

Transaction Costs and Institutional Explanations for Government Service Production Decisions

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ABSTRACT

Governments not only choose which services to deliver to citizens, but they also choose how to deliver those services. Governments can produce services themselves or through a variety of external production mechanisms, including contracting with other governments, private firms, and nonprofits. In this article, we apply a transaction cost framework complemented with institutional and market theories to examine governments' service production decisions. Our analyses of a 1997 International City/County Management Association survey shows how governments choose service production mechanisms to manage the transaction costs inherent in delivering different types of services.

Perhaps the central decision that governments make is choosing which services to deliver to citizens. However, governments also decide how to deliver these services. Traditionally governments have internally produced services—that is, they have made the services themselves, with their own workers, offices, equipment, and so on. Over the last several decades the means through which governments can deliver services has expanded to include vouchers, franchises, and nontax incentives, to name a few policy tools (Stein 1990; Salamon 2002). In particular, governments have increasingly relied on external actors to produce services through contracting and other third-party arrangements (Warner and Hedbon 2001). Given the array of production possibilities available to governments, why do governments select the service production mechanisms that they do? We use a transaction costs framework to argue that governments select production mechanisms in part to minimize risks associated with delivering services under alternative institutional arrangements. These risks derive from the type of service being produced, the nature of the service marketplace, and goal incongruence between the government and the vendor. We further complement our basic transaction costs framework by arguing that institutional pressures in governments' operating environments reinforce these purposive decisions about service production mechanisms.

In this article we examine how municipal and county governments choose to produce services across five service production mechanisms—internal production, joint contracting, complete contracts with other governments, complete contracts with private firms, and

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complete contracts with nonprofits. Research has tended to analyze only one or two of these mechanisms at a time (e.g., choices between internal production and all other alternatives) and for only a limited set of services (e.g., refuse collection). Our methodological approach is an advance over prior research because we simultaneously examine how governments make choices across a wider range of service production alternatives and how they make choices across a wide range of services. We investigate the effects of several transaction costs risk factors and institutional forces on service production choices through analyses of data from a 1997 International City/County Management Association (ICMA) survey of municipal and county governments supplemented with other data.

The analyses demonstrate that when governments contract for highly asset-specific services, those that tend toward monopoly provision, they choose mechanisms that lower the risk of vendor opportunism—namely by contracting with other governments rather than private firms. When services are more difficult to monitor and measure, governments increase their use of joint contracting and internal service production. Finally, governments contract less when service marketplaces contain fewer vendors, because the risk of vendor opportunism is enhanced. The analyses also demonstrate that council-manager governments are more likely to rely on joint contracting and contracts with other governments than on contracts with private firms. We suggest that council-manager governments use these contracting strategies because of their membership in one of the most highly organized local government professional associations—the ICMA. We speculate that institutional forces linked with association membership cause service delivery practices to diffuse throughout the association. Our theoretical and empirical inquiry indicates some compatibility between economic and institutional theories of organizations and further suggests that future research might benefit from joining these theoretical approaches rather than treating them as competitors.

We have divided this article into five sections. In the first section we lay out the theoretical argument linking transaction costs to government choices about service production mechanisms and derive a series of hypotheses based on a transaction costs framework. In the second section we explore institutional explanations for governments' choices of service production mechanisms. In the third section we identify our methods and describe the dependent and independent variables. In the fourth section we report our findings and discuss our results. We conclude by identifying possible avenues for future research.

PUBLIC ORGANIZATIONS AND TRANSACTION COSTS

The Great Society of the 1960s envisioned governments as all-purpose direct service providers. Since then, the struggles of many Great Society programs and the Reagan-era ascendancy of market solutions to government failures have fundamentally transformed the nature of governance in the United States. Governments at all levels have increasingly turned from operating as direct service providers that produce services internally to relying on a host of external actors—nonprofits, private firms, volunteers, and other governments—to produce traditional public services and functions (Kettl 1993). Although governments remain the dominant producers of public services (Warner and Hedbon 2001), service delivery through external actors has become so common that some now view governments as “hollow states” (Milward, Provan, and Else 1993; Milward and Provan 2000).

Research on alternatives to internal service production, particularly contracting, is extensive and growing (see, e.g., Behn and Kant 1999). Studies identify a range of important factors that influence how governments choose to produce services, including political

forces, fiscal pressures, bureaucratic routines, and growth demands (Ferris 1986; Carver 1989; Hirsch 1991, 1995; Benton and Menzel 1992). Governments may choose different production mechanisms in response to key features of the services to be delivered (see, e.g., Ferris and Graddy 1986, 1991; Stein 1990; Cohen 2003). We build on this research by arguing that transaction costs risks inherent in the service and in the service marketplace impel governments' production mechanism decisions.

TRANSACTION COSTS AND GOVERNMENT SERVICE PRODUCTION DECISIONS

A fundamental decision confronting all organizations is choosing whether to internalize production (i.e., to make it) or to externalize production (i.e., to buy it through contracting). Transaction costs scholarship argues that organizations' production choices reflect the relative costs of traditional production factors—the costs of fixed assets, labor, and capital—and transaction costs—the “comparative costs of planning, adapting, and monitoring task completion under alternative governing structures” (Williamson 1981, 552–53). Transaction costs are essentially the management costs associated with either internally producing the service or buying it through contracting. The factors that give rise to transaction costs result from limited information and uncertainty (Coase 1937; Williamson 1981, 1996). Because parties to a transaction cannot fully predict all possible future scenarios, they cannot fully specify contracts. Under these circumstances, contracting organizations must be vigilant or run the risk that the vendor may behave opportunistically and take advantage of the contracting organization (Williamson 1997). For example, under conditions of information asymmetry, when vendors have more information about their activities and performance than the contracting organization does, the vendor can inaccurately report high performance. When risks of vendor opportunism are high, the contracting organization must engage in more precontract preparation and postcontract oversight—high transaction costs—to mitigate vendor opportunism and improve compliance.

Although the transaction costs approach has traditionally been applied to private firms' decisions about internal production and outsourcing, it can also help explain governments' service production decisions (Williamson 1981, 1997; Crocker and Masten 2002). Although governments tend to have more ambiguous goals, complex environments, and internal constraints than private firms, they are still purposive organizations that seek to reduce risks associated with uncertainty (see, e.g., Rainey 1991, 73–97). In addition, governments can employ a variety of different production mechanisms, although not the same extensive array available to private firms, including internal production, external production through complete and joint contracting, subsidies, vouchers, tax incentives, franchises, nontax incentives, volunteerism, and self-help (Stein 1990). Our discussion focuses on internal and external service production approaches, because they are the most prevalent among local governments (Warner and Hedbon 2001).¹ With internal production, governments are responsible for all phases of service delivery including financing, producing, and distributing the service to citizens. In external production through complete contracting, a government enters into a contract with an external actor for the entire production and distribution of a service, although the government finances the service and retains regulatory control over the ultimate service provision. Governments can enter into complete contracts with other governments (typically

1 For a description of the other mechanisms, see Stein (1990, 48–52).

neighboring governments), private firms, and nonprofits. In external production through joint contracting, a government contracts with an external vendor while retaining a portion of the service production in-house or contracts simultaneously with several vendors for the same service.

We build on transaction costs scholarship to derive a series of testable hypotheses about how governments choose between these service production mechanisms based on three transaction costs risk factors—service-specific characteristics, the degree of competition for producing the good or service, and goal incongruence between the vendors and the contracting organization.

Service-Specific Characteristics

Williamson (1981) focuses on two broad types of service characteristics that impel transaction costs—asset specificity and service measurability. Asset specificity refers to whether specialized investments are required to produce the service. Specialized investments apply to the production of one service but are very difficult to adapt for the production of other services (e.g., a specific location that is only movable at a great cost). If an organization decides to contract for a highly asset-specific service, these specialized investments create an advantage to the first contract winner in subsequent rounds of bargaining, thus raising a barrier to entry for later vendors and risking market monopolization. Under such conditions, a monopolistic vendor can opportunistically exploit the contracting organization in subsequent rounds of contracting. Knowing this, governments are likely to internalize production of services that are more asset specific (hypothesis 1a). However, at very high levels of asset specificity, this relationship may not hold. Highly asset-specific services (such as building and maintaining a gas transmission system) tend to carry very high fixed costs (also called start-up costs) that require significant financial investments to produce the first unit and then provide strong-scale economies for subsequent units. Although private firms can generate the revenue and capital necessary to internalize highly asset-specific functions (by borrowing extensively from the capital markets, issuing stock, or raising prices), governments' revenue-raising options are far more limited. Not every local government has the resources to construct, maintain, and operate an electric or gas utility. Although highly asset-specific services may seem like prime candidates for internal production because of the likelihood of monopoly service provision, their high fixed costs may compel many governments to produce these services externally, suggesting a complement to the basic asset-specificity hypothesis (hypothesis 1b).

H_{1a} As the asset specificity of services increases, governments rely more on internal service production.

