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OUTSOURCING OF PUBLIC SERVICE PROVISION: WHEN IS IT MORE EFFICIENT?*

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A model of public service provision is set up to study the factors determining whether outsourcing to for-profit producers of social services will enable a local government to achieve a given service quality at lower budgetary cost. In the absence of appropriate cost sharing arrangements between the government and the service provider, outsourcing provides an incentive for producers to lower quality in order to reduce costs. The cost reductions per se tend to be efficiency-improving, but to prevent a deterioration of service quality policy makers must spend more resources on monitoring quality. Moreover, the greater effort exerted under private service provision will have to be compensated by higher factor rewards. Hence public in-house provision may be more cost-efficient than outsourcing. This is particularly likely to be the case when the quality of the service is difficult to measure so that marginal monitoring costs are high. The paper shows that these results emerge both when politicians are benevolent and when they distribute rents in exchange for political support. We also show that risk aversion and uncertainty about the potential for cost savings implies a bias against outsourcing. However, if contracts between policy makers and service providers allow appropriate cost sharing arrangements, we find that a version of the Coase Theorem holds: policy makers can then implement exactly the same optimal allocation under public as under private provision. (JEL: H42, H57)

1. The problem

Should publicly funded services to consumers be provided in-house by government institutions, or should service provision be outsourced to private producers? This is a hot issue in many countries where governments are experimenting with outsourcing in an attempt to reduce the cost of public service provision.

The economic debate on outsourcing and privatization was stimulated by a widely quoted empirical study by the World Bank (1995)

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which indicated that privatization typically lowers the cost of delivering publicly funded goods and services. This finding is also one of the main messages in the survey by Megginson and Netter (2001) of the privatization experiments undertaken by goverments throughout the world since the early 1980s. Moreover, it is consistent with a number of theoretical studies predicting that since the workers and managers of state-owned enterprises usually do not benefit personally from efforts at cost reduction, government-owned enterprises will tend to have higher unit costs than private enterprises (see the survey by Shleifer, 1998).

But while private providers of public services may have a stronger incentive to keep down costs, some cost savings may be achieved by reducing the quality of the service delivered. At least this may happen if quality is difficult to measure and define in a contract which can serve as the basis for legal action. Indeed, those who are sceptical of outsourcing essential services such as the provision of health care and care for the elderly are often concerned that private provision will lead to deteriorating service quality because quality in these areas is difficult for outside regulators to monitor. Hence the crucial question is whether outsourcing can reduce the cost of providing a *given* quality of public services when quality is costly to monitor? This is the issue addressed in the present paper.

The incomplete contracting framework of Hart, Shleifer and Vishny (1997) implies that when quality-improving and cost-reducing effort is non-contractible, outsourcing of public services will always lead to lower costs, whereas quality may be either higher or lower than under public provision. This suggests that the cost of providing a given quality level will not necessarily be lower under outsourcing.

In the model developed in the present paper the government may control the quality of public services by an appropriate choice of monitoring effort. The model therefore allows a systematic comparison of the budgetary costs of providing a given quantity and quality of public services under alternative organizational forms. The paper offers an account of the factors which will determine whether one or the other organizational form is more efficient. Contrary to the claim made by Shleifer (1998) that private provision of public services will almost always be more efficient, our model suggests that there may be plausible cases where public in-house provision is preferable. We also show that if policy makers have sufficient flexibility in the design of contracts with service providers, they can implement exactly the same optimal allocation under public as under private provision.

The first part of the analysis assumes that politicians are benevolent, seeking to minimize the budgetary cost of providing a given service quality. It also assumes that contracts with service providers cannot be made contingent on realized cost savings. In this setting the analysis points to a previously neglected factor which may make outsourcing less attractive: when the producers of public services have alternative employment opportunities and cost reductions require effort, the cost savings achieved under private provision may have to be compensated by higher factor rewards to producers, thus reducing the likelihood that the overall budgetary cost will be lower under outsourcing.

The subsequent part of the paper assumes that politicians attempt to maximize political support partly by keeping down the tax cost of public service provision and partly by distributing rents to public service producers. In equilibrium this vote-maximizing behavior generates positive rents to service providers, but the analysis suggests that this is unlikely to overthrow the qualitative results derived on the assumption of benevolent politicians.

The paper proceeds to argue that in so far as outsourcing creates the preconditions for competition among alternative service providers, it may eliminate rent-seeking and generate efficiency gains even if a switch to private provision does not in itself guarantee improved efficiency. Finally, it is shown that private and public service provision are equivalent if contracts can be made contingent on realized cost savings and if they are designed optimally. This result holds even if the efforts of service providers are not directly observable.

Although inspired by some of the ideas of Hart, Shleifer and Vishny (1997), the model presented here is not a genuine incomplete contracting model. In that type of model it is typically

assumed that product quality is not verifiable in a way that can serve as the basis for sanctions enforced by the legal system. By contrast, the model in this paper assumes that regulators can measure service quality by incurring monitoring costs and can impose sanctions on producers in case quality is found to be inferior. However, these sanctions need not be monetary fines imposed by the legal system; they could also take the form of reduced career opportunities for service workers or managers; suspension of normal pay rises; less attractive working conditions; moral disapproval imposing a loss of reputation on producers, etc. By relying on such informal sanctions, the regulator may not have to provide formal legal evidence to be able to punish inferior quality performance. Moreover, our model can encompass the special case where monitoring costs become so high that, for all practical purposes, the regulator cannot really sanction bad quality performance, as assumed in the incomplete contracting literature.

