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Outsourcing Public Services: Ownership, Competition, Quality and Contracting

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A B S T R A C T

We survey the literature on the effects of public sector outsourcing. Guided by theory, we systematically arrange services according to the type and magnitude of their contractibility problems. Taken as a whole, the empirical literature indicates that public sector outsourcing generally reduces costs without hurting quality. This is clearly the case for “perfectly contractible services” like garbage collection, but outsourcing often seems to work reasonably well also for some services with more difficult contracting problems, e.g. fire protection and prisons. Outsourcing seems to be more problematic for credence goods, with residential youth care as the prime example. In contrast to previous reviews, we conclude that ownership and competition appear to be about equally important for the consequences of public sector outsourcing.

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1. Introduction

How does outsourcing influence the cost and quality of public services? In this paper we review the literature on public sector outsourcing with a focus on ownership, competition, quality and contracting. On the theoretical side, we investigate how ownership has been modeled – and how it may interact with competition and contracting imperfections. Guided by theory, we then systematically arrange public services according to the type and magnitude of their contractibility problems and review the empirical literature according to this arrangement. We identify a gap between the theoretical and the empirical literature. While most of the theoretical literature (e.g. Hart et al., 1997) has focused on issues of ownership, the empirical literature has mainly emphasized the effect of competition.

Public sector outsourcing is an important phenomenon internationally. Public procurement accounts for approximately 15 percent of world output (Lewis and Bajari 2010). The average OECD government is outsourcing 42 percent of the costs of goods and services. While the Netherlands, the United Kingdom, Germany and Japan are outsourcing a large portion (between 50 and 60 percent) of government production, the governments of Mexico and Greece have chosen to produce most goods and services themselves (with outsourcing shares between 20 and 30 percent). Since 1995, several countries, including the Netherlands, Spain, and the United States have seen an increase in production costs in the public sector together with a decrease in the share of goods and services produced by government employees.¹

While economic research on outsourcing public services has been reviewed before – most closely related to our work are Domberger and Jensen (1997), Grout and Stevens (2003), and Jensen and Stonecash (2005) – we set out to provide a review that offers a number of distinctive elements.² An important element is a stronger emphasis on the economic theory of ownership, competition, and contracting. This emphasis is manifest both in an effort to take stock of theoretical work directly in

¹ OECD (2009, p. 62).

² Domberger and Jensen (1997) is an early paper that insightfully synthesizes theory – albeit less formally than we do – and evidence; it provides, e.g. a useful overview of considerations about ownership in outsourcing arrangements. Grout and Stevens (2003) also provide a rather informal account of theory in an encompassing review of the financing and delivery of public services, with some emphasis on the “Private Financing Initiative” in the UK. Jensen and Stonecash (2005) provide a thorough discussion of some important but little-discussed issues such as the potential redistribution following outsourcing arrangements.

appraising the virtues of different arrangements, and in an effort to consistently assess evidence through the lens provided by theory, stressing the paramount role played by contractibility. Finally, we pick up a large number of more recent empirical studies. This is important for three reasons. First, we can include studies of prisons and residential youth care – two services that seem to be quite difficult to contract on. Second, since many of the early studies focused on time periods when competition was first introduced, there is a risk that the effects of outsourcing, and especially effects working via mechanisms of competition, have been overestimated. Third, the empirical literature has gradually moved towards more credible identification strategies and much of this development was not possible to capture at the time when previous reviews were written.

As to demarcations, we do not systematically address the issues stemming from quasi markets and voucher systems; in particular, we do not deal with school choice. In the same vein, we do not discuss corruption and its implications for public-service contracting.

As a consequence of our reliance on theory, the question about the relative importance of private ownership vs. competition for the outcomes of outsourcing is discussed at some length. We argue that previous conclusions in favor of competition ought to be further qualified. In particular, the effects of competition are more complex and difficult to capture than previous studies have been willing to assume. Some of the largest competition effects are found in studies of the introduction of competition, whereas the effects of ownership are relatively large in later studies.

Another expression of our adherence to theory is found in our treatment of quality. As emphasized by Hart et al. (1997) private producers are often able to reduce costs, but given typical incompleteness of contracts also have incentives to shirk on quality. We discuss the contractual underpinnings of this and stress that empirical work should seek quality indicators that are distinct from contracted measures of quality.

In the following we will devote the next section to reviewing important theoretical work on ownership and competition, deferring most of the discussion about their direct relevance for outsourcing public services to Section 3, where we also try to sort out the relationship between ownership, competition, and contracting. In Section 4 we present and discuss empirical evidence, and in Section 5 we conclude.

2. Ownership and Competition

2.1 Ownership

While the notions of ownership and property rights are canonical within economics, their conceptualization have been unsatisfactory in so far that the implications of ownership *as modeled* have seemed less profound than implications of ownership seem to be *in practice*. The main reason for this is that ownership can be completely neutralized by means of contracts as long as the assumption of complete contracting is maintained. The assumption of complete contracting proved, moreover, to be hard to relax in a tractable way for a long time.³

The “property-rights approach” to firm boundaries pioneered by Grossman and Hart (1986) and Hart and Moore (1990) was a major breakthrough in this regard. The property-rights framework combines two key assumptions:

- a seemingly weak form of assumed contractual incompleteness – the existence of unforeseen contingencies that require renegotiation of a contract at delivery, and
- the notion of “residual control rights” defining ownership of an asset by the decision rights over its use under circumstances not covered by contractual obligations.