H_{1b} At very high levels of asset specificity, governments reduce internal service production.

Service measurability refers to how difficult it is for the contracting organization to measure the outcomes of the service, to monitor the activities required to deliver the service, or both of these. Easily measured services have more readily identifiable performance measures that accurately represent service quantity and quality. If outcomes are difficult to operationalize, a service can be easily measured, with the provision that the activities for service delivery are relatively simple to monitor. A service is difficult to measure when neither the

outcomes to be achieved nor the activities to be performed are easily identifiable. Under these circumstances, the contracting government is exposed to the risk of unseen vendor nonperformance or negligence (Praeger 1994). Some government services are more difficult to monitor and measure (e.g., mental health care), whereas others are more easily measured (e.g., refuse collection).²

Contracting is more effective and consequently more pervasive for services whose quality and quantity can be easily and accurately measured. As measurement becomes more difficult, the risk of vendor opportunism under contract increases. Governments can address this problem by choosing service delivery mechanisms over which they have more control. When service measurability becomes more difficult but is still possible (moderately difficult to measure services), governments are likely to increase their reliance on joint contracting (hypothesis 2a). This allows governments to check both the pricing and the quality of one vendor against their own performance or that of other vendors. In this way governments can realize some efficiency gains from contracting while mitigating the risk of vendor opportunism. When a government contracts with another organization while simultaneously producing the service itself (e.g., a private firm collects trash in suburban routes and the government collects trash in urban routes), it can compare vendor price and quality against its own. Also, joint contracting allows governments to retain the capacity to provide the service should the contract fail (Miranda and Lerner 1995). When a government produces part of the service (e.g., trash collection) and another organization produces another part (e.g., trash hauling), the government has a means of more closely monitoring the behavior of the contract vendor. Ultimately when service measurability becomes extremely difficult—that is, when contract outcomes are not measurable and governments cannot monitor activities—governments are likely to internalize service production (hypothesis 2b).

H_{2a} As services become more difficult to measure, governments produce more services through joint contracting.

H_{2b} Governments internally produce services that are extremely difficult to measure.

The Service Marketplace

Competitive markets make contracting more effective by reducing transaction costs and creating the opportunity for contracting efficiencies (Buchanon 1971; Peterson 1981). In competitive markets, the initial and subsequent bidding processes provide the contracting organizations with information about tradeoffs among service quality, quantity, and price. In later bidding rounds, a credible replacement threat disciplines vendors to adhere to contract terms. In the absence of a competitive marketplace, production costs savings may not materialize (Sclar 2000). Contracting organizations may find it difficult to determine whether the prices and service quality offered by the vendor are reasonable because the contracting organization cannot weigh one bid against the other. As with asset specificity, governments

² Williamson also argues that infrequent contracts are a transaction cost. Long-term contracts can create monopoly conditions when a single vendor corners the market. However, following Williamson (1981) in his application of this framework to internal labor markets, we do not incorporate frequency of contracting in our service production classification. We have confidence in our measurement strategy for asset specificity and service measurability across different government services. We do not have the same certainty about contract frequency because it can vary widely across communities for the same service.

that contract with monopoly providers—whether they are private firms, other governments, or nonprofits—are at a disadvantage in negotiating contract terms. Although asset specificity results in monopolization in later rounds of contracting, monopolization can also occur in the first round if the service marketplace is noncompetitive.

Markets are more likely to be competitive in more densely populated and metropolitan areas with larger numbers of private firms, other governments, and nonprofits able to provide public services. Governments in metropolitan areas are consequently more likely to produce services through joint or complete contracting than governments in nonmetropolitan areas are (hypothesis 3a). In metropolitan areas, governments serving small populations (e.g., suburban governments) are likely to be the biggest beneficiaries of market competition. Such governments externally deliver more services, for example, by contracting with large cities for services with scale economies (e.g., refuse collection). On the other hand, the governments of very large cities that anchor metropolitan areas are likely to contract less than neighboring suburban governments because of the economies of scale that they enjoy (Stein 1990; hypothesis 3b). In nonmetropolitan areas, governments serving small populations are likely to find few potential contract partners and consequently must produce more services or not deliver the services at all. Larger nonmetropolitan communities (although not as large as the cities that anchor metropolitan areas) are likely to contain more potential vendors than smaller nonmetropolitan communities, although they may not necessarily be large enough to provide economies of scale. In addition, research indicates that clusters of rural nonmetropolitan communities often pool their resources to deliver services through interlocal service agreements—in this case, joint contracts (Radin et al. 1996). Consequently, as population increases in nonmetropolitan areas, governments rely less on internal service production and more on external service production, particularly joint contracting (hypothesis 3c).

- H_{3a} Governments in metropolitan areas produce more services through either complete or joint contracting than governments in nonmetropolitan areas.
- H_{3b} In metropolitan areas, governments in larger communities internally produce more services than do governments in smaller communities.
- H_{3c} In nonmetropolitan areas, governments in larger communities externally produce more services than do governments in smaller communities.

Goal Incongruence

A cousin of transaction costs theory, principal-agent theory argues that the root problem in situations where principals (in this case, the contracting government) direct the behavior of agents (in this case, vendors) begins with information asymmetries and goal incongruence between principals and agents (Miller 1992). Agents can shirk problems because principals have trouble monitoring the quality of agents' performance and executing corrective measures. Some argue that, as agents, private firms are more prone to opportunism than mission-driven organizations such as nonprofits and other governments (Cohen 2003; Light 2000; Rainey 1991; Wise 1990). Private firms may deliver a lower-quality service to reduce their costs and raise profits. For example, in welfare policy, a nonprofit firm may go to great lengths to see that clients are placed in jobs that pay a living wage, whereas private firms may focus more on meeting the contract specifications and may therefore stop working with the client once he or she is off the welfare rolls (see, e.g., Walters 2000). Even if private

firms behave no differently than governments and nonprofits in practice, contracting governments may still believe that private firms are more prone to opportunism.

The problem of goal incongruence diminishes when other transaction costs risk factors are not present. Governments that contract for low-asset-specific, easily measurable services in competitive service marketplaces are not likely to be concerned about the type of contract vendor they employ because the risk of monopolization is low and they can measure contract performance. However, governments can mitigate high contract risks through their choice of external production mechanisms. In order to reduce the risk of vendor opportunism when contracting for highly asset-specific services or services that are difficult to measure or when contracting in noncompetitive service marketplaces, governments are likely to employ joint contracting, where they can better monitor vendor behavior, or contracts with organizations that share their mission (notably other governments) rather than private firms (hypothesis 4). The same argument could be made for nonprofits relative to private firms, but we believe they are likely to be less-frequent vendors than other governments because most lack the resources to deliver services with high fixed costs.

- H₄ Governments that externally produce services that are highly asset-specific or difficult to measure and/or in noncompetitive marketplaces rely more on joint contracting and contracts with other governments than on contracts with private firms.

Highly specific production assets, difficult measurement, noncompetitive markets, and goal incongruence are all risks to successful external service production. When these transaction costs risk factors are present, organizations can mitigate the risk of vendor opportunism and future uncertainty by internally producing the service, although internal production sacrifices contracting efficiencies (Williamson 1981). Alternatively, if governments contract under these circumstances in order to gain production costs savings, the transaction costs of precontract preparation and postcontract oversight to ensure that vendors perform satisfactorily are likely to be high. Governments that contract under these circumstances are likely to take steps to reduce the risks to contract failure as well as to lower transaction costs (e.g., contracting with neighboring governments rather than private firms or joint contracting). Ultimately, governments are likely to behave in a boundedly rational fashion by selecting production mechanisms that strike some balance between production costs and transaction costs (Riordan and Williamson 1985).

INSTITUTIONAL EXPLANATIONS OF PRODUCTION MECHANISM DECISIONS

Although our argument focuses on transaction costs, other organizational factors also influence governments' production decisions. Institutional dynamics can affect governments' service production choices in several ways. Rules and norms endogenous to organizational fields pressure participants toward homogeneous behavior (March and Simon 1993). Organizations seek legitimacy and consequently scan their field to identify and adopt forms and routines that appear successful in other organizations (Meyer and Rowan 1977). One of the primary mechanisms through which organizations become aware of popular institutional rules, norms, and practices is membership in professional associations (Scott 1987). In the case of our unit of analysis, a significant number of local governments operate with council-manager structures. City and county managers, as members of the ICMA, comprise a highly

organized profession. According to institutional logic, contracting practices are likely to disseminate through the profession in one of two ways. First, by explicitly promoting the use of a particular contracting practice (e.g., joint contracting), the professional association may foster pressure for member governments to adopt the practice or become less “legitimate” within the association. DiMaggio and Powell (1983) refer to this pattern of structural homogeneity among participants in an organizational field as normative isomorphism. Because one of the presumptions of the council-manager model is that governments should be run more like businesses, the ICMA advocates the use of practices analogous to running a private firm. These practices are likely to disseminate through the profession. Contracting is a central tenant of the reinventing government movement that city and county managers have positively received. Consequently, council-manager governments are more likely to pursue alternatives to internal service provision than other governments (hypothesis 5a). Alternatively, mimetic isomorphism may be at work as council managers replicate the practices of other governments perceived to be highly successful. Membership in the ICMA may facilitate mimetic isomorphism as the organization anoints particular member governments as exceptional in publications and at professional meetings.