The fact that regulators cannot observe service effort and can only measure service quality at a cost reflects that they have less information on production conditions than the service producers. In this sense the present model stresses the asymmetry of information emphasized in the theory of regulation developed by Laffont and Tirole (1993).

Section 2 sets up the basic model of public service provision underlying most of the discussion. Section 3 analyzes producer behavior under public provision and under private provision, and section 4 compares the budgetary costs of service provision under the two alternative organizational forms, assuming a benevolent government. Section 5 contains extensions of the basic model. In section 5.1 we consider the implications of uncertainty and risk aversion; section 5.2 analyzes whether rent-seeking behavior modifies the previous results, and section 5.3 discusses outsourcing as a means of fostering competition in public service provision. In section 5.4 we consider a setting with more flexibility in contract design and show that the optimal contracts with service providers imply equivalence between private and public provision when contracts are contingent on realized cost savings. The findings of the paper are summarized in section 6.

2. A simple model of public service provision[1]

The client and the service worker

Suppose the government has decided to fund the provision of some social service such as health care, child care, home care, or long term care for the elderly. The representative client is served by a representative service worker who may be a public sector employee in case of public in-house provision or a private entrepreneur in the case of outsourcing. In both cases the service worker receives remuneration for one unit of time. A fraction s of this time period is spent on actually serving the client, so the utility of the client is given by the concave utility function

$$(1)\quad u = u(s), \qquad u' > 0, \quad u'' < 0.$$

The service worker may also spend a fraction *e* of his time on efforts to reduce the non-labor cost of providing the service. The remaining time *1 — s — e* is spent on 'coffee breaks' or other pleasure activities generating utility on the job. Since the public policy maker/regulator cannot monitor the work process, she cannot control how the service worker decides to allocate his time. However, at random intervals the regulator pays a visit to the client to check his condition. If the client's well-being is found to fall below some required standard $\bar{u}$, the regulator can impose some form of utility-decreasing sanction (pecuniary or non-pecuniary) on the service worker.[2] We therefore assume that the

[1] *To simplify the exposition, the model presented below assumes that service production is carried out by a single representative worker. In Sørensen (2004) it is shown that the main results from this basic model carry over to a more complex setting with a 'double' monitoring problem where service workers are monitored by managers who in turn are monitored by a public regulator. The analysis in Sørensen (2004) also covers the case of outsourcing to a not-for-profit entrepreneur which is left out here for brevity.*

[2] *We take* u = u(s) *as a measure of the worker's contribution to the general well-being of the client rather than as a broad measure of the client's 'happiness'. The assumption that the regulator can observe* u *by inspecting the client is our attempt to formalize the idea that, by supervising the specific conditions for which the service worker is responsible, the regulator can roughly judge how the worker has contributed to the welfare of the client.*

service worker's welfare is given by the utility function

$$(2)\ U^i = I^i + f\,(1 - s - e) - a\,(\overline{u} - u)\,,$$
$$f' > 0, \quad f'' < 0, \quad a > 0,$$

where I^i is the real income of the worker under the organizational form i, $f\,(1 - s - e)$ is the worker's (money metric) utility from 'coffee breaks', and $a\,(\bar{u} - u)$ is the (money metric) expected disutility from sanctions imposed by the regulator. This specification assumes that the sanction is more severe the poorer the condition of the client, and that the service worker may be rewarded in case the client's welfare exceeds the target level $\bar{u}$. The variable a rises with the monitoring effort of the regulator and the severity of the sanction, but a positive value of a may also reflect that the service worker is altruistic towards the client. For example, we may assume that $a = pa^s + a^a$, where p is the probability that the regulator inspects the condition of the client, a^s is an exogenous penalty rate, and a^a is the worker's exogenous degree of altruism. Thus, by spending more resources on monitoring, the government can raise a via an increase in p. Alternatively, the government could raise a by raising the penalty a^s without having to incur any additional monitoring costs. However, we assume that a^s has already been set at the maximum level consistent with the social norm that there must be a reasonable relationship between the severity of the punishment and the seriousness of the offence. As pointed out by Stern (1978) and Sandmo (1981, p. 287), the notion of just retribution typically imposes such a constraint on penalty rates.[3]

Under public in-house provision ($i = p$) the worker's real income I^p is simply his real wage R^p:

$$(3)\ I^p = R^p.$$

Under private provision ($i = \pi$) the worker is an entrepreneur who receives a fixed payment R^π per client from the government and bears the non-labor cost $C - g\,(e)$ of producing the service, where C is a fixed cost element, and $g\,(e)$ indicates cost-savings which depend positively on the worker's effort. Thus the producer's real income I^π under private provision is given by his profit which is

$$(4)\ I^\pi = R^\pi - [C - g\,(e)]\,,$$
$$g\,(0) = 0, \quad g' > 0, \quad g'' \leq 0.$$

The specifications above capture the idea that there is a trade-off between providing service quality and keeping down costs: to achieve lower costs, the service producer must spend more effort for this purpose, but this will reduce the attractiveness of his workplace unless he devotes less time to servicing the client. As a practical example, a service producer could choose to provide home care to a larger number of clients. Ceteris paribus, this would reduce the production cost per client served, but if clients live in different locations, the worker would have to spend more time on transportation, leaving less time to service each client.

Regardless of the organizational form, we assume that the service worker/entrepreneur has an outside option which enables him to attain the utility level $\bar{U}$ if he were to seek employment or start up a business elsewhere in the economy. The public policy maker/regulator must therefore respect the recruitment constraint

$$(5)\ U^i \geq \overline{U}.$$

Since the types of social services considered here are typically funded by local governments, we assume that the policy-making jurisdiction is too small relative to the size of the economy to be able to affect the value of the outside option significantly. Hence we treat $\bar{U}$ as exogenously given.