With these assumptions, any contractual relationship will lead to bargaining over the ultimate surplus in renegotiation; the residual control rights will be important since they determine outside options in this renegotiation. The framework thus, arguably, germanely captures the way in which ownership provides leverage in contractual relations in practice.

The standard property-rights model, accessibly presented in Hart (1995), considers a setting where parties make relationship-specific investments prior to trade.

³ The logic is very similar to that of the first welfare theorem, and it has been illuminated by e.g. Sappington and Stiglitz (1987). They assert that absent distortions and imperfections, a private firm can be controlled by a government/regulator equally well as a publicly run firm (implying that privatization cannot hurt); they then assess requisite conditions for this to hold or not to hold. Williamson (1985) provides a different angle by asserting that a government/regulator can run a firm as well as a private owner and on top of that make *selective interventions* to promote social welfare (implying that public control can be no worse); he too assesses requisite conditions for this to hold or not to hold.

The specificity is manifest in the investments being more valuable if trade takes place than if outside options are exercised; assets to which these investments are tied are called *specific assets*. The payoff from outside options – which co-determines investment incentives – depends on asset ownership, and by this channel the level of relationship-specific investments depends on asset ownership.

The property-rights approach has been applied to service contracting in an influential paper by Hart, Shleifer and Vishny (1997) (HSV in the following).⁴ This paper provides a model that is close in spirit to the standard property-rights model but tailored to a contracting-out context.

To get a fuller insight into the workings – and the pros and cons – of the property-rights approach we will sketch the mechanics of the model. There are two actors, the manager, M , who runs the facility that may be subject to contracting, and the government represented by a bureaucrat, G . M runs the facility either as an employee “warden” who does not own the facility, or as an independent contractor who owns the facility. The bureaucrat’s objectives are aligned with those of the government, and M is self-interested.

The key assumptions about the technology are that there is a reference way of managing the facility, the attainment of which can be contractually enforced, and that the manager can modify the operations by making two kinds of investments:

- an investment in finding out *improvements or innovations* in the way the facility is operated;
- an investment in finding out measures to *reduce costs* with potentially negative repercussions on the operations and on the bureaucrat.

The distinction between the regimes stems from the residual rights of control over the facility which is manifest in the manager’s power to implement the outcome of the investments. The employed manager needs permission from the bureaucrat to implement any investment (since the government retains residual control rights over the asset), the independent contractor on the other hand can implement cost-reductions without permission while still needing permission to implement

⁴ Schmidt (1996) applies an incomplete-contracting framework to show how the assumption that the government has more information about a public firm leads to a rent-extraction problem for intervention in a private firm (due to private information); this is bad in terms of allocative efficiency, but good in terms of ex ante productive efficiency.

improvements and innovations (since the government as the buyer can accept or reject offers to upgrade quality with an accompanying cost increase). A crucial assumption – stemming from contractual incompleteness – is that in order to implement the investments that need permission, the contract is renegotiated. In renegotiation, the surplus from the activity subject to renegotiation is split equally between the parties.

The main conclusion from the HSV model are that costs are lower when M is an independent contractor while quality – affected by improvement and innovation as well as the pursuit of cost-cutting – may be either higher or lower in that case. Thus, private production is superior when the deterioration of quality from cost reduction is sufficiently small relative to the importance of improvements and innovation.

The notion of ownership in terms of residual control rights in the presence of contractual incompleteness is intuitive, and the related fact that investment incentives arise naturally thanks to the dynamics of the model is an additional strength of the property-rights framework. The prediction that contracting out likely produces reduced costs while the effects on quality are ambiguous is consistent with conventional wisdom; we will review the evidence in this regard below. On the other hand it is important to point out that the fact that contracts are always renegotiated makes it hard to think of incentive contracts – contracts specifying remuneration as a function of performance measures – within this framework; the practical importance of incentive contracts makes this a significant drawback. Finally, the HSV model does not deal with (ex post) competition, the topic which we now turn to.

2.2 Competition

The notion of competition is at the core of modern economics, and the basic definition and conceptualization of it seem both uncontroversial and congruent with the popular notion of competition. At the most fundamental level, competition among potential providers serves the dual purpose of confining the provision of the service to those best suited for providing it, and to transfer a sizable fraction of the surplus generated by the provision to the buyers; the former is a selection mechanism favoring more efficient producers while the latter is a mechanism entailing effort and redistribution of rents.