H_{5a} Council-manager governments are more likely to produce services externally than other types of governments.

Institutional theory also emphasizes the importance of history and path dependence for organizations (March and Olsen 1995). Contemporary service production patterns may reflect the historical development of cities. According to Stein (1990), older industrial cities developed political cultures around partisan machines in which politicians responded to the needs of immigrants by trading jobs and services for votes. This political pattern led governments to provide a broad array of services, including extensive social services. Residents with more homogenous policy preferences settled newer postindustrial cities. Politics in these cities tended to be nonpartisan and consensual, with citizens demanding a narrower array of services from government, including minimal social services. Following Tiebout (1956), Buchanon (1971), and Peterson (1981), Stein argues that cities’ initial patterns of politics and service delivery choices affected their subsequent development. In industrial cities, wealthier residents faced incentives to vote with their feet because their taxes funded significant redistributive services for poorer residents. Migration pressures and limited annexation authority produced large numbers of suburban governments with heterogeneous tax-to-services packages. Postindustrial cities faced fewer emigration pressures because their residents tended to have more homogenous policy preferences. In addition, postindustrial cities typically enjoyed extensive annexation authority, allowing them to enlarge their boundaries to achieve economies of scale for many services. Overall, the less differentiated government marketplace of postindustrial cities and the ability to enlarge service delivery span through annexation reduces the opportunity and the incentive to externalize service production (hypotheses 5b and 5c).

H_{5b} Older industrial cities are more likely to produce services externally, through either complete or joint contracting, than younger postindustrial cities are.

H_{5c} Cities with strict limits on annexation authority are more likely to produce services externally, through either complete or joint contracting, than cities with extensive annexation authority are.

Although institutional theory does not rely on the restrictive economic assumptions of rationality employed by transaction costs, we believe that we are better able to capture the complexity of government decision making by examining the two theories in combination. At the same time that governments are purposive organizations driven to reduce risks associated with vendor opportunism, they also exist in an institutional environment that conditions them to adopt certain practices in order to maintain legitimacy within their field and in response to historical trajectories.

DATA AND METHODS

In this section we discuss the variables and methods we use to test the transaction costs and institutional hypotheses about governments' service production choices. The data are primarily drawn from the ICMA's 1997 survey "Profile of Local Government Service Delivery Choices," with additional data from the 1997 U.S. Census of Government, a survey conducted by the authors, and other sources. The ICMA survey asked a stratified random sample of municipal and county governments a battery of questions about which of sixty-four local services they provided and their service production mechanisms. The response rate for the survey was just over 30 percent; 1,586 municipal and county governments responded to the 1997 survey.³ The ICMA survey is possibly the strongest large sample study of governments' service production practices. However, the primary weakness of the ICMA data and our analytic approach is the absence of direct measures of the risk factors (i.e., asset specificity and service measurability) that give rise to transaction costs; this forces us to rely on indirect measurement via our own survey of mayors and city managers. Direct transaction costs measures are notoriously difficult (Williamson 1996), particularly in large sample studies across multiple services such as we conduct here. More direct measures would require approaches idiosyncratically tailored to specific governments, circumstances, and services.

We use multinomial logit to evaluate our hypotheses. Multinomial logit examines the effect of a constellation of independent variables on the likelihood of respondents choosing each dependent variable category relative to each of the other categories (Long 1997). The dependent variable is governments' service production choice for each service they deliver, and the independent variables are transaction costs risk factors, institutional factors, and other measures.⁴ All estimation was done in Stata v. 6 using the `mlogit` and `Hausman` commands.

Dependent Variable

Respondents to the ICMA survey were asked which of sixty-four services their government provides and which of a variety of production mechanisms they use to deliver each service. Our analyses focus on five service production mechanisms—internal production, joint contracting, complete contracts with other governments, complete contracts with private firms,

3 Responding governments are generally representative of municipalities and counties nationwide along basic criteria such as population, geographic location, and metropolitan status. As is to be expected, the sample overrepresents council-manager governments; about 65 percent of the respondents have this form of government. In addition, the sample underrepresents municipal and county governments in mid-Atlantic and southern states and overrepresents those in mountain or Pacific Coast states.

4 We tested for the independence of irrelevant alternatives (IIA) assumption using Hausman's diagnostic test (Hausman and McFadden 1984). Results indicated that the assumption is not violated and the choice options are independent.

and complete contracts with nonprofits.⁵ The dependent variable is the production mechanism chosen by each government for each service it provides, so that the responses of one government could be incorporated sixty-four times in our sample, although not every city provides every service.⁶ Service production choices are unlikely to be independent within cities, although we can assume independence across cities. That is, a city that chooses to contract for one service may be more likely to contract for other services. Treating these choices as independent risks artificially deflates standard errors. To address this issue, we follow White's approach for robust standard errors, clustered by government (Greene 1997). This adjustment essentially weights each observation (service production choice) by the number of services a city provides.

Independent Variables

Our first variables measure the service-specific characteristics that risk contract failure. Asset specificity refers to whether specialized investments are required to produce the service. Service measurability refers to how difficult it is for the government to measure the outcomes of the service, to monitor the activities required to deliver the service, or both. To measure these service characteristics, we surveyed seventy-five randomly selected city managers and mayors across the country asking them to rate the asset specificity and service measurability of the sixty-four ICMA listed services.⁷ The survey instrument provided a half-page description of the two service-specific transaction costs risk factors—asset specificity and service measurability. The appendix presents the definitions used on the survey instrument. The instrument then asked respondents to rate each of the sixty-four services included in the ICMA survey on two scales of 1 to 5: one scale for asset specificity and one scale for service measurability. We then averaged these ratings across respondents to create the service characteristic independent variables *asset specificity* and *service measurability*. Higher values indicate that the service is more asset specific or more difficult to measure. Table 1 reports individual ratings for each of the sixty-four services.

Following our transaction costs theory, service characteristics play important roles in governments' service production decisions. As asset specificity increases from low (1 or 2 on the five-point scale) to medium (3 on the five-point scale), governments internally produce more services (hypothesis 1a). However, higher fixed costs associated with producing highly asset-specific services may force governments to contract for these services. As asset specificity increases from medium to high (4 or 5 on the five-point scale), governments use less joint and internal production and more complete contracting (hypothesis 1b). To investigate these hypotheses we use two variables, *asset specificity* and *asset specificity squared*. In terms of the other service specific characteristics, as services become more difficult to measure we expect governments to produce more services through joint contracting. Empirically, we expect to see this relationship as service measurability moves from

⁵ This strategy raises a potential endogeneity problem. That is, some factors that influence governments' service production choices may also influence their choices about whether or not to provide the service in the first place. Failing to control for such effects risks biased coefficients in our analyses. However, we think such biases are minimal because we believe that governments' choices of production mechanisms have very little impact on their choices about what services to offer, even at the margins. Governments, or more precisely the elected politicians running them, offer services because their citizens want them.

⁶ Missing data reduces the number of governments in the sample from 1,586 to 1,449.

⁷ Governments were randomly selected with two sample stratification criteria—population and type of government (council-manager versus mayor-council). Thirty-six usable surveys were returned for a response rate of 48 percent.

Table 1
Average Asset Specificity and Service Measurability Ratings

Service	Asset Specificity	Service Measurability
Ambulance service	3.61	2.43
Animal control	2.68	2.81
Building security	2.24	2.17
Buildings and grounds maintenance	2.00	2.20
Child welfare programs	3.52	4.08
Collection of delinquent processing	2.51	2.08
Commercial solid waste collection	3.06	1.97
Crime prevention/patrol	3.37	3.60
Data processing	3.14	2.61
Disposal of hazardous materials	4.22	2.88
Disposal of sludge	3.52	2.36
Drug and alcohol treatment	3.63	4.12
Electricity utility management	4.08	2.96
Emergency medical service	3.91	2.76
Emergency vehicle fleet maintenance	3.28	2.11
Fire prevention/suppression	3.80	3.24
Gas utility operation and management	4.08	3.00
Heavy equipment vehicle fleet maintenance	3.06	2.22
Insect/rodent control	2.53	2.63
Inspection/code enforcement	2.97	2.72
Legal services	3.39	3.46
Maintenance/administration of cemeteries	2.37	2.41
Recreation facility operation/maintenance	2.94	2.61
Operation of airports	4.19	2.96
Operation of animal shelters	2.80	2.87
Operation of convention centers/auditoriums	3.58	2.77
Operation of cultural and arts programs	3.00	3.26
Operation of day-care facilities	3.36	3.44
Operation of homeless shelters	3.12	3.42
Operation of libraries	3.50	2.61
Operation of mental health programs	3.96	4.29
Operation of museums	3.59	2.85
Operation of parking lots and garages	2.36	2.03
Operation of bus transit systems	3.35	2.48
Operation of para-transit systems	3.50	2.69
Operation/management of hospitals	4.17	3.40
Parking meter maintenance and collection	2.39	2.24
Parks and landscaping maintenance	2.33	2.11
Payroll	2.36	1.53
Personnel services	2.58	3.31
Police/fire communications	3.80	2.59
Prisons/jails	4.04	3.21
Programs for the elderly	3.14	3.48
Public health programs	3.46	3.74
Public relations/information	2.65	3.31
Residential solid waste collection	3.00	2.06
Sanitary inspection	3.06	2.57
Secretarial services	1.75	2.92
Sewage collection and treatment	4.09	2.36

