, consistent with the previous findings of Ehrenberg and Goldstein (1975), Zax (1985 and 1990), and Deno and Mehay (1987). DEM has a positive effect on wage levels in health and human service.

6. Contracting effects on public utility services

As reported in Table 7, the estimated coefficients of cities contracting

Table 7.--Contracting effects on expenditure, employment, and wage levels for municipal public utility services

Variable	EXP	EMP	WGE
CON	-1.722	.052	.354
	(-.045)	(.350)	(.810)
Demographic/geographic			
POP	1.805E-04	4.953E-07	2.767E-06
	(1.271)	(.891)	(1.741)*
POG	-2.118	-.005	-.015
	(-.701)	(-.499)	(-.443)
GES	-.502	-5.086E-04	-.003
	(-.974)	(-.252)	(-.535)
NTC	127.702	.617	2.508
	(.618)	(.763)	(1.090)
SOT	160.467	.067	.228
	(.777)	(.083)	(.099)
WST	263.793	.399	2.085
	(1.237)	(.478)	(.877)
Economic			
PEI	.007	-4.671E-05	6.404E-05
	(.341)	(-.556)	(.245)
FGT	.910	.001	.001
	(.852)	(.392)	(.141)
SGT	-.197	-.001	-.002
	(-.627)	(-.865)	(-.699)
TXS	.053	4.968E-04	.001
	(.209)	(.492)	(.670)
PRW			-5.605E-04
			(-.397)
Political			
DEM	-2.076	-.002	-.020
	(-.453)	(-.140)	(-.395)
FOG	129.610	-.138	.393
	(1.120)	(-.305)	(.300)
MHI	-.005	-3.260E-05	-7.688E-05
	(-.448)	(-.747)	(-.611)

"Table 7-Continued,"

Variable	EXP	EMP	WGE
(Constant)	63.359	2.799	4.024
	(.168)	(1.900)*	(.926)
R Square	.103	.115	.158
F	.535	.605	.803
N	80	80	80

Notes:
T values are shown in parentheses.
* significant at < .10 level, two-tailed test

public utility services are not statistically significant. This indicates that expenditures will not be greater in cities that are not contracting with private sector. Only the population variable has a significant and positive effect on the wages of public utility services.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

The primary purpose of this paper is to examine the effects of contracting on expenditure, employment, and wage levels in municipal government.

The major empirical finding presented in this paper is that, in general, contracting with the private sector does not have significant effects on expenditure, employment, and wage levels in municipal governments; contracting out does not reduce the aggregate expenditures, employment, and wages of municipal government. This empirical evidence is not consistent with the general conclusion that contracting is the more efficient, and thus yields cost savings relative to public provision. These cost savings do not result in the reduction of public expenditure, employment, and wage levels. As a consequence, the practice of a contracting arrangement may not be a useful means to cope with the fiscal distress of municipal government. This suggests that rents, as Chamberlin and Jackson (1987) note, are transferred from public sector to private sector, and distributional consequences are critical.

Associated with the individual service area, there is weak evidence that the contracting effect is somewhat different from the characteristics of public services. As an example, although public services such as refuse collection

services are easily monitored because their outputs are tangible, the empirical finding indicates that contracting out of refuse collection services is not associated with lower expenditure, employment, and wage levels in refuse collection department of municipal government. Contrary to prevailing views, cities which contracted refuse collection services do not significantly reduce the municipal expenditures, employment, and wages.

As Caves et al. (1982) note, ownership form has little influence on performance when a certain service is highly regulated. As hypothesized, the contracting mode in public utility services is not related to the reduction of municipal expenditures, employment, and wages. This paper also finds that there is no significant difference between contracting cities and non-contracting cities in health and human services. Contracting arrangement on health and human services is not associated with the reduction of expenditure, employment, and wage levels. Consequently, the empirical finding suggests that individual service contracting does not always lead to more efficient municipal government.