The public budget

The local government's budgetary cost B of funding the social service is

[3] *There is also an issue of horizontal equity involved here: if the penalty is very high, it will imply a highly unequal treatment of 'shirking' service workers, depending on whether their failure to service the client is detected or not. Such a strong horizontal inequity may be socially unacceptable.*

(6) $B^i = R^i + c(a) + D[C - g(e)]$,

$c' > 0, \quad c'' \geq 0, \quad D = 1$ for $i = p$,

$D = 0$ for $i = \pi$,

where *D* is a dummy variable and *c (a)* is the cost of monitoring the quality of the service provided (the cost of observing the condition of the client). Equation (6) reflects the fact that when the government provides the service in-house, it must bear the non-labor costs of production, whereas these costs are borne by the private service provider under outsourcing.

The functions *g (e)* and *c (a)* are only defined for non-negative values of *e* and *a*, respectively. The assumption that *c′ (a) > 0* reflects the fact that, for a given degree of altruism and a given disutility from the sanction, the regulator can only achieve an increase in *a* by spending more resources on monitoring, which is costly. An important assumption in the analysis below is that a change of organizational form does not in itself affect the cost functions *c (a)* and *g (e)*.

Let us now consider the incentives for time allocation under alternative organizational forms.

3. Producer behavior under alternative organizational forms

Public provision

Under public in-house provision the service worker is a public sector employee who maximizes the utility function (2) with respect to *e* and *s*, given the public regulator's monitoring effort as reflected in *a*, and given $I^p = R^p$. Although in general equilibrium a higher level of cost-reducing effort *e* would induce the public sector to pay higher wage rates (assuming the recruitment constraint (5) is binding), the individual service worker perceives that his wage R^p is independent of his own effort. Since effort involves a utility cost, the worker's optimal choice of cost-saving effort *e* will then be zero, so from (2) the choice of service effort will be determined by the first-order condition

(7) $f'(1-s) = au'(s)$,

stating that service effort is increased to the point where the marginal utility loss from extra effort is matched by the expected marginal utility gain from reduced sanctions. Equation (7) implies that

(8) $s = s(a)$,

$$s' = -\frac{u'(s)}{au''(s) + f''(s)} > 0.$$

In other words, by increasing monitoring intensity, the regulator can induce the worker to provide more service effort, but the regulator cannot induce any cost-saving effort, since she only observes the condition of the client but cannot observe whether the worker has actually tried to reduce costs.

Suppose the regulator adjusts *a* with the purpose of inducing a service effort $\bar{s}$ which ensures that the client achieves the target welfare level $\bar{u} \equiv u(\bar{s})$. According to (7) the required value of *a* will then be

(9) $a^p = \dfrac{f'(1-\bar{s})}{u'(\bar{s})}$.

Below we shall compare this benchmark monitoring intensity to the one which is needed to achieve the target client welfare level under outsourcing.

Private provision

The self-employed service worker's utility U^π under private provision is found by inserting (4) into (2). Thus the private service provider chooses *s* and *e* with the purpose of maximizing

(10) $U^\pi = R^\pi - [C - g(e)] + f(1-s-e) - a(\overline{u} - u)$,

yielding the first-order conditions

(11) $f'(1-s-e) = g'(e)$,

(12) $f'(1-s-e) = au'(s)$.

Equation (11) says that the marginal gain from cost-saving effort (the right-hand side) must equal the marginal utility loss from additional effort. Equation (12) has the same interpretation as (7).

We assume that $g'(0) > f'(1-s)$ when s is at its optimal level. It then follows from our earlier assumptions $g'' \leq 0$ and $f'' < 0$ that (11) guarantees a positive optimal level of e. Private provision thus provides an incentive for cost-reducing effort, so for a given monitoring intensity (a given value of a), (11) and (7) imply that a private service worker will want to divert some effort away from servicing the client towards cost-reducing activities, compared to the publicly employed service worker.

Suppose again that the regulator chooses a to induce the service effort $\bar{s}$ which generates the target client welfare level $\bar{u}$. From (12) we find the required monitoring intensity to be (using the superscript π to indicate private provision):

$$(13)\quad a^{\pi} = \frac{f'(1-\overline{s}-e^{\pi})}{u'(\overline{s})}.$$

Comparing (13) to (9), we see that securing a given client welfare level requires a higher monitoring intensity under private provision than under public in-house provision, since $e^{\pi} > 0$ and $f'' < 0$.

We will now use these results to analyze the budgetary costs of public service provision under alternative organizational forms.

4. Comparing budgetary costs of service provision under alternative organizational forms

Assuming that the utilities of clients, service workers and taxpayers all count in the social welfare function, a necessary condition for a second-best social optimum is that the budgetary cost of service provision is minimized for any given levels of welfare for clients and service workers. Hence the most efficient organizational form is the one that minimizes B^i in (6), given that the client attains some fixed utility level such as $u = \bar{u} \equiv u(\bar{s})$, and given that the government's recruitment constraint $U^i \geq \bar{U}$ is met with equality.

We start by deriving the minimum budgetary cost of attaining $u = \bar{u}$ under public in-house provision where $e = 0$. From (2), (5), and the fact that a is adjusted to ensure $u = \bar{u} \equiv u(\bar{s})$, it follows that the local government must as a minimum pay the following wage rate to recruit a service worker:

$$(14)\quad R^p = \overline{U} - f(1-\overline{s}).$$

The wage rate in (14) ensures that the service worker's utility level equals his exogenous outside option $\bar{U}$. According to (6) and (14) the budgetary cost under public provision then becomes

$$(15)\quad B^p = R^p + C + c(a^p) = \overline{U} - f(1-\overline{s}) + C + c(a^p),$$

where a^p is given by (9), and where we have used our earlier assumption $g(0) = 0$.