Continued

Table 1 (continued)
Average Asset Specificity and Service Measurability Ratings

Service	Asset Specificity	Service Measurability
Snow plowing/sanding	2.50	2.21
Solid waste disposal	3.33	2.12
Street repair	2.64	2.40
Street/parking lot cleaning	2.26	2.00
Tax assessing	2.93	2.87
Tax bill processing	2.31	1.91
Title records/plat map maintenance	3.21	2.58
Traffic control/parking enforcement	2.59	2.53
Traffic signal installation/maintenance	2.91	2.24
Tree trimming/planting on rights of way	2.14	2.36
Utility building	3.11	2.50
Utility meter reading	2.32	2.03
Vehicle towing and storage	2.07	1.97
Water distribution	3.94	2.44
Water treatment	4.12	2.36

easy (1 or 2 on the five-point scale) to moderately difficult (3 on the five-point scale) to measure services (hypothesis 2a). However, as measurement becomes very difficult (4 or 5 on the five-point scale) we expect governments to turn more to internal production (hypothesis 2b). To investigate these hypotheses we use two variables, *service measurability* and *service measurability squared*. Squared terms allow us to model nonlinear relations between independent and dependent variables: The effects of the independent variables are hypothesized to change moving from low to medium values of the independent variable, and then again from medium to high values. Interpreting independent variables that include squared terms requires simultaneously evaluating both the standard and the squared term coefficients.

To measure transaction costs risks stemming from market characteristics, we focus on the metropolitan status and the size of the population of the government’s jurisdiction. Metropolitan areas have larger markets of potential vendors that facilitate external production (hypothesis 3a). The analyses therefore include a dummy variable (*metropolitan area*) with a score of 1 if the government is located within a Standard Metropolitan Statistical Area (SMSA) and 0 otherwise. Governments with large populations within metropolitan areas are likely to decrease external production (hypothesis 3b), whereas governments with large populations outside of metropolitan areas are likely to increase their use of external production (hypothesis 3c). We measure population as the number of residents living within the government’s jurisdiction as reported in the 1990 U.S. Census. To investigate these market competition hypotheses, the analyses include the variables *population* and *population squared*, along with interaction terms for *metropolitan area* × *population* and for *metropolitan area* × *population squared*.

We assess our hypotheses relating to goal incongruence by the effects of transaction costs on contracting with private firms. Governments that externally produce services that are highly asset-specific, difficult to measure, in noncompetitive service marketplaces, or any of these combined will contract more with other governments than with private firms (hypothesis 4).

The first of the institutional explanations posits that practices diffuse in an isomorphic fashion through the professions. Consequently, we expect that council-manager governments are more likely to produce services externally through complete or joint contracting than other forms of government are (hypothesis 5a). To test this hypothesis, we include a dummy variable, called *council-manager*, with a score of 1 if the government is a council-manager form of government and 0 otherwise.

We employ several approaches to assess the influences of cities' historical-political development on their service delivery patterns. First, we distinguish cities according to when they achieved metropolitan status under the Census Bureau's SMSA guidelines (Bogue 1953). Stein (1990) argued that 1929 marks the end of the industrial period and the beginning of the postindustrial period. The variable *industrial city* identifies those cities located in an SMSA prior to 1929 (coded as 1, otherwise 0). Because of the rich market of suburban governments around these city governments and their weak tax bases, these cities may be more likely to produce services externally through complete or joint contracting than other cities (hypothesis 5b). Second, to assess the effect of annexation limitations, we operationalize the variable *annexation limitation*. Following Hill's (1978, 1993) examination of annexation authority dimensions, we combine state level annexation regulations to create an annexation scale, ranging from least to most restrictive. This variable is scaled so that its mean is 0 and its standard deviation is 1. We expect that an increase in *annexation limitation* increases the likelihood of external service production (hypothesis 5c).

Finally, the analyses include several control variables. First, many contracting scholars (e.g., Ferris 1986; Stein 1990; Hirsch 1991, 1995) point to the seminal importance of post-1978 property tax limitations that began in California and were subsequently employed in other states. Although any overall property tax limitation may create fiscal pressures for municipal governments, the post-1978 state tax limits sought to reduce governments' role in society and were consequently highly restrictive. These limitations created incentives for governments to be more efficient and creative in service production. Governments in states with extensive property tax limitations may therefore be inclined to seek alternatives to internal production, particularly those in states with post-1978 property tax limitations. We include two measures to assess the effect of overall tax limitations on service production choices. The variable *tax limit* identifies those respondents located in a state that adopted an overall property tax limitation prior to 1978 (coded as 1 for such respondents and 0 otherwise). The variable *tax limit 1978* identifies respondents located in states that adopted an overall property tax limitation in 1978 or after (coded as 1 for such respondents and 0 otherwise). Although we expect that both groups of respondents are more likely to produce services externally than other respondents, we particularly expect this to be the case for governments included in the *tax limit 1978* variable. Similarly, governments with low levels of human and fiscal resources are likely to produce more services externally. Low revenue and human resource capacity create fiscal imperatives either to not deliver services or to find low-cost service delivery approaches (Gargan 1981; Honadle 1981). The variable *fiscal capacity* is the overall general revenue per capita, as reported in the 1997 U.S. Census of Governments.⁸ We include both municipal and county governments because, as general service units, the services they provide are typically quite extensive and in many instances similar, but because the services responsibilities of the two types sometimes differ,

⁸ We elect not to include a measure of human resource capacity because our measures of staffing are highly positively correlated with fiscal capacity.

Table 2
Descriptive Statistics and Variable Operationalization

Variable	Mean	SD	Min	Max	1a	1b	1c	1d	1e
Dependent variables									
1a. Internal production	.58	.49	0						
1b. Joint contract	.18	.38	0						
1c. Contract with other government	.11	.32	0	1					
1d. Contract with private firm	.10	.29	0	1					
1e. Contract with nonprofit	.03	.17	0						
Independent variables									
2. Asset specificity	3.08	.63	1.76	4.26	-.04	.10	.00	.04	-.04
3. Asset specificity squared	9.87	3.96	3.11	18.16	-.04	.10	.00	.04	-.04
4. Service measurability	2.67	.62	1.53	4.30	.00	.00	.03	.03	-.03
5. Service measurability squared	7.53	3.64	2.34	18.53	.00	.00	.05	.02	-.04
6. Metropolitan area	.70	.46	0	1	-.06	-.01	.02	-.01	.07
7. Population	70856.48	180398.7	93	2783726	.00	-.05	-.03	.01	.06
8. Population squared	3.76E+10	3.34E+11	8649	7.75E+12	.00	-.03	-.02	.00	.04
9. Metro*population	62475.44	182243.8	0	2783726	.00	-.05	-.03	.00	.06
10. Metro*population squared	3.71E+10	3.34E+11	0	7.75E+12	.00	-.03	-.02	.00	.04
11. Council-manager	.58	.49	0	1	-.03	.03	.01	-.01	.02
12. Industrial city	.03	.18	0	1	.01	-.03	-.01	.00	.02
13. Annexation limitation	-.02	.78	-1.18	.84	.05	-.04	-.02	-.01	-.01
14. Tax limit	.14	.34	0	1	.00	.01	.01	.00	-.02
15. Tax limit 1978	.15	.36	0	1	-.06	.03	.02	.00	.04
16. Fiscal capacity (1 = \$1,000 per capita)	1.21	1.06	.01	24.91	.01	-.04	-.01	.00	.03
17. Fiscal capacity squared	2.58	18.70	6.14E-05	620.51	-.02	-.02	.00	.00	.03
18. County	.19	.39	0	1	.03	-.01	-.04	.02	.00

the analyses include a government type dummy variable. The variable *county* is scored with a 1 if the respondent is a county and 0 otherwise.