In terms of the textbook classification of market competition, *oligopoly* is the case most relevant in our context. In oligopoly, the exact nature of strategic interaction can make a big difference. A useful benchmark is the Bertrand model of

price competition. In its simplest form it generates the prediction that firms with identical constant marginal cost will compete fiercely and that price will be equal to marginal cost; with repeated interaction or heterogeneity, this conclusion is overturned. Another result within the framework is that product differentiation attenuates competition; this conclusion is important and also quite robust.⁵

While standard oligopoly models can be placed in repeated settings – making them amenable to analysis by means of repeated games – this literature has been less successful in approaching truly dynamic interaction where firms may make investments and where entry and exit are part of the dynamic game. An important consideration here is that the immediate intuition from the theory is that innovation incentives seem likely to depend negatively on competition – the less rents there are to compete for, the weaker the incentives; this intuition is often associated with “Schumpeterian ideas.” Going a step further, this conclusion is not unambiguous; depending on the effect of innovation on pre-innovation and post-innovation rents, the conclusion might go either way. There are, in fact, reasons to believe that innovation is affected by competition by an “inverted-U shaped” relationship, as argued by Aghion *et al.* (2005). The basic intuition behind the positive part of the relationship is that competition forces some firms to innovate to stay in business.⁶

Although the application of competition to service contracting has been quite widespread, there is no single dominant model that has been used. Still, much of service contracting is bought/procured on a special kind of marketplace, *viz.* by bidding based on competitive tendering. A bit sloppily, this process can be seen as a means of accomplishing price competition that – given that quality is unimportant or can be appropriately dealt with – comes close to replicating the “Bertrand outcome” with marginal-cost pricing. While a reasonable way of looking at it, there are several important qualifications.⁷ First, auctions may undermine the mechanisms generated by repeated interaction and product differentiation to sustain prices above marginal cost. The strict rules and the transparency of the auction process make it more difficult for

⁵ A similar conclusion can be derived within the monopolistic-competition framework where product differentiation is combined with free entry limited by fixed costs; the conclusion there is that the more varieties that co-exist in the market, the closer is the market outcome to perfect competition. An important general conclusion is that inefficient firms may well survive in oligopolistic markets thanks to prices being kept high enough.

⁶ Nicoletti and Scarpetta (2003) and Alesina *et al.* (2005) show that regulatory reforms that stimulate competition are positively related to multifactor productivity and investment.

⁷ The basic observations about auctions can be accessibly found in Klemperer (1999).

firms to engage in tacit collusion.⁸ As to differentiation, it can be neutralized in so far that if relevant qualities can be fully specified, price competition can take place conditional on those qualities. Secondly, however, the auction process also by construction leads to the key decision (bidding) being made under incomplete information about competitors; this incomplete information produces information rents reflected e.g. in the property that bidders in first-price sealed-bid auction make bids that exceed their true cost (in procurement auctions). This property translates directly to other formats by the “revenue equivalence theorem” stating that a broad range of auction formats generate the same expected cost for the buyer (Klemperer, 1999). On a final note Bulow and Klemperer (1996) prove an illustrative result on auctions stating that the benefit from attracting an additional bidder to a standard auction is higher than the benefit of replacing the auction with an optimally structured negotiation with the original set of bidders. One may note that an additional bidder is positive both from a selection point of view – the new bidder may be the most efficient one – and from an effort/redistribution point of view since it lowers the expected price.⁹

3. Service contracting

In this section we will try to spell out the key insights into service contracting that are offered by the basic theories of ownership and competition discussed, as well as by economics in general. The analysis of outsourcing of public-sector activities is closely related to the analysis of the make-vs-buy decision and the literature on the boundary of the firm.¹⁰

3.1 Contractibility and quality

Contracting and contracting possibilities play a crucial role in the context of outsourcing, not least in the context of ascertaining quality. To make the distinction clear, one may consider a four-step ladder of possibilities for contracting on a

⁸ This, obviously, does not mean that collusion is ruled out; Klemperer (2002) goes through a number of examples of sophisticated collusion practices.

⁹ In the English auction considered, this is manifest in the probability that the new bidder is the runner-up and thereby determines the price.

¹⁰ The property-rights approach – with its roots in transaction-cost economics – has developed from this inquiry; see Hart (1995) for a general introduction. A key observation is the importance of specific assets in explaining integration/outsourcing choices; this insight is corroborated in HSV (1997).

variable, X , that can be thought of as relevant quality. In each case we mention illustrative examples discussed further in Section 4.

1. If X can be specified in a contract, and the contract can be enforced at negligible cost – i.e. if a deviation can be identified by a court or arbitrator and an appropriate sanction can be applied – the variable is said to be perfectly contractible. Garbage-collection services seem to provide an example where this is reasonably close to being true.
2. If an imperfect measure of X can be contracted on, the quality provision problem suffers from *moral hazard*. Road maintenance and transportation exemplify this below – in both cases quality indicators, such as punctuality in transportation, provide garbled measures of exerted effort.
3. It may be that the parties to a relationship all know X , but this knowledge is not “hard” enough to be the basis for an enforceable contract. The variable is then said to be *observable but unverifiable*; this is precisely the assumption made about investments in the property-rights framework described above. This feature is often present when there is personal interaction between the provider and clients or customers, such as in employment placement services.
4. Finally, it may be that only the service provider knows X ; the good with quality X is then said to be a *credence good*. Residential youth care provides an example where crucial quality aspects have this property.

The possibilities are ordered down the ladder in the sense that empirically, credence goods necessarily entail elements of lack of verifiability and moral hazard, and it is hard to think of an outsourcing context with severe verifiability issues in the absence of moral hazard.¹¹

We will stress the theoretical considerations that come with moral hazard, and then we will get back to verifiability and credence goods. A general observation is that moral-hazard problems as envisioned under 2 can be dealt with by providing incentives *ex ante*; *ex post* bargaining (or repeated interaction), on the other hand,

¹¹ In purely theoretical terms, cases 2 and 3 are not unambiguously ordered in terms of contracting possibilities; there may, for example, exist trading arrangements that can cleverly utilize unverifiable information, as noted by Hermalin and Katz (1991), but such ways of eliciting soft information are particularly rare in the public sector.

needs to play a role in order to create incentives for unverifiable qualities as in 3. This is in line with the dynamic element in the property-rights model as discussed above.