Under private provision where the worker-entrepreneur bears the non-labor cost $C - g(e^{\pi})$, the recruitment constraint (5), the utility function (2) and the assumption that $u = \bar{u} \equiv u(\bar{s})$ imply that the goverment must at least pay the entrepreneur the following amount per client served:

$$(16)\quad R^{\pi} = \overline{U} - f(1-\overline{s}-e^{\pi}) + C - g(e^{\pi}).$$

Inserting this into (6) and remembering that a is adjusted in accordance with (13), we obtain the minimum attainable budgetary cost under private service provision:

$$(17)\quad B^{\pi} = R^{\pi} + c(a^{\pi}) = \overline{U} - f(1-\overline{s}-e^{\pi}) + C - g(e^{\pi}) + c(a^{\pi}).$$

Proposition 1. The difference between the budgetary costs under in-house provision and under outsourcing to a private entrepreneur is given by

$$(18)\quad B^p - B^{\pi} = g(e^{\pi}) - \overbrace{[c(a^{\pi}) - c(a^p)]}^{+} - \overbrace{[f(1-\overline{s}) - f(1-\overline{s}-e^{\pi})]}^{+}$$

Since the sign of (18) is indeterminate, outsourcing to a private service provider is not necessarily efficient.

The first term on the right-hand side of (18) is the additional cost arising under public provision because public employees have no incentive to exert cost-reducing efforts. This cost element is the basis for the popular claim that private provision tends to be more cost efficient. However, there are two other mechanisms making for lower costs under public in-house provision. The first one is represented by the term $c\,(a^\pi) - c\,(a^p)$ on the RHS of (18), reflecting the fact that the monitoring costs of achieving the target quality level is higher under private provision where the service worker has an incentive to divert time from servicing the client towards cost-reducing activities (recall that $a^\pi > a^p$, implying $c\,(a^\pi) > c\,(a^p)$ since $c' > 0$). The second mechanism is indicated by the term $f\,(1 - \bar{s}) - f\,(1 - \bar{s} - e^\pi)$ in (18), capturing the fact that payments to service workers can be kept lower under in-house provision where workers exert lower effort. This additional source of cost saving under in-house provision – which stems from the fact that public as well as private service producers face a recruitment constraint when workers have an outside option – seems to have been neglected in the previous literature.

Taking a first-order approximation of the expression in (18) around $(e, a) = (0, a^p)$ and using (9) and (13),[4] we find

$$(19)\quad B^p - B^\pi \approx \left[g'(0) - f'(1-\overline{s}) + \frac{c'(a^p)\,f''(1-\overline{s})}{u'(\overline{s})}\right] e^\pi.$$

This expression shows that outsourcing to a private service provider is more likely to be efficient when (*i*) the marginal return to cost-saving effort $g'(0)$ is high; (*ii*) the marginal value of leisure activities on the job $f'(1 - \bar{s})$ is low; (*iii*) the marginal monitoring cost $c'(a^p)$ is low; (*iv*) the marginal value of on-the-job leisure is only slowly declining (f'' is numerically low); and (*v*) the marginal value of additional service to the client $u'(\bar{s})$ is high. The results (*i*) and (*iii*) should be self-explanatory. The explanation for (*ii*) is that when the marginal value of 'coffee breaks' is low, it only takes a modest increase in the remuneration of the service worker to compensate him for the cost-saving effort exerted under private provision. The finding in (*iv*) reflects that, when the marginal value of on-the-job leisure is only slowly declining, there is a weaker incentive for the worker to reduce his service effort as his cost-saving effort increases, and hence the required increase in monitoring intensity under outsourcing is also smaller. Furthermore, the incentive to reduce service effort under outsourcing is weaker the greater the client's marginal utility loss from reduced service, since a sharp drop in client welfare implies a sharp increase in the worker's penalty in case the regulator checks the condition of the client. This explains the result (*v*).

While the results in this section are intuitive, they also suggest that it may be very difficult to evaluate ex ante whether outsourcing is desirable, since little may be known about the shape of the cost functions $c(\cdot)$ and $g(\cdot)$ and the utility function $f(\cdot)$. However, when the nature of the service is complex and multidimensional so that the quality delivered (and hence the effect on client welfare) is difficult to monitor, the marginal monitoring cost (and hence c') is likely to be high. In such circumstances outsourcing is less likely to be efficient.

5. Extensions

5.1. Status quo bias under uncertainty and risk aversion

As already mentioned, there may be uncertainty about the (quantitative) properties of the cost functions and preference relations determining whether outsourcing is efficient. Moreover, the policy maker may be risk averse, being more eager to avoid an increase in the budgetary cost than to obtain a corresponding cost reduction. In general, uncertainty and risk aversion will tend to imply a bias in favor of the status quo (you know what you've got; you don't know what you'll get). If the status quo is public in-house service provision, uncertainty and risk aversion will make outsourcing less attractive.