RESULTS

This section reports the results of the empirical analysis. Table 2 reports descriptive statistics and correlations for all variables. Figure 1 reports the percentage of services delivered via each production mechanism. Tables 3 and 4 report results of the multinomial logit analyses of the determinants of production choices. These tables compare the likelihood of respondents selecting the base production mechanism (listed in the table title) relative to each of the production mechanisms listed in the four right-hand columns. Table 3 reports the likelihood of municipal and county governments selecting internal production relative to selecting joint contracting, contracts with other governments, contracts with private firms, and contracts with nonprofits. Table 4 reports the same type of results with private firms as the base.

To help with interpretation, we calculated the “predicted effects” of significant independent variables (Long 1997). The predicted effect of a variable with a squared term (*asset specificity*, *service measurability*, and *population*) is the joint influence of both the variable and its squared term on a service being delivered via each service delivery mechanism. To better present the nonlinearities of these variables, the effects are plotted across percentiles of the

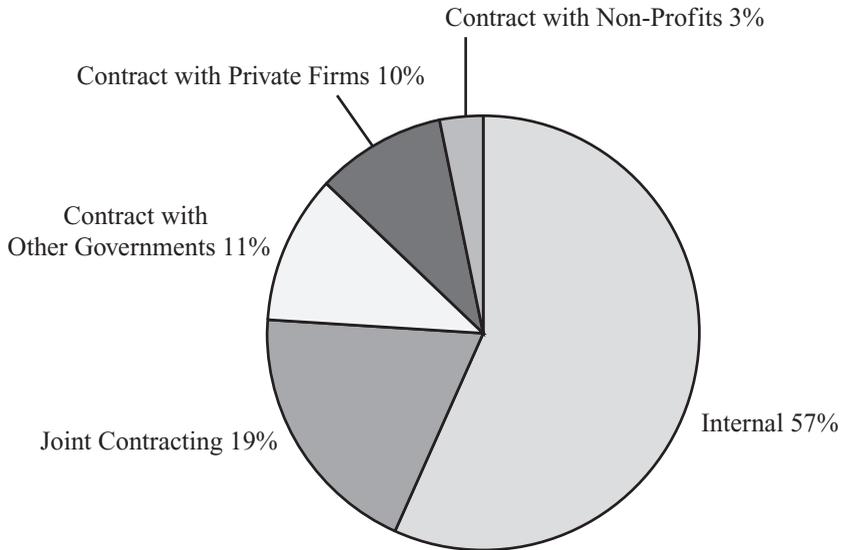
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1																	
1	1																
	.50	.48	1														
	.48	.46	.99	1													
	.00	.00	.01	.02	1												
	.00	.00	-.01	-.01	.16	1											
	.00	.00	.00	.00	.07	.88	1										
	.00	.00	-.01	-.01	.23	.99	.87	1									
	.00	.00	.00	.00	.07	.88	1	.87	1								
	.02	.02	.03	.03	.15	-.17	-.10	-.14	-.10	1							
	.00	.00	.00	.00	-.04	.00	.00	.00	.00	-.01	1						
	-.01	-.01	-.02	-.02	-.09	.00	.01	.00	.01	-.07	.03	1					
	.00	.00	.00	.00	-.04	.00	.00	.00	.00	-.04	-.01	.28	1				
	.02	.02	.02	.01	.08	.07	.05	.07	.05	.24	-.04	-.46	-.17	1			
	.01	.01	.00	.00	-.03	.02	.01	.02	.01	.01	.14	-.06	.02	-.06	1		
	.00	.00	.00	.00	.01	.00	.00	.00	.00	-.03	.03	.01	.06	-.02	.78	1	
	-.02	-.03	-.04	-.04	-.21	.27	.13	.24	.13	-.57	-.07	.08	-.01	-.08	-.12	-.03	1

independent variables holding all other variables at their means (figures 2–5).⁹ In the text, the results for these figures are discussed as the estimated percentage of governments' services delivered via each production mechanism at different percentiles of the independent variable. For dummy variables, a predicted effect is the change in probability of being in category X of the dependent variable relative to category Y associated with a change in the independent variable from the 0 category to the 1 category, holding all other independent variables constant at their means. For all other variables, a predicted effect is the change in probability of being in the X category of the dependent variable relative to the Y category associated with a change in the independent variable from one standard deviation below its mean to one standard deviation above, holding all other independent variables constant at their means.

Before turning to the results that inform our hypotheses, it is important to examine figure 1. Although considerable evidence suggests that complete contracting leads to cost efficiency and cost savings by lowering production costs (see, e.g., Perry and Babitsky 1986; Miranda and Lerner 1995), internal production remains paramount (Warner and Hedbon 2001). Almost sixty percent of all services delivered in the ICMA sample are delivered via internal production. Given that contracting is still evolving and that governments generally tend to be risk-averse, we expect internal production to remain the primary service delivery mechanism for some time.

9 To conserve space, we do not present the figure for our control variable *fiscal capacity*.

Figure 1
Distribution of Production Mechanisms



Overall, the results generally support our theory about how transaction costs risk factors (hypotheses 1–4) as well as institutional factors (hypothesis 5) influence governments’ service production decisions. Following is a discussion of each set of results.

Transaction Costs (Hypotheses 1–4)

Although governments internally produce the bulk of the services they provide, our theory posits that production approaches vary across service types based on their transaction costs. We begin with asset specificity and focus on figure 2 to assess hypotheses 1a and 1b. Figure 2 presents the predicted probabilities of adopting each service production category across the range of asset specificity values, which are measured in percentiles. The x-axis reports the probability of the service being in each delivery mechanism category, and the y-axis reports asset specificity measured in percentiles, with low-asset-specific services on the left portion of the graph and highly asset-specific services on the right. Again, asset specificity here reflects the joint effect of the variables *asset specificity* and *asset specificity squared*. As figure 2 shows, as asset specificity increases from very low (tenth percentile) services to medium (fiftieth percentile) services, internal production decreases slightly relative to external production from 62 percent to 60 percent. This runs counter to hypothesis 1a, suggesting that asset specificity does not dramatically affect service production decisions at low to moderate levels. However, the results are in line with our expectations for highly asset-specific services (hypothesis 1b). Consistent with hypothesis 1b, governments externalize production for highly asset-specific services relative to moderately specific services; joint contracting also decreases for highly asset-specific services. Other governments are the prime contract partners for highly asset-specific services. Other government contracts account for 17 percent of highly asset-specific services (ninetieth percentile), but only 9.7 percent and 7.4 percent for moderate (fiftieth percentile) and low (tenth percentile) services, respectively. Asset

Table 3
Multinomial Logit Analysis of Determinants of Production Choice (Internal Production as Base of Comparison)

Independent Variable	Internal Production versus			
	Joint Contracting	Contract with		Contract with Nonprofits
		Other Governments	Private Firms	
Asset specificity	0.453*** (0.170)	-0.564*** (0.209)	-0.507*** (0.229)	-1.344*** (0.358)
Asset specificity squared	-0.087*** (0.028)	0.176*** (0.0322)	0.098*** (0.038)	0.246*** (0.055)
Service measurability	1.951*** (0.180)	0.947*** (.204)	-4.955*** (0.204)	5.091*** (0.407)
Service measurability squared	-0.355*** (0.031)	-0.205*** (0.035)	0.849*** (0.033)	-0.828*** (0.070)
Metropolitan area	0.690*** (0.116)	0.196 (0.151)	0.120* (0.123)	-0.054 (0.153)
Population	1.6E-05*** (4.71E-06)	2.41E-07 (6.56E-06)	-4.75E-06 (5.67E-06)	1.73E-06 (5.94E-06)
Population squared	-8.25E-11*** (3.20E-11)	3.42E-12 (3.79E-11)	3.68E-11 (3.80E-11)	2.16E-11 (3.62E-11)
Metropolitan area*population	-1.54E-05*** (4.67E-06)	-2.77E-06 (6.44E-06)	3.37E-06 (5.59E-06)	-5.61E-07 (5.89E-06)
Metropolitan area*population squared	8.24E-11*** (3.20E-11)	-2.82E-12 (3.70E-11)	-3.64E-11 (3.79E-11)	-2.23E-11 (3.62E-11)
Council-manager	0.071 (0.074)	0.160 (0.108)	-0.141* (0.085)	0.015 (0.133)
Industrial city	-0.128 (0.149)	-0.101 (0.132)	-0.047 (0.185)	-0.089 (0.267)
Annexation limitation	0.001 (0.042)	-0.209*** (0.064)	-0.077 (0.051)	-0.108 (0.077)
Tax limit	-0.073 (0.095)	0.263** (0.132)	0.114 (0.108)	-0.023 (0.151)
Tax limit 1978	0.273*** (0.089)	0.177 (0.125)	0.259** (0.108)	0.0130 (0.157)
Fiscal capacity (1 = \$1,000 per capita) ^a	0.019 (0.043)	-0.251*** (0.073)	-0.149*** (0.056)	-0.154** (0.071)
Fiscal capacity squared	0.003* (0.002)	0.006 (0.004)	0.008*** (0.002)	0.009*** (0.003)
County	-0.099 (0.107)	0.166 (0.169)	-0.340** (0.133)	0.025 (0.191)
Constant	-4.983*** (0.370)	-2.63 (0.425)	5.755*** (0.451)	-8.574*** (0.891)
Chi ²	3199.31***			
Log likelihood	-56710.868			
N (observations)	48538			
N (clusters, governments)	1449			

Note: Standard errors in parentheses.