The basic principal-agent model provides a useful framework for appraising the means of ascertaining appropriate action via direct *ex ante* incentives.¹² There is a tension between providing strong incentives for the provision of the desired *X* and other considerations, such as the undesirable risk exposure that comes with punishment of a measured outcome that may have come about in spite of the underlying behavior being as contracted, or effort substitution as conceptualized by the *multi-task model*.¹³ The multi-task model is defined by outcomes and associated performance measures having more than one dimension; the outcome of an instance of outsourcing, for example, may be characterized by realized cost and quality, each with an imperfect performance measure. Under the additional assumption that the agent can allocate effort *across tasks*, it follows under some additional assumptions that strong rewards tied to performance in one dimension will make the agent re-allocate effort at the expense of the other dimension. Since monetary outcomes are, in many cases, easier to measure than quality, there is a temptation to reward cost-savings more strongly than quality; the caveat coming from the multi-task model is that this may lead to inefficient effort substitution and unsatisfactory care for quality.

The multi-task model provides a framework for comparison across activities; activities where hard-to-measure qualities are relatively more important should be subject to weaker cost-saving incentives. This observation is normatively significant but it does not speak directly to trade-offs involving outsourcing; the application to outsourcing is nevertheless quite direct in light of the general observation that monetary incentives are, in general, stronger in inter-organizational transactions than in transactions within an organization. In less formal terms, an independent contractor is expected to face stronger cost-saving incentives than would a public-sector manager working on the same task. While this fact is often acknowledged and subject to analysis in transaction-cost economics – see e.g. Williamson (1985, Ch. 6; 1998) – it is more seldom addressed within the formal contracting literature. In recent work, Acemoglu et al. (2008) argue that organizations deliberately create free-rider

¹² This basic set-up was explored by the early formal literature on the principal-agent problem; two influential early contributions are Holmström (1979) and Grossman and Hart (1983).

¹³ We will adhere to the framework of Holmström and Milgrom (1991); a different set-up dealing with the same basic issues is developed in Baker (1992).

problems to weaken monetary incentives; Andersson (2009) appeals to the property-rights literature in assuming that residual revenue streams are indivisible and subject to incomplete contracting and that outsourcing amounts to transferring residual monetary incentives to the provider.¹⁴ A simple observation in the same spirit is that if a principal has attenuated monetary incentives, such incentives will be passed on to the agent; there is a “trickle-down property” in incentive provision. This can illuminate e.g. the observation that managers in non-profit firms have, in general, weaker monetary incentives than managers in comparable for-profit firms.¹⁵

In dealing with verifiability issues, a fundamental insight of transaction-cost economics and the property-rights approach is the importance of ownership. When unverifiable payoffs are tied to an asset, the owner has appropriate incentives without a need for contracting. While the analysis of *ex-ante* specific investment is an integral part of the standard model, the relationship between the investment in a physical asset and the services produced by means of the asset does not arise. In practice, however, the production of many public services – such as care for the elderly, education, transport and incarceration – takes place in facilities, the design and maintenance of which are important for the costs and quality of the service.

Outsourcing arrangement involving assets that need maintenance benefit from the user of the asset carrying the responsibility for and receiving the residual payoffs from its maintenance; this is most simply implemented by having the user own the asset. Thus in the context of outsourcing the operation of bus services, ownership of the buses should rest with the contractor.¹⁶ The bus example is not fully representative, however, since it involves rather non-specific assets. The problem constitutes a greater challenge when it comes to specific assets, such as a contractor operating a nursing home in a small town; if the contractor owns the nursing home but is replaced when the contract is renewed, the re-sale opportunities may be poor, and the investment incentives accordingly inefficiently weak. Moreover, in cases where assets are specific, the returns to many investments are likely to accrue to both the

¹⁴ The novelty in the framework in Andersson (2009) is the combination of this with the existence of a fully contractible performance measure that is subject to manipulation by the agent; the model predicts that direct incentives are stronger under outsourcing.

¹⁵ This empirical observation is made e.g. in Roomkin and Weisbrod (1999); a simple theoretical analysis of incentives in non-profits is Glaeser and Shleifer (2001).

¹⁶ A corroboration of pitfalls and mistakes in contracting of bus services is provided by Sclar (2000, Ch. 5).

contractor and the public body. There are thus a number of trade-offs in the optimal arrangement of asset ownership.

The basic intuition above is corroborated by theoretical work on the pros and cons of *bundling* the construction and the management of a facility for provision of services. Both Bennett and Iossa (2006) and Martimort and Pouyet (2008) address this issue and a conclusion emerging from both papers is that a positive externality of effort in the construction on the provision of services favors bundling; a negative externality favors separation.¹⁷ One may note that this is perfectly in line with the reasoning above in so far that appropriate maintenance seems bound to spill over positively on service provision.