[4] We use the fact that, according to (9) and (13),

$$a^\pi - a^p = \frac{f'(1-\overline{s}-e^\pi) - f'(1-\overline{s})}{u'(\overline{s})} \approx \frac{-f''(1-\overline{s})\,e^\pi}{u'(\overline{s})}.$$

To illustrate this, consider a simple mean-variance framework where the policy-maker's perceived gain V from outsourcing to a private service provider is given by

$$(20)\quad V = \mu - \eta \cdot E\left[(B^p - B^\pi - \mu)^2\right], \qquad \mu \equiv E\left[B^p - B^\pi\right],$$

where μ is the expected budgetary cost saving from outsourcing, given that a is adjusted to maintain service quality, $E[(B^p - B^\pi - \mu)^2]$ is the variance of the expected gain, and $\eta > 0$ is a parameter indicating the policy-maker's aversion to risk. Suppose further that the policy-maker estimates that

$$(21)\quad g' = \overline{g} \ \text{ with probability } p, \qquad g' = \overline{g} + h \ \text{ with probability } 1-p,$$

where $\bar{g}$ and h are positive constants. In other words, the marginal return to cost-saving effort can either take on a low value $\bar{g}$ or a high value $\bar{g} + h$. To keep the analysis simple, we assume that the policy-maker/regulator has gained perfect knowledge of the functions $c(\cdot)$, $f(\cdot)$ and $u(\cdot)$ via her interaction with the service worker and the client, so that the that only uncertainty attaches to g'. Using the approximation (19), we show in the appendix that

$$(22)\quad V \approx \mu - \eta p\,(1-p)\,h^2\,(CS - CI)^2,$$

$$(23)\quad CS \equiv \frac{2\overline{g} + h}{-f''\left(1-\overline{s}\right)} > 0, \qquad CI \equiv \frac{c'\left(a^p\right)}{u'\left(\overline{s}\right)} - \frac{2f'\left(1-\overline{s}\right)}{f''\left(1-\overline{s}\right)} > 0,$$

$$(24)\quad \mu = \frac{\left(f'\left(1-\overline{s}\right)\right)^2 - \overline{g}^2}{f''\left(1-\overline{s}\right)} + CI\,\overline{\left[f'\left(1-\overline{s}\right) - \overline{g}\right]} + h\,(1-p)\,(CS - CI).$$

The magnitude *CS* defined in (23) is an indicator of the incentive for the private entrepreneur to exert cost-saving effort: this incentive will be large if $\bar{g}$ and h are large, and it will be small if the marginal value of 'coffee breaks' increases sharply as time is reallocated from breaks to cost-reducing activity, i.e., if f'' is numerically large. The variable *CI* in (23) captures the factors which tend to increase the budgetary cost when service provision is outsourced. Thus c'/u' reflects the cost of the more intensive monitoring which is needed to prevent a deterioration of service quality under outsourcing, and the magnitude $-f'/f''$ reflecting the curvature of the service worker's utility function indicates how much the worker's remuneration has to increase to compensate him for the extra effort exerted under outsourcing.

As the marginal return to cost-reducing effort varies, the private entrepreneur will vary this effort, but the mechanisms captured by the variables *CS* and *CI* will affect the budgetary cost in opposite directions as e^π changes. If *CS* happens to equal *CI*, the different influences on the budgetary cost will exactly offset each other. In that special case we see from (22) that risk aversion will have no influence on the policy maker's gain from outsourcing, since the variance of the budgetary cost saving $B^p - B^\pi$ will be zero.

However, in the general case where $CS \neq CI$, it follows from (22) that uncertainty and risk aversion will indeed reduce the attractiveness of outsourcing, as one would expect. We also see from (23) and (24) that the same factors which tended to make outsourcing attractive in the deterministic case (high marginal returns to cost-reducing effort, low marginal cost of monitoring, low marginal utility of 'coffee breaks', etc.) will also tend to make the expected budgetary cost reduction (μ) positive under uncertainty.[5]

5.2. The implications of rent-seeking

We have so far assumed that policy makers are benevolent, seeking to minimize the taxpayer's cost of ensuring a satisfactory public service level without paying more than is necessary to recruit service workers. Specifically, we assumed that the (public or private) service worker's remuneration R was kept so low that the recruitment constraint (5) was met with equality.

[5] *From our earlier analysis it follows that when* $g' = \bar{g}$, *the private service provider will choose* $f'(1 - \bar{s} - e^\pi) = \bar{g}$, *where* $e^\pi > 0$. *Since* $f'' < 0$, *this implies that* $f'(1 - \bar{s}) < \bar{g}$. *Hence we can be sure that* CI *enters (24) with a negative coefficient.*

However, it is often argued that politicians use their control over the public sector to distribute rents to the providers of public goods and services in return for political support, thereby increasing the cost to the taxpayer (see, e.g., Shleifer, 1998). In this section we shall argue that such rent-seeking behavior will not significantly change the circumstances in which outsourcing is attractive from the perspective of taxpayers as well as politicians.

Suppose the politician seeks to maximize the political support function

$$(25)\quad S = F\left(U - \overline{U}\right) - G\left(B\right), \qquad F' > 0, \quad F'' < 0, \quad G' > 0, \quad G'' > 0.$$

According to (25) the politician can gain political support by increasing the rent $U - \bar{U}$ distributed to public service providers and by reducing the budgetary cost B of providing the target service level $\bar{s}$. In other words, the politician can increase his chance of reelection both by offering favors to public service suppliers – whether they are public employees or private entrepreneurs – and by reducing the citizens' tax bill. Moreover, the marginal gain in political support is assumed to be declining as rents are increased and budgetary costs are reduced. The utility of a service worker is still given by (2), and (6) still gives the budgetary cost of service provision. However, the politician now chooses the worker's remuneration R so as to maximize the political support function (25). From (2) and (6) we have $\partial U/\partial R = 1$ and $\partial B/\partial R = 1$, so the first-order condition for maximization of (25) with respect to R is

$$(26)\quad F'\left(U - \overline{U}\right) = G'\left(B\right),$$

stating that the marginal political gain from additional rent distribution must equal the marginal political loss from increased budgetary costs. Under the two alternative regimes of public in-house provision and private provision, (26) takes the form