^aWe use the log of fiscal capacity in all of the multinomial logit analyses.

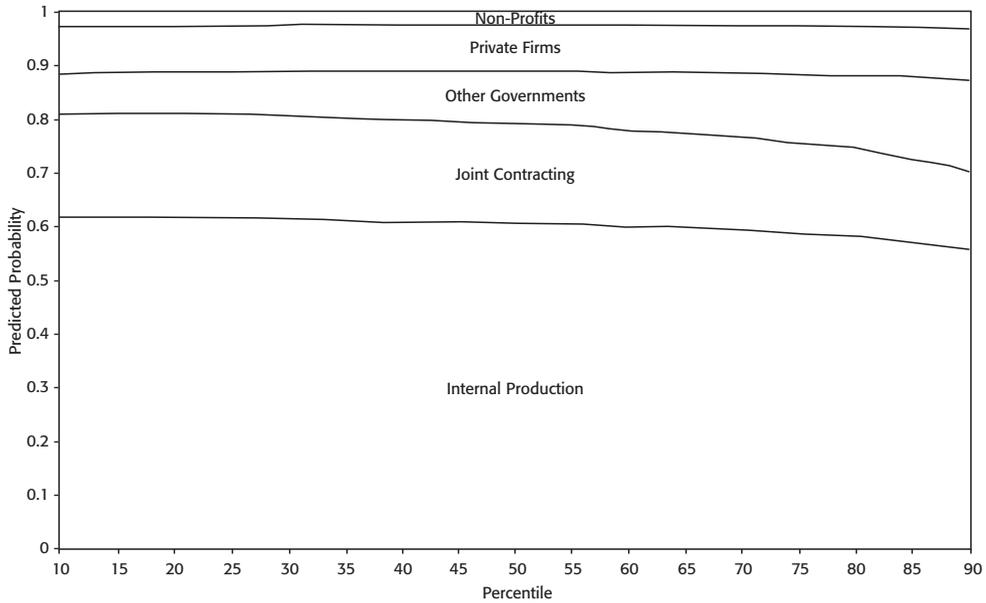
*p < .10; **p < .05; ***p < .01; two-tailed tests.

Table 4
Multinomial Logit Analysis of Determinants of Production Choice (Contract with Private Firms as Base of Comparison)

Independent Variable	Contract with Private Firms versus			Contract with Other Governments
	Contracts with Nonprofits	Internal Production	Joint Contracting	
Asset specificity	-0.837** (0.420)	0.507** (0.229)	0.960*** (0.265)	-0.057 (0.297)
Asset specificity squared	0.148** (0.066)	-0.098*** (0.038)	-0.185*** (0.044)	0.078* (0.047)
Service measurability	10.046*** (0.447)	4.955*** (0.205)	6.906*** (0.269)	5.902*** (0.269)
Service measurability squared	-1.677*** (0.077)	-0.849*** (0.033)	-1.204*** (0.045)	-1.053*** (0.045)
Metropolitan area	-0.254* (0.148)	-0.200* (0.123)	0.490*** (0.128)	-0.004 (0.128)
Population	6.49E-06 (4.60E-06)	4.75E-06 (5.67E-06)	2.07E-05*** (5.56E-06)	5.00E-06 (5.56E-06)
Population squared	-1.52E-11 (1.75E-11)	-3.68E-11 (3.80E-11)	-1.19E-10*** (2.33E-11)	-3.33E-11 (2.33E-11)
Metropolitan area*population	-3.93E-06 (4.55E-06)	-3.37E-06 (5.59E-06)	-1.9E-05*** (5.40E-06)	-6.14E-06 (5.40E-06)
Metropolitan area*population squared	1.41E-11 (1.74E-11)	3.64E-11 (3.79E-11)	1.19E-10*** (2.32E-11)	3.35E-11 (2.32E-11)
Council-manager	0.156 (0.126)	0.141* (0.084)	0.212** (0.098)	0.301*** (0.098)
Industrial city	-0.042 (0.270)	0.047 (0.185)	-0.081 (0.283)	-0.054 (0.283)
Annexation limitation	-0.03 (0.067)	0.077 (0.051)	0.078 (0.054)	-0.132** (0.054)
Tax limit	-0.138 (0.152)	-0.114 (0.108)	-0.187 (0.114)	0.149 (0.114)
Tax limit 1978	-0.246* (0.136)	-0.259** (0.108)	0.013 (0.101)	-0.083 (0.101)
Fiscal capacity (1 = \$1,000 per capita)	-0.005 (0.072)	0.149*** (0.056)	0.168*** (0.069)	-0.102 (0.069)
Fiscal capacity squared	0.002 (0.003)	-0.008*** (0.002)	-0.005* (0.004)	-0.001*** (0.004)
County	0.365** (0.172)	0.340** (0.133)	0.241 (0.163)	0.506*** (0.163)
Constant	-14.330*** (0.983)	-5.755*** (0.451)	-10.738*** (0.582)	-8.384 (0.582)
Chi ²	3199.31***			
Log likelihood	-56710.868			
N (observations)	48538			
N (clusters, governments)	1449			

Note: Standard errors in parentheses.
 *p < .10; **p < .05; ***p < .01; two-tailed tests.

Figure 2
Predicted Effect of Service Production Mechanisms by Asset Specificity

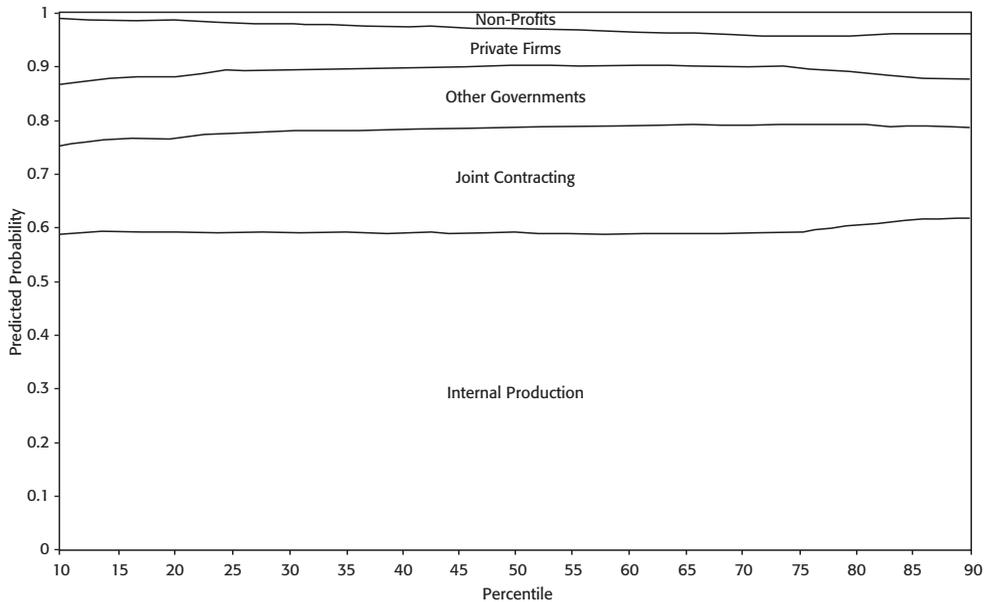


specificity affects governments' service production decisions. In particular, when the cost pressures associated with highly asset-specific services force governments to contract for these services, governments take steps to reduce the risks of opportunism by contracting with other governments. However, these results do not support the basic transaction costs hypothesis that increases in asset specificity increase internal production.

Figure 3 presents the service measurability results. According to this figure, governments deliver easily measured services more often through external production mechanisms. Governments internally produce only 58 percent of easily measured services (tenth percentile), whereas 11 percent and 12 percent are produced through external contracts with other governments and private firms, respectively. The level of internal service production does not change moving from easily to moderately measured services, but governments do shift production from contracts with private firms to joint contracts (hypothesis 2a). As figure 3 illustrates, governments internally produce about 58 percent of services that are moderately difficult to measure (fiftieth percentile) and engage in other government contracts for only another 11 percent. However, for these services, governments engage in more joint production (19 percent) and less private firm contracting (7 percent). When services are very difficult to measure, governments increase internal production and reduce their reliance on all forms of external production, confirming hypothesis 2b. Governments internally produce 62 percent of services that are very difficult to measure (ninetieth percentile).

These findings are consistent with the overall argument that governments rely more on external production when service measurability transaction costs are low. As was the case with asset specificity, governments mitigate the risk of vendor opportunism as services become more difficult to measure by reducing their reliance on contracts with private firms and increasing their use of contracts with more trusting partners, notably nonprofits. In addition,

Figure 3
 Predicted Effect of Service Production Mechanisms by Service Measurability



governments take advantage of monitoring opportunities through joint contracting. Ultimately, as service measurability becomes very difficult, governments reduce their exposure to vendor opportunism by turning toward internal production.