When it comes to credence goods, most theoretical work is concerned with direct consumer purchase, and we will not pursue this.¹⁸ Features of credence goods, however, highlight the potential importance of *public service motivation*, viz. the notion that some workers have an intrinsic motivation either for work directly or for the output generated in service production as surveyed by Francois and Vlassopoulos (2008). It is often argued on theoretical grounds that such motivation is more prevalent in the public sector and in non-profit organizations; in particular, it is argued that a profit-motive unavoidably crowds out such motivation since the residual claimant cannot commit not to exploit such motivation. A recent paper by Gregg et al. (2011) finds firm evidence that there is a significant difference in the propensity to “donate labor” between the for-profit and non-profit (including public) sectors of the economy; they also argue that this reflects a selection effect.

3.2 Ownership and competition in service contracting

The next step is to synthesize the observations made in terms of ownership, competition and contracting in a way that ties directly into the empirical analysis. First, we will articulate the interaction between ownership and competition in service contracting, and then go on to discuss the interaction with contracting issues.

In Table 1 we sketch the choice set defined by the degree of competition and the involvement of private ownership by means of a two-by-two matrix. A key point is that relevant options are generally found on the main diagonal. Private monopoly –

¹⁷ In the framework of Martimort and Pouyet (2008) this turns out to hold both if there are instruments for providing elaborate incentive contracts for construction, and if ownership is the only instrument.

¹⁸ A review of the economics of credence goods is provided by Dulleck and Kerschbamer (2006).

which in our context of service contracting means offering a no-bid contract to a monopolist – is almost unheard of, barring arrangements driven by rightout corruption. Competition involving *only* entities controlled by the public sector is rare in practice.

Table 1: Simple classification of cases

	Monopoly	Competition
Private ownership	<i>Almost unheard of</i>	Contracting
Public ownership	Traditional public provision	<i>Rare in practice</i>

Can competition between publicly owned actors, albeit rarely observed, substitute for competition involving privately owned competitors? Clearly, this depends on the scale and scope of the market. On a general note, a reason for competition between public units to be less powerful is the difficulty for the public body responsible to commit to hard budget constraints; any expectation that a failed unit would be bailed out – e.g. by a capital injection or by its employees being offered similarly-attractive jobs elsewhere – would undermine the incentives to work hard to avoid failure.¹⁹ In addition, there is a difference between public and private ownership in terms of the option value of a significant success; a private owner can gain substantially from a drastically improving innovation, whereas such incentives are much weaker within the public sector.²⁰ On the other hand, any element of choice by users would make competition across public-sector units more powerful, as would a degree of genuine autonomy across such units. Both these conditions seem to be met in the UK National Health Service (NHS), as discussed in Section 4 below.

¹⁹ While we have not framed our analysis in terms of “soft budget constraints,” this is another lens through which weak direct monetary incentives in government bureaucracies can be understood; see Eggleston (2008) for a formal development of soft budget constraints using the property-rights framework.

²⁰ This can also be phrased in terms of expansion incentives; as noted by Hoxby (2003) a distinctive element of for-profit schools (compared with non-profits) is the incentive to expand. Competition excluding private-sector involvement would be likely to be considerably less fierce for this reason.

A related question is why it is often the case in practice that an activity is partially contracted out in the sense that some in-house provision is retained. There are a number of reasons for this. First, retaining in-house production can be viewed as guaranteeing the presence of an additional competitor and this is likely to discipline competition, in particular in light of the fact that in-house competition is unlikely to engage in collusive activities. The benefits from additional private-sector competition are arguably marginal when the private share of production approaches 100 percent. Second, there is some option value for a public body to have the capability to engage hands-on in an activity in case of, for instance, a failure of delivery by a contractor, or in order to handle residual demand. Third, the practical knowledge of how a particular service is produced may improve the chances of outsourcing that service successfully. Finally, this may be a way of exploiting public service motivation, with employees with strong such motivation sorting themselves into public employment, as corroborated by Gregg et al. (2011).

Two remarks can be made on the above classification:

- The concentration on the main diagonal distinguishes service contracting from privatization of public enterprises; in the latter case the privatization of a monopoly is perfectly possible (although it raises questions about regulation).
- The conclusion that the introduction of private ownership and competition go together does not *per se* change the fact that different forces are set to work; therefore there remains the empirical task of assessing their relative importance.

In the absence of further complications in the form of contracting issues and challenges in finding appropriate ownership structures, the case would be closed; the economic argument for introducing private ownership and competition would be unambiguous. Such complications, however, are obviously important in practice. The incentives for compromising quality through effort substitution are clearly strengthened by the appropriability of cost-savings coming with *private ownership*. As to the effect of *competition* on effort-substitution incentives, there is a clear distinction between:

- the effects on *contracted quality* – where effort-substitution incentives are eliminated by construction in contracting – and,

- the effects on *post-contracting performance* where effort-substitution incentives exist and are likely to be somewhat strengthened by the fact that rents are competed away.

Focusing on contracting and quality, the important overall point is that movement towards the involvement of private ownership and the introduction of competition calls for an endogenous response in terms of contracting arrangements; in particular, it calls for a heavier reliance on contracting. This creates an incentive for stronger monitoring and better measurement of quality and overall performance. This, in turn, has a clear implication in terms of service contracting:

- The better the prospects for contracting based on appropriate performance measures, the more attractive are arrangements involving private ownership and competition.²¹

This observation gives a clear theoretical prediction for the success of service contracting. It gives, moreover, scope for a theoretical analysis of movement along the main diagonal in Table 1 based on an assessment of such characteristics in each case.