$$(27)\quad F'\left(\overbrace{R^p + f\left(1-\overline{s}\right)}^{U^p} - \overline{U}\right) = G'\left(\overbrace{R^p + C + c\left(a^p\right)}^{B^p}\right),$$

$$(28)\quad F'\left(\overbrace{R^\pi - C + g\left(e^\pi\right) + f\left(1-\overline{s}-e^\pi\right)}^{U^\pi} - \overline{U}\right) = G'\left(\overbrace{R^\pi + c\left(a^\pi\right)}^{B^\pi}\right),$$

where we have assumed that a is adjusted to ensure that clients attain the target utility level $\bar{u}$ under both forms of provision. We know that $a^\pi > a^p$, implying $c(a^\pi) > c(a^p)$. Hence outsourcing can only lead to a lower budgetary cost ($B^\pi < B^p$) if $R^\pi - C < R^p$. When $B^\pi < B^p$, G' will take a smaller value in (28) than in (27), since $G'' > 0$. Then U^π will have to be higher than U^p, since $F'' < 0$, but with $R^\pi - C < R^p$, this can only be the case if

$$(29)\quad g\left(e^\pi\right) + f\left(1-\overline{s}-e^\pi\right) > f\left(1-\overline{s}\right).$$

From (18) we see that (29) is also a necessary condition for $B^\pi < B^p$ in the regime *without* rent-seeking. This is the basis for our claim that the same factors which would lead taxpayers to prefer outsourcing in a world with benevolent politicians are also likely to lead to a taxpayer preference for outsourcing under rent-seeking. Moreover, if outsourcing is more cost efficient, it will also be preferred by the politician who can then distribute the efficiency gain between the service worker and the taxpayer, thereby gaining increased political support from both groups. Thus the only difference compared to the case with benevolent politicians is that taxpayers will only reap part of the gain from outsourcing, while the remaining part will go to service providers.[6]

We may note in passing that the persistence of positive rents in political equilibrium will not only induce service providers to offer political support in return for rents; it may also open the door to bribery and corruption. This

[6] *The size of the rents distributed to service producers may depend on the ideological bias of politicians. Bennedsen and Schultz (2003) show that a 'leftist' politician with a preference for public in-house provision may be able to outsource at a lower budgetary cost because the private supplier realizes that he will have to sacrifice some rent to induce the politician to outsource.*

observation takes us to a discussion of the role of competition.

5.3. The role of competition

The analysis above allows for competition only in the limited sense that policy-makers must compete with other employers to attract service workers. So far we have not explicitly considered the possibility that service provision can be opened to competition by specifying and announcing service requirements, calling for tenders and contracting with the supplier submitting the most favorable bid for some fixed term. Political willingness to outsource will typically be a precondition for competitive tendering, although in-house teams can be allowed to submit bids.

Our analytical framework suggests at least three potentially beneficial roles for competition among alternative service providers. First, in the presence of uncertainty about cost functions and other production conditions under outsourcing, competitive tendering with participation from in-house teams may be a way of testing the relative efficiency of alternative organizational forms. As emphasized by Lundsgaard (2002, p. 83), participation of in-house producers requires a transparent separation of production units within government agencies to avoid cross-subsidization, and rules on cost calculations and auditing to ensure a credible and neutral competitive bidding process.

Second, given that a decision to outsource has been made, competitive tendering may be a way of ensuring that the license to produce is contracted out to the most cost-effective producer, as shown by Lehto (2005). For example, in terms of our model, different potential service providers may have different levels of our fixed cost variable C, and a producer with a lower level of C would tend to offer his service at a lower price.

Third, opening up to competitive tendering may be a way to eliminate or at least reduce rents to service providers and thus reduce the associated risks of corruption. Of course, this requires a fair and transparent bidding process which may be hard to establish in the first place if corruption is a problem.

To sum up, if outsourcing – or the willingness to consider outsourcing as an option – brings about the necessary preconditions for fostering competition among service providers, there is a greater chance that it will generate efficiency gains even if a switch to a private monopoly supplier would not in itself improve efficiency. At the same time, the factors which tend to make outsourcing to a single private provider unattractive – such as a complex service product whose quality is difficult to measure and specify – will also make it difficult to establish competitive tendering.

5.4. The equivalence between private and public provision when contracts can be conditioned on costs

We have so far assumed that employment contracts under public service provision do not include any incentive for cost saving. We also assumed that under private service provision all marginal cost savings accrue as increased profits to the private provider. These assumptions were crucial for our finding that, while public provision implies too little concern about cost minimization, private provision tends to imply too much emphasis on cost minimization at the expense of service quality.

In practice the remuneration of public sector employees (and their managers) rarely depends significantly on their efforts to reduce the cost of public service provision. Indeed, this is the basis for the popular claim that the public sector tends to be less efficient than the private sector. However, although effort may be unobservable, the realized costs of public service provision are directly observable, so from a technical viewpoint there is no reason why public employment contracts should not be conditioned on costs of production. For example, the employment contract could specify that the public service worker's remuneration consists of a fixed payment plus a variable component depending on realized cost reductions relative to some benchmark level.

Similarly, although in practice contracts with private service providers usually allow the private entrepreneur to reap all of the gain from

any cost saving (subject to some constraints on the quantity and quality of the service delivered), there is no technical reason why contracts could not specify that a fraction of realized cost savings relative to a benchmark should accrue to the public agency responsible for outsourcing. Indeed, such sharing of the benefits from cost savings already implicitly takes place through the income tax system.