With regard to political variables, there are weak relationships between political variables and municipal expenditure, employment, and wage levels.

Somewhat surprisingly, the empirical test indicates that public employees union variable appears to have a negatively significant effect on total municipal expenditure, employment, and wage levels. This result is contrary to the prediction of most previous literature that found positive relationships among them. This indicates that public employee unions may not have strong political

power to strengthen their job security and higher wages.

This study finds that geographic size and median household income may matter very little to municipal expenditure, employment, and wage levels.

Overall, the expenditures of the contracted public services are not statistically significant from the non-contracted although the estimated coefficient for the contracting variable is negative. This indicates that municipal government may not be attaining its stated goal - cost savings. In other words, the cost savings obtained from contracting services may be exaggerated; cost savings from contracting services are not realized. One of the most important implications drawn from this paper implies that it may be ineffective to try contracting out with private firms to reduce municipal expenditure, employment, and wage levels. This result indicates that the hypothesized differential relationship between contracting cities and non-contracting cities is not supported. Contracting does not promote an efficiency improvement of municipal government, substantially inconsistent with the proponents of contracting out. The findings of this paper provide a more careful screen of contracting out with private sector. Rather than relying simply on contracting mode, municipal government should consider more specific contracting conditions (e.g., 10 percent cost savings in three years) to guarantee the cost savings obtained from contracting out.

Another implication in relation with Niskanen bureau is that although cost savings from service contracting may be realized, these cost savings from

service contracting may be internalized by the department, and the net effect on total municipal expenditure may not be realized. It is hard to monitor the amount saved mainly due to information asymmetry of principals (elected officials) and voters. Therefore, the practice of contracting services in municipal government still remains problematic, largely due to the difficulty of tracing the impact on the potential alternative uses of the cost savings from contracting out. This implication diverges from Bennett and Johnson's argument (1980) that local governments may reduce tax burdens significantly by passing cost savings from private sector supply to the taxpayer.

Finally, although some previous studies contend that a contracting arrangement is an efficient mode to deliver public services, their studies are largely based on the effects of one service (service-specific effects) or one city (city-specific effects). However, this study is different in that it covers many cities and services simultaneously. In relation to aggregate effects on expenditure, employment, and wage levels of contracting cities, this study does not support previous findings. This finding is consistent with Stein's conclusion (1990) that joint contracting with private sector does not have a statistically significant effect on total expenditure and employment levels. However, I examine only the effects of service contracting specifically with the private sector. Deacon (1979) finds that cities contracting with other governments (e.g., Los Angeles County) spend less on total expenditures than do non-contracting cities. Similarly, Ferris (1988) finds that contracting arrangement has a negative effect on total expenditure and

employment levels. Stein (1990) divides contracting mode into contracting with public sector and contracting with private sector. He finds that joint contracting with public sector (other governments) has a negative effect on total expenditure, employment, and wage levels. However, he finds that joint contracting with private sector has an insignificant effect on total expenditure and employment levels, but a significant and positive effect on total wages. This paper also shows that although the estimated coefficients for wage levels are not statistically significant, they are always positive. One of the possible explanation of this contradiction is that it may be due to additional costs such as contract monitoring costs. This indicates that contract monitoring costs may increase the per public employee wages largely due to substituting production workers for high skilled administrative monitoring employees.

This study, associated with Deacon (1979), Ferris (1988), and Stein (1990), finds that municipal government may reduce costs by contracting with other governments. However, municipal government may not always expect to reduce costs by contracting with private sector. Although previous studies find cost savings in one service area through contracting out, it may not directly guarantee overall cost savings in municipal government. Because, as Stein (1990) notes, it is budgetary politics that tells us about how and when cost savings from service contractings will be reflected in municipal government.

Overall, the rosy promises of contracting out proponents may differ from the actual adoption and implementation of contracting services. This study finds

that service contracting with private sector does not provide tangible savings to municipal government.

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