4. Empirical Evidence

The empirical literature on public sector outsourcing is voluminous and there are a great number of recent contributions. Already in 1996, the Australian Industry Commission reviewed 203 international studies. In this section, we take stock of the empirical literature, primarily in economics, of the consequence of outsourcing public services. In doing this, we systematically group the services into the four groups discussed in Section 3 with different kinds of contractibility problems and also rank the services along a one-dimensional assessment of their contracting difficulty.

After the pioneering cross-sectional studies in the 1970s and 1980s, the empirical literature has gradually moved to studies based on panel data and more

²¹ This statement may be subject to a general criticism often raised against transaction-cost reasoning, namely that by focusing on conditions for private-ownership and competition to be attractive, it is not truly comparative. In this context, however, the (absolute) attractiveness of monopolized public provision can reasonably be assumed to be less sensitive to the contracting characteristics stressed in the statement.

credible identification strategies. Accounting for more recent studies is also important since the effects of outsourcing are likely to be the largest when the public sector is first opened up for competition. The 1980s may have been a period when unusually large benefits from outsourcing could be reaped. We find the empirical literature to be consistent with this presumption. While the earlier literature singled out competition, later studies give about equal weight to ownership and competition as explanations of the effects of outsourcing. The development in many countries towards more public sector outsourcing has thus increased the relevance of the theoretical literature with its focus on ownership and the “property-rights approach”.

Empirical investigations of the effects of outsourcing face several methodological problems which should be characterized before reviewing the empirical papers. The comparability of public and private units is perhaps the most obvious one. In a study of the privatization of Czech companies, Gupta et al. (2008) show that more profitable companies were privatized first in order to maximize state revenue and to improve the goodwill of the extensive privatization program. Studies of outsourcing face similar selection problems. An important advantage of public sector outsourcing – compared with uncontested public production – is the ability to choose between production units with different characteristics. One should expect efficient and well-managed firms to be overrepresented when public sector contracts are awarded, and the previous studies have not been able to distinguish this selection effect of competition from the pure – or average – effect of private ownership.

Given that most empirical studies have been cross-sectional, omitted variables are a major concern. Panel data obviously helps but do not fully solve the problem. Services associated with moral hazard problems are particularly troublesome in this regard, as the service provider does not fully control the measured outcome. On the contrary, estimates for “perfectly contractible” services should be less sensitive to the inclusion or omission of certain control variables.

There are also reasons to expect data availability to be a fundamental problem. As to Hart et al (1997), who assume that quality is observable only to the contracting parties but not verifiable to outsiders, it follows – in their framework – that the data needed to test the quality effects of outsourcing is not readily available to researchers. This problem has two manifestations. First, the reason why we will list 14 empirical studies of garbage collection and only two on residential youth care probably stems from the fact that the outcomes of garbage collection are much easier to study.

Second, while the distinction between contractible and non-contractible measures of quality is fundamental in theory, it has not been sufficiently emphasized as a problem of data availability in the empirical literature.²² In consequence, subjective quality measures from user surveys seem interesting to analyze as they contain aspects of quality that are notoriously difficult to contract on.

The measurement of costs poses additional problems of data availability. Sclar (2000) critically examines such obstacles and stresses the need to distinguish between avoidable and unavoidable costs, and to include all of the transaction costs that a contract gives rise to, including the costs stemming from the risk that the contractor fails to deliver. Most empirical studies compare contracted payments with costs for in-house production in a rather nontransparent way (see e.g. the highly cited study by Domberger et al. 1995). Domberger et al. (2002) provide a distinct exception by including tendering costs, legal fees, and the ongoing transaction costs associated with contract management.

The empirical literature is still struggling with these problems. The first wave of research consisted of cross-sectional studies, and was quite vulnerable to problems of selection and misspecification. More recent studies have incorporated additional time periods so that changes in outsourcing are observed. But although selection problems have been addressed in various ways, no published study has managed to make use of plausibly exogenous variation in outsourcing.

Before we start reviewing the empirical studies it is instructive to briefly consider the privatization of state-owned enterprises. While the absence of a contractual relationship after such a full-fledged privatization invalidates generalizations to public sector outsourcing, there are two reasons why the privatization of state-owned enterprises provides useful input to our investigation. First, differences between the public sector and private organizations provide a basic motive for public sector outsourcing – and such differences are easier to identify in cases of complete privatization that also include the financing of the service. Second, in the case of perfect contractibility, the outcomes of public sector outsourcing and pure asset privatization should be approximately the same, providing a theoretical benchmark against which public sector outsourcing can be compared.

²² Propper et al. (2008) compare how easily observed and unmeasured dimensions of quality are affected by an increase in competition.

The weight of the evidence suggests that private firms produce goods and services more efficiently than state-owned enterprises do. Literature reviews by Megginson and Netter (2001), Sheshinski and López-Calva (2003), Megginson (2005), as well as more recent empirical work,²³ suggest that the differences are attributable both to ownership and to competition. The positive effects of privatization on efficiency can be found both on competitive and on less competitive markets. For our purposes, the implication is that public sector outsourcing holds the promise of improving economic efficiency – in so far as the improvements are not overturned by transactions costs, including from the difficulty of contracting.