In the following, we shall show that if contracts with public as well as private service providers can be conditioned on realized costs of production, the two modes of provision will in fact be *equivalent*. We start by reconsidering the case of public service provision. Suppose the contract with the public provider specifies that in addition to receiving a lump sum payment R^p, he can keep a fraction β of any realized cost saving relative to some fixed benchmark level (which could be C). His utility level will then be

$$(30)\ U^p = R^p + f(1-s-e) + \beta g(e) - a(\overline{u} - u(s)),$$

and his optimal level of cost-saving effort will be given by the first-order condition

$$(31)\ f'(1-s-e) = \beta g'(e),$$

stating that the marginal disutility of effort (the left-hand side) must be balanced by the marginal gain from cost-saving effort (the right-hand side). In addition, the worker still maximizes his utility with respect to s, implying a first-order condition identical to (12). By choosing an appropriate level of a, the regulator can still induce a service effort $\bar{s}$ ensuring the target level of client welfare. But in addition, the regulator may now adjust β to induce the socially optimal level of cost-saving effort. To identify this level, note that for $u(\bar{s}) = \bar{u}$, eq. (30) implies that the wage rate of the service worker must be set equal to

$$(31)\ R^p = \overline{U} - f(1-\overline{s}-e) - \beta g(e),$$

to satisfy the recruitment constraint $U^p = \bar{U}$. Using (31) and noting from (12) that a may be written as a function of e (since $a(e) = f'(1-\bar{s}-e)/u'(\bar{s})$), we find the size of the public budget under public provision to be

$$(32)\ B^p = R^p + c(a(e)) + C - (1-\beta)g(e)$$
$$= \overline{U} + C - f(1-\overline{s}-e) - g(e) + c(a(e)).$$

The optimal level of cost-saving effort, e^*, is the value of e that minimizes the budgetary cost of ensuring the target level of client welfare. From (32) it follows that e^* must satisfy the first-order condition

$$(33)\ f'(1-\overline{s}-e^*) = g'(e^*) - c'(a(e^*)) \cdot a'(e^*).$$

The left-hand side of (33) is the marginal social cost of increased cost-saving effort, and the right-hand side is the marginal social gain, consisting of the direct marginal cost saving (g') minus the increase in monitoring costs $(c' \cdot a')$ which is necessary to maintain service quality when the stronger cost-saving effort increases the service worker's incentive to cut back on time spent servicing the client. To induce the optimum level of cost-saving effort, we see from (31) and (33) that the regulator should choose a value of β ensuring that

$$(34)\ \beta g'(e^*) = g'(e^*) - c'(a(e^*)) \cdot a'(e^*).$$

In other words, the cost-sharing parameter β should be chosen such that the service worker's marginal private return to cost-saving effort $(\beta\, g')$ equals the marginal social return.

Consider next the case of private service provision, and suppose that the regulator's contract with the private provider stipulates that a fraction α of any cost savings relative to the benchmark level C must be paid to the local government.[7] Then the private provider's utility will be

$$(35)\ U^\pi = R^\pi - [C - (1-\alpha)g(e)] + f(1-s-e) - a(\overline{u} - u(s)),$$

and for $u(\bar{s}) = \bar{u}$ the regulator's recruitment constraint will be

$$(36)\ R^\pi = \overline{U} + C - (1-\alpha)g(e) - f(1-\overline{s}-e).$$

[7] *This may seem like an unusual contract. However, one can show that exactly the same allocation can be implemented by imposing a tax or a licence fee at the rate* α *on the private provider's profit,* R^π − [C − g (e)].

Accounting for the revenue from the sharing of cost savings, and using (36), the net budgetary cost of private service provision becomes

$$(37)\ B^{\pi} = R^{\pi} + c\left(a\left(e\right)\right) - \alpha g\left(e\right)$$
$$= \overline{U} + C - g\left(e\right) - f\left(1 - \overline{s} - e\right) + c\left(a\left(e\right)\right).$$

Minimization of (37) with respect to *e* still yields the first-order condition (33) for optimality of cost-saving effort. At the same time, (35) implies that the utilitymaximizing private entrepreneur will make a cost-saving effort satisfying the first-order condition

$$(38)\ \left(1 - \alpha\right) g'\left(e\right) = f'\left(1 - \overline{s} - e\right).$$

To induce the socially optimal effort, it follows from (33) and (38) that the policy parameter α should be set such that

$$(39)\ \left(1 - \alpha\right) g'\left(e^{*}\right) = g'\left(e^{*}\right) - c'\left(a\left(e^{*}\right)\right) \cdot a'\left(e^{*}\right).$$

Comparing (39) to (34), we see that by setting $\alpha = 1 - \beta$, the regulator can implement exactly the same optimal allocation under public and under private provision. Thus the crucial question is not whether production takes place in the public or in the private sector, but whether the two organizational forms allow the same degree of flexibility in the design of contracts between principals and agents. With sufficient and equal flexibility in contract design, the issue of public versus private ownership becomes irrelevant, and only the design of incentive mechanisms will matter. This may be seen as an application of the Coase Theorem.

6. Conclusions

This paper has set up a model of public service provision to study the factors determining whether outsourcing of social services to private for-profit producers will enable a local government to achieve a given service quality at lower budgetary cost. We started by assuming that employment contracts under public service provision do not include any incentive for cost saving, whereas all cost savings under private provision accrue as increased profits to the private provider. In these circumstances we found that outsourcing provides an incentive for service producers to shift resources from quality-enhancing to cost-reducing activities. The cost reductions per se tend to be efficiency-improving, but to prevent a deterioration of service quality, policy makers must spend more resources on monitoring service quality. Moreover, the greater effort exerted under private service provision will have to be compensated by higher factor rewards when workers have an outside option. For these reasons public in-house provision may sometimes be more cost-efficient than outsourcing. This is particularly likely to be the case when the quality of the service is difficult to measure so that marginal monitoring costs are high. Furthermore, risk aversion combined with uncertainty about the potential for cost savings implies a bias against outsourcing when public in-house provision is the status quo.