Turning from the service-specific transaction costs to service-marketplace transaction costs (hypothesis 3a–c), figures 4 and 5 report the results for population in metropolitan areas and nonmetropolitan areas, respectively. Holding population and all other variables constant at their mean, being in a metropolitan area increases by .085 the probability that a government will deliver a service through joint contracting and decreases by .09 the probability that a government will produce a service internally. Metropolitan status does not have a statistically significant influence on the other service delivery approaches, except via its influence on the population variable interaction terms. In metropolitan areas (figure 4), low population governments (tenth percentile) rely heavily on external production; such governments internally produce only 57 percent of their services, whereas joint contracting, other government contracts, and private firm contracts account for 18 percent, 12 percent, and 10 percent of service production mechanisms, respectively. Consistent with hypothesis 3b, as population increases to very large cities (ninetieth percentile), metropolitan governments produce more services internally (61 percent) and engage in fewer joint contracts (17 percent) and contracts with other governments (11 percent); private firm contracting increases slightly (12 percent). The opposite pattern occurs for governments in nonmetropolitan areas (figure 5), consistent with hypothesis 3c. Small governments (tenth percentile) in nonmetropolitan areas produce most of their services internally (65 percent), while sparingly using joint contracts (12 percent). Large governments (ninetieth percentile) in nonmetropolitan areas reduce internal production (57 percent) and increase joint contracting (18 percent).

These results are consistent with our theory of service-marketplace transaction costs. Smaller governments in metropolitan areas have more opportunities to contract because

Figure 4
Predicted Effect of Service Production Mechanisms by Population, Governments in Metropolitan Areas

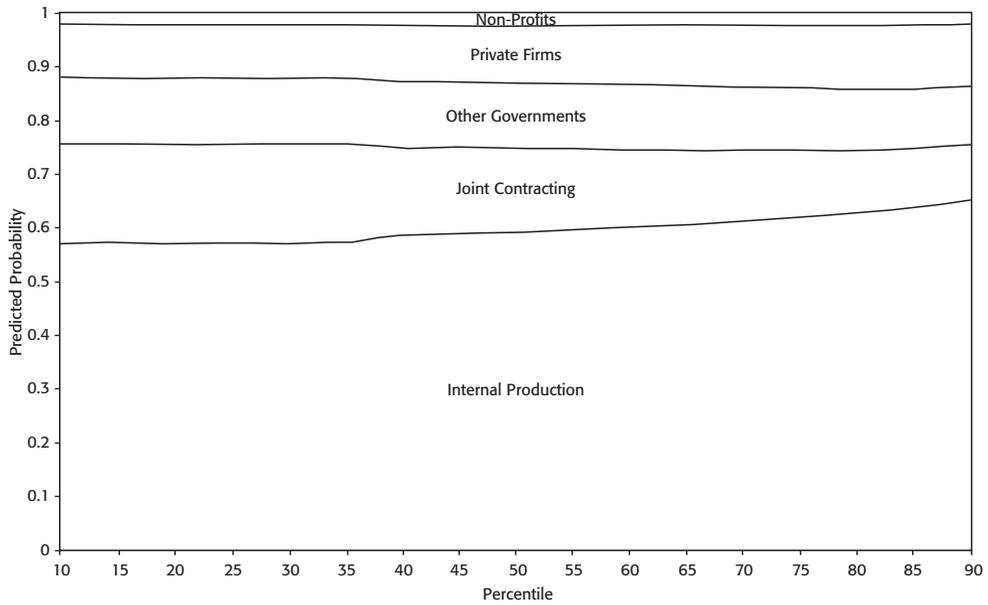
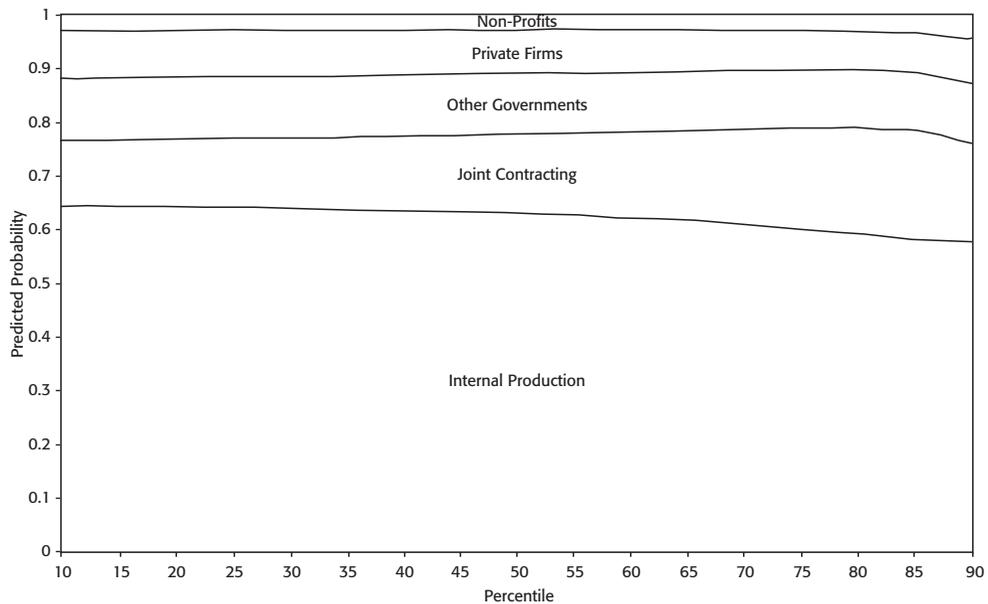


Figure 5
Predicted Effect of Service Production Mechanisms by Population, Governments in Nonmetropolitan Areas



they enjoy markets with more nonprofits, private firms, and other governments. Very large cities in metropolitan areas, however, shift away from contracting toward internal production to enjoy the economies of scale their size affords. On the other hand, in nonmetropolitan areas, increasing population leads to external production either through joint contracting (most likely through interlocal service agreements with other governments) or through contracting with private firms and nonprofits.

Finally, in terms of our transaction costs hypotheses, we turn to our arguments concerning goal incongruence. Consistent with hypothesis 4, when asset specificity is high and governments are forced to externalize production, they increase their reliance on joint contracting and contracts with other governments. As reported in figures 1 and 2, joint contracting accounts for 15 percent of highly asset-specific services (ninetieth percentile) and 17 percent of difficult to measure services (ninetieth percentile); other government contracts account for 17 percent of highly asset-specific services and 9 percent of services that are difficult to measure. Contracts with private firms account for only 9 percent of both highly asset-specific and difficult-to-measure services. Similarly, according to figure 4, joint contracting accounts for twelve percent of services for governments serving small populations (tenth percentile) in nonmetropolitan areas, as does contracts with other governments, whereas contracts with private firms again account for only 9 percent. Thus, when governments externally produce services that pose risks to contract success, they tend to mitigate the risks by strategically selecting the external production mechanism. Our findings suggest that governments prefer to engage either joint contracting, where they can better monitor the performance and behavior of vendors, or contracts with other governments, whom they are likely to trust, relative to contracts with private firms.

Institutional Findings (Hypothesis 5)

Institutional hypotheses complement our transaction costs hypotheses. For these hypotheses, we focus on the multinomial logit analyses reported in tables 3 and 4 and discuss the predicted effects calculated from them. Overall, the results show that institutional forces exert significant influences on governments' service production choices, although not always in ways our hypotheses anticipated. According to hypothesis 5a, council-manager governments are more likely to engage in more external service production. The results in table 4 do indicate that council-manager governments are significantly more likely to engage in joint contracting, internal production, and contracting with other governments than they are contracting with private firms. Having a council-manager government increases the probability of joint contracting, internal production, and contracting with other governments by .03, .02, and .03, respectively, relative to contracting with private firms, holding constant the effect of other variables. This suggests the importance of institutions in governments' service production choices, although in slightly different ways than we hypothesized. Rather than zealously relying on external production, council-manager governments appear to be wary of contracting with private firms, preferring almost all other production options to this one. It appears that institutional forces are at work promoting uniform production practices, yet not entirely the practices we expected. The professional association may serve as a network for warning members of the potential dangers of vendor opportunism when contracting with private firms. In this way, institutional forces reinforce governments' individual responses to transaction costs risks.