4.1 Costs and quality

Numerous studies have examined whether outsourcing has led to reductions in costs and public expenditure. There is a consensus that outsourcing reduces costs of most public services, although the magnitude of the savings has been debated. Mainly relying on the 1996 meta-study by the Australian Industry Commission, Domberger and Jensen (1997) conclude that outsourcing may produce savings in the order of 20 percent without sacrificing service quality. Grout and Stevens (2003) confirm that competitive tendering has reduced the costs of several services, notably garbage collection and laundry services.

Among the numerous papers in this literature, we are only aware of a handful of papers that report that public sector outsourcing increases costs. Studying Sweden, Ohlsson (2003) finds that public garbage collection is 6 percent cheaper than private collection.²⁴ Garbage collection is however the most studied service internationally and studies from other countries (US, UK, and the Netherlands) indicate that outsourcing reduces costs (see Table 2). Thompson (2011) finds that the average school district in Minnesota could cut costs by 20 percent by going from fully private to fully public student transportation.²⁵ Lindqvist (2008) finds that the total cost of residential youth care is twice as high in private facilities compared with in-house

²³ See e.g. Bartel and Harrison (2005), González-Páramo and Hernández Cos (2005), and Okten and Arin (2006).

²⁴ Using the same data set, Ohlsson (1996) also finds that input prices (of garbage trucks) paid by private firms are 10–15 percent lower than the input prices paid by local governments.

²⁵ Thompson (2011) notes that previous studies of student transportation have produced conflicting results. Notably, McGuire and van Cott (1984) find that private school bus transportation is 12 percent cheaper. Their study is, however, cross-sectional whereas Thompson has a panel with six school-years of data.

production in Swedish municipalities. The higher costs in private facilities are interpreted as seller-induced demand. Residential youth care is credence good, meaning that the seller has private information on the optimal quality or quantity of the buyer, placing it at the fourth step of the ladder of contracting possibilities described in section 3.1.

According to the Hart et al (1997) model, quality may be either higher or lower under contracting compared with in-house production by the public sector. Although the tested empirical hypothesis has often been labeled “quality shading”, most studies find that quality is either unaffected or improved when a public service is contracted out. Notable studies include Domberger et al (1995, 2002). The support for quality shading is often anecdotal or unsystematic (e.g. Ganley and Grahl 1988). Residential youth care is the notable exception. Bayer and Pozen (2005) study juvenile correctional facilities in Florida and find that county facilities outperform for-profit facilities both in terms of cost and recidivism performance. In a Swedish study, Lindqvist (2008) finds that private facilities have lower base line quality than public facilities, although public facilities are also found to shun particularly troublesome teenagers. For prisons, both Pozen (2003) in a review article and Cabral et al (2010) in a recent Brazilian study, conclude that quality is at least as high in private prisons. However, two studies of health care in prisons provide mixed evidence. Raimer and Stobo (2004) find that several health outcome measures improved after the state of Texas implemented a contracting out strategy in the form of a managed health care program.²⁶ Bedard and Frech (2009) on the contrary find that mortality has increased in the share of medical personnel employed under contract in US state prisons.²⁷

The HSV model (in its Proposition 5) predicts that quality may be higher or lower under private ownership. To test that part of the model, one has to focus on the mechanisms underlying the ambiguous effect on quality. Relative to public production, the model predicts that quality under private production will be higher the more sensitive quality is to efforts to improve quality (which is hard to test) and lower the more sensitive it is to cost cutting efforts (which arguably depends on the contractibility of quality). Thus, it is suggestive to test if quality is higher under

²⁶ The improved outcome measures included blood sugar levels in diabetics, the proportion of inmates with high blood pressure, and death rates from AIDS and asthma.

²⁷ By including health care among prison services we assume that health care is an integral part of the provision prison services that is (sufficiently) different from ordinary health care outside of prisons.

private ownership relative to public ownership, the easier it is to contract on quality. This, moreover, is an implication both of the HSV model and (under some plausible additional assumptions) the multitask contracting model.

Table 2 compares the effects on cost and quality of outsourcing services with different contracting difficulties. We divide the services into the four groups of contractibility presented in section 3.1 (perfect contractibility, moral hazard, unverifiability, and credence goods). In addition to this grouping, we assign an ordinal measure of contracting difficulty to each service. This measure is based on the city manager survey of Levin and Tadelis (2010), supplemented with our own judgment for services excluded in their survey. The measure of contracting difficulty confirms our claim in section 3.1 that the four groups of contractibility can be ranked according to such a measure.