The basic version of our model assumed a benevolent policy-maker. Extending the analysis, we found that rent-seeking behavior is unlikely to change the circumstances in which outsourcing becomes attractive for policy makers and taxpayers. We then argued that competition among alternative service providers will have a number of beneficial effects. In these circumstances outsourcing may become more attractive, since (potential or actual) outsourcing is typically a precondition for fostering competition.

The results above emerged from a setting where public in-house providers have no incentive to engage in cost-saving activities whereas private providers have an incentive to focus on cost-saving instead of servicing clients. However, if contracts between regulators and service providers can specify a sharing of the gains from cost savings between the two parties, we saw that the regulator can induce exactly the same optimal amount of cost-saving effort under private and public provision. Hence it is not the organizational form as such which is of ultimate importance but rather the incentive mechanisms which it allows. If private and public ownership allow the same flexibility in mechanism design, the two organizational forms will generate the same outcome, as predicted by the Coase Theorem.

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Appendix

This appendix shows how to derive the results reported in equations (22), (23) and (24). We start by noting that when service effort is at its target level $\bar{s}$, and when the marginal return to cost-saving effort is given by (21) (which implies that $g'' = 0$), we may take a first-order approximation of (11) around $(s, e) = (\bar{s}, 0)$ to get

$$\text{(A.1)}\quad f'(1-\overline{s}) - f''(1-\overline{s})\cdot e^{\pi} \approx g'(0) + g''(0)\cdot e^{\pi}$$
$$\Longrightarrow \quad e^{\pi} \approx \frac{f'(1-\overline{s}) - g'}{f''(1-\overline{s})}.$$

The marginal return to cost-saving (g') can either take on the value $\bar{g}$ or the value $\bar{g} + h$. When $g' = \bar{g}$, it follows from (A.1) and (19) that the difference in the budgetary cost of public compared to private provision can be approximated by

$$\text{(A.2)}\quad (B^p - B^{\pi})_{g'=\overline{g}}$$
$$\approx \left[\frac{f'(1-\overline{s}) - \overline{g}}{f''(1-\overline{s})}\right]\left[\overline{g} - f'(1-\overline{s}) + \frac{c'(a^p)\, f''(1-\overline{s})}{u'(\overline{s})}\right]$$
$$= \left[f'(1-\overline{s}) - \overline{g}\right]\left[\frac{c'(a^p)}{u'(\overline{s})} - \frac{2f'(1-\overline{s})}{f''(1-\overline{s})} + \frac{\overline{g} + f'(1-\overline{s})}{f''(1-\overline{s})}\right]$$
$$\Longrightarrow$$
$$(B^p - B^{\pi})_{g'=\overline{g}} \approx \left[f'(1-\overline{s}) - \overline{g}\right] CI + \frac{\left[f'(1-\overline{s})\right]^2 - \overline{g}^2}{f''(1-\overline{s})},$$

where *CI* is defined in (23).

In the alternative case where $g' = \bar{g} + h$, we find from (A.1) and (19) that the difference in budgetary cost becomes approximately equal to

$$\text{(A.3)}\quad (B^p - B^{\pi})_{g'=\overline{g}+h} \approx$$
$$\left[\frac{f'(1-\overline{s}) - (\overline{g}+h)}{f''(1-\overline{s})}\right]\left[\overline{g} + h - f'(1-\overline{s}) + \frac{c'(a^p)\, f''(1-\overline{s})}{u'(\overline{s})}\right]$$
$$= \left[\frac{f'(1-\overline{s}) - \overline{g}}{f''(1-\overline{s})}\right]\left[\overline{g} - f'(1-\overline{s}) + \frac{c'(a^p)\, f''(1-\overline{s})}{u'(\overline{s})}\right]$$
$$-h\left[\frac{2\overline{g}+h}{f''(1-\overline{s})} + \frac{c'(a^p)}{u'(\overline{s})} - \frac{2f'(1-\overline{s})}{f''(1-\overline{s})}\right] \quad \Longrightarrow$$
$$(B^p - B^{\pi})_{g'=\overline{g}+h} \approx (B^p - B^{\pi})_{g'=\overline{g}} + h\,(CS - CI),$$

where *CS* is specified in (23). Using (A.2) and (A.3) and recalling that g' equals $\bar{g}$ or $\bar{g} + h$ with probabilities p and $1 - p$, respectively, we obtain

$$\text{(A.4)}\quad \mu \equiv E\left[B^p - B^{\pi}\right]$$
$$= p\,(B^p - B^{\pi})_{g'=\overline{g}} + (1-p)\,(B^p - B^{\pi})_{g'=\overline{g}+h}$$
$$= \frac{(f'(1-\overline{s}))^2 - \overline{g}^2}{f''(1-\overline{s})} + CI\left[f'(1-\overline{s}) - \overline{g}\right] + h\,(1-p)\,(CS - CI),$$

which is seen to be identical to (24). It also follows from (A.2) and (A.3) that

$$\text{(A.5)}\quad E\left[(B^p - B^{\pi} - \mu)^2\right]$$
$$= ph^2(1-p)^2(CS - CI)^2 + (1-p)\,p^2h^2(CS - CI)^2$$
$$= p\,(1-p)\,h^2(CS - CI)^2.$$

Inserting (A.5) into (20), one ends up with (22) in the text.