Contrary to the other institutional hypothesis (hypothesis 5b), the results across all the multinomial logit tables indicate that there is no significant difference between industrial and postindustrial cities. Although Stein (1990) found support for this variable in his analysis in the early and middle 1980s, it may be that the developmental patterns of cities have evolved so that modern industrial cities today resemble their postindustrial counterparts. The severe fiscal crises that plagued these cities have largely passed, having been replaced instead by modern, entrepreneurial leadership that reduced the number of services offered while pursuing innovative service production options. According to hypothesis 5c, governments with strict limits on their annexation authority are more likely to produce services externally. In general, our multinomial logit results provide little evidence for this hypothesis. In fact, when annexation authority is higher, cities contract less with other governments relative to other service production mechanisms. This runs counter to expectations. Our conclusions along these lines are tempered somewhat because we suspect that this variable may not be properly operationalized.

Overall, the results show modest support for the institutional hypotheses. In particular, council-manager status influences the service production decisions of governments in ways partially consistent with theoretical expectations.

Control Variables

Some of the control variable results are noteworthy, although they are not central to our theory. In general, the multinomial results support the argument that property tax limits create a fiscal incentive for governments to produce services externally. As reported in table 3, being in a state that adopted overall property tax limits prior to 1978 increases the probability by .04 that a government will contract with other governments relative to producing services internally. Similarly, overall property tax limitations adopted in 1978 or later increase the likelihood of joint contracting and contracting with private firms. Being in a post-1978 tax limitation state increases the probability by .09 and .07 that a government will engage in joint contracting and contracting with private firms, respectively, relative to choosing internal service production, holding constant the effect of other variables. Together, these findings support the contention that property tax limitations create incentives for governments to find cheaper alternatives to internal production. Capacity also strongly influences governments' service delivery choices. As table 3 illustrates, an increase from low fiscal capacity to moderate fiscal capacity decreases the likelihood that municipal and county governments will engage in external service production. Wealthier governments may have less incentive to save costs.

Overall, the results indicate that transaction costs risks play a prominent role in governments' service production decisions. When transaction costs risks are low, governments turn to more external production, whereas higher transaction costs risks compel governments to be more selective about their production choices. Rather than blindly adopting alternatives to internal production, governments are aware of the risks associated with outsourcing, particularly threats of vendor opportunism, and tailor their production decisions accordingly. When asset specificity increases and service measurability becomes more difficult, private firms have more opportunities to exploit contracts for profit maximization. Governments respond by opting for contracts with vendors that share similar goals—for example, other governments in the case of asset specificity—and by engaging in more joint contracting, thus improving their ability to monitor vendors. Marketplace transaction costs

risks are also influential. Smaller nonmetropolitan governments that tend to face less competitive markets rely more on internal service production. As the service marketplace becomes more competitive, governments are able to compare price and service quality across a range of vendors. The results indicate that smaller metropolitan governments take advantage of the reduced transaction costs risks in more competitive marketplaces by increasing their use of external production mechanisms.

Our results also indicate that transaction costs risks alone cannot account for why governments select particular production mechanisms over others. Transaction costs risks operate in specific institutional contexts to shape governments' production choices. We believe that participation in professional networks shapes production choices by creating institutional pressures to pursue certain production mechanisms over others. In addition, governments with limited fiscal resources and governments in states with property tax limitations are more likely to choose external service production. These fiscal constraints create imperatives to tap cost savings from contracting. This suggests that production cost savings are sometimes greater than the transaction costs associated with contracting.

CONCLUSION

This article has argued that transaction costs risks play a key role in how governments decide to organize to produce services. The empirical analyses support this contention. The costs and benefits of different production mechanisms vary across services, market contexts, and institutional settings. Governments balance these costs against benefits when choosing how to produce services. External contracting may save costs, but can be riskier, at least for services with higher transaction costs risks. Joint contracting or contracting with other governments can mitigate such risks. Most governments choose the safest alternative—internal production—for the bulk of their services.

Perhaps the most compelling direction for future research stemming from this study would be to examine whether transaction costs and governments' responses to them affect service outcomes. Are contracts in high transaction costs risk contexts more likely to fail? In addition to the steps discussed in this article, governments can respond to contracting transaction costs risks by investing in contract management and monitoring procedures that, at least superficially, promise better outcomes (Brown and Potoski 2003a, 2003b). Future research should investigate how governments can manage the full spectrum of service delivery to improve service quality and outcomes.

Another important avenue for future research would be to address the limitations of this study. First, although the ICMA data set is arguably the most comprehensive national sample of government service production decisions, it has some restrictions. As we mentioned earlier, the data lack direct measures of transaction costs risks and transaction costs themselves, a persistent problem in transaction cost research, but one that can be overcome in future research. This article improves on the extant research by more clearly denoting the asset specificity and service measurability dimensions. Additional case research may identify more refined measures that can then be applied in future large sample empirical studies. The ICMA data also offer few direct measures of interesting institutional factors. Our supplemental data address this to some extent, but future research can better tailor measurement strategies to fit these theoretical approaches.

A second limitation of this study is that it implicitly treats production choices as one-shot decisions rather than iterative processes. By using data from only one time period, we

have been able to capture the service production decisions of many governments, but we sacrifice insights into how transaction costs risks and other factors influence governments over time. Time-series analysis, whether case based or large sample, should address these issues. Finally, the unit of analysis in this study may limit the generalizability of our findings. Although our theory treats governments generally, our analysis is limited to municipal and county governments. Future research should investigate whether our conclusions apply more generally by examining service production in state governments, federal agencies, and even outside the United States.

In spite of these limitations, this article offers important contributions to research. Coase's and later Williamson's theories about transaction costs risks and their effect on internal versus external production were pathbreaking insights in the field of organizational design. For economists, Williamson's work in particular contributed prominently to opening the "black box" to reveal internal firm dynamics and their effects on economic processes. We propose in this article that applying the transaction costs lens to governments can yield similar gains. Despite objections to the perhaps unsavory view of human nature depicted in transaction costs economics (Ghosal and Moran 1996), it does provide a sophisticated and useful means for understanding complex behavior, such as vendors' opportunism and governments' strategic choices.

Although transaction costs provide a useful framework for analyzing governments' service production choices, other theories clearly have much to offer. As our results show, institutional factors influence governments in important ways. Although our analysis did not consistently find strong support for all institutional explanations, we believe some of these results reflect measurement difficulties rather than theoretical flaws. Institutional theory serves as a compelling and useful complement to transaction costs theory. A framework based entirely on purposive rationality, even bounded rationality, is incomplete without complements drawn from institutional theory. In future research, we intend to examine the role that coordination costs—the procedural difficulties of synchronizing processes between the contracting organizations and vendors—play in production choices. Such costs play prominent roles in the governance structures of firm alliances (Gulati and Singh 1998). In short, we have only begun to sketch the complexity of service production arrangements and the factors that influence their structure, operation, and, ultimately, their success.

Finally, the findings in this article inform debates about the "hollow state," a depiction that sometimes casts governments as empty holding companies with an overreliance on contracting. Some public administration and management scholars are troubled by the growth in external service production (Moe 1987; Milward 1996; Morgan and England 1998; deLeon and Denhardt 2000; Haque 2001). Our analyses may temper such judgments. External production has increased at the local level, but internal production remains the primary means through which governments provide services, particularly those that have high levels of transaction costs risks. Our findings suggest that governments have not neglected management, oversight, and monitoring responsibilities when they externalize production. Governments are cautious about relying on external producers and take a variety of steps to address some of the risks inherent in external production. This article sheds light on a relatively unexplored area of the service production debate—the steps governments take to manage these new modes of production. Focusing future research on the management practices of governments within the "hollow state" will certainly produce vital information regarding the service production debate.

APPENDIX: SURVEY DEFINITIONS FOR ASSET SPECIFICITY AND SERVICE MEASURABILITY

The survey definitions were as follows (the form sent to respondents included examples):

Asset specificity: Degree of specialized investments refers to whether specialized investments are required to produce the service. By special investments, we mean investments that apply to the production of one service but are very difficult to adapt for the production of other services. These specialized investments include

- the use of a specific location that is only movable at a great cost
- the use of highly specialized human skills that cannot be put to work for other purposes
- the use of specialized tools or a complex system designed for a single purpose
- the requirement that the service reach the user within a relatively limited period of time or the quality of the service greatly diminishes

At one end of the scale, a service has a low degree of specialized investments if no specialized investments are generally required to produce the service. At the other end of the scale, a service has a high degree of specialized investments if many specialized investments are generally required to produce a service. *Such specific investments often mean that if a government decides to contract for such a service, it is more likely that only the selected vendor will be available in future rounds of contracting.*

Service measurability: At one end of the scale, a service is easy to measure if it is relatively straightforward to monitor the activities required to deliver the service and to identify performance measures that accurately represent the quantity and quality of the service. For easy to measure services, government officials can easily write a contract and clearly specify the activities and outcomes for the vendor to perform and achieve. Also, it is easy for government officials to monitor the quality and quantity of these activities and their outcomes. At the other end of the scale, a service is difficult to measure if it is relatively hard to monitor the activities required to deliver the service and to identify performance measures that accurately represent the quantity and quality of the service. For difficult to measure services, government officials cannot easily write a contract and clearly specify the activities and outcomes for the vendor to perform and achieve.

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