Table 2. Contracting difficulty and the cost and quality effects of outsourcing

Service	Contractibility group	Contracting difficulty	Cost and quality effects of outsourcing	References
Garbage collection	Perfect contractability	Very small ^a	Cost savings without loss of quality	Savas (1977); Stevens (1978); Domberger et al (1986, 1988); Cubbin et al (1987); Ganley and Grahl (1988); Szymanski & Wilkins (1993); Ohlsson (1996); Szymanski (1996); Bosch et al. (2000); Gomez-Lobo & Szymanski (2001); Dijkgraaf & Gradus (2003); Ohlsson (2003); Dijkgraaf, & Gradus (2007)
Vehicle and warehousing maintenance	Perfect contractability	Very small ^b	Significant cost savings (24%) and satisfactory quality	Domberger et al. (2002)
Cleaning and housekeeping	Perfect contractability	Small or very small ^c	Cost savings whilst at least maintaining ex post quality	Domberger et al. (1987); Milne & McGee (1992); Domberger et al. (1995); Milne & Wright (2004); Christoffersen et al. (2007)
Road maintenance	Moral hazard	Small ^d	Cost savings (a 10% increase in private involvement leads to a 2% expenditure reduction) without loss of quality.	Blom-Hansen (2003)
Student transportation	Moral hazard	Small or intermediate ^c	Conflicting results. In-house production cheaper in the only panel study. No reliable quality measure.	McGuire & van Cott (1984); Thompson (2011)
Employment placement	Moral hazard, unverifiable	Intermediate ^c	Unemployed clients more satisfied with private placement agencies, but no difference in labor market outcomes in the aggregate (private placement agencies are better for immigrants but may be worse for adolescents).	Benmarker et al. (2009)
Fire protection	Moral hazard, unverifiable	High ^e	Private production cheaper, strikingly so for a professional service with full time firemen. Strict state regulation makes	Ahlbrandt (1973); Kristensen (1983)

			quality of public and private fire protection very similar in Denmark.	
Prisons	Unverifiable and moral hazard	Very high ^f	Cost savings and mixed findings on quality effects	Pozen (2003); Bedard & Frech (2009); Cabral et al (2010)
Residential youth care	Credence good, unverifiable and moral hazard	Very high ^g	Costs increase and quality decrease	Bayer & Pozen (2005); Lindqvist (2008)

Notes: ^a According to the city manager survey of Levin and Tadelis, there are only two services with (marginally) less contracting difficulty than residential solid waste collection (viz. operation of parking lots and garages and utility meter reading). Contracting difficulty in the Levin and Tadelis survey ranges from -1.29 (least difficult, rank 29) for operation of parking lots and garages to 2.08 (most difficult, rank 1) for crime prevention/patrol.

^b The contracting difficulty of buildings and grounds maintenance is -1.08 (rank 23 of 29) according to the city manager survey of Levin and Tadelis.

^c Our own judgment.

^d The contracting difficulty of street repair is -0.31 (rank 17 of 29) according to the city manager survey of Levin and Tadelis.

^e The contracting difficulty of Fire prevention is 1.41 (rank 4 of 29) according to the city manager survey of Levin and Tadelis.

^f Not measured by Levin and Tadelis but comparable to the two services that are most difficult to contract out according to their city manager survey (crime prevention/patrol and drug and alcohol treatment programs).

^g Not measured by Levin and Tadelis but comparable to the service that is second to most difficult to contract out according to their city manager survey (drug and alcohol treatment programs).

Table 2 demonstrates that there appears to be no tradeoff between cost savings and quality for services with small contracting difficulties (garbage collection, vehicle and warehousing maintenance, cleaning and housekeeping, road maintenance, and student transportation). Garbage collection – characterized as perfectly contractible and very small contracting difficulty – is by far the most studied service. The empirical studies are concordant and demonstrate that outsourcing of garbage collection reduces costs without loss of quality.²⁸ The evidence is mixed for the costs of student transportation (for which reliable quality data has been unavailable). A Swedish study of employment placement by Benmarker et al. (2009) is particularly interesting in that it applies random selection of unemployed persons to private or public placement agencies. The study finds that unemployed clients are more satisfied with private placement agencies, but that there is no difference in labor market outcomes in the aggregate between these two forms of agencies. However, the treatment effects seem to be heterogeneous: private placement agencies produce better outcomes for immigrants but may be worse for adolescents. Unfortunately the study does not compare the costs of public and private placement agencies.

For services that are difficult to contract on (fire protection, prisons and residential youth care), the picture is different. Outsourcing reduces costs of fire protection and prisons but increases costs in residential youth care. For quality, outsourcing seems to have a detrimental effect in residential youth care, whereas the evidence for prisons is mixed (although outsourcing seems to increase prison quality on balance). One of the two studies on fire protection (Kristensen 1983) deals with Denmark where strict state regulation makes quality of public and private fire protection very similar. The other study on fire protection (Ahlbrandt 1973) deals with Arizona and controls for but does not report quality differences.

4.2 Ownership and competition

Separating the effects of ownership and competition has been a central problem in the empirical literature. Previous reviews (Domberger and Jensen 1997; Grout and

²⁸ The exceptions are the Swedish study by Ohlsson (2003) and the critical comment on Domberger et al. (1986) by Ganley and Grahl (1988).

Stevens 2003; Jensen and Stonecash 2005) conclude that competition is the more important of the two. The general argument is that private ownership becomes problematic when competition is lacking. However, given that competition and private ownership are often introduced in tandem, their individual effects are quite difficult to disentangle. In fact, there are no empirical studies that have managed to identify both the ownership effect and the two competition effects of selection and effort.

Following Domberger et al. (1986), the empirical strategy for discriminating between the effects of ownership and competition has been to study services that are put up to tender but retained in-house. Since ownership remains public, cheaper in-house production after a tendering process has been interpreted as an effect of competition. The difference between private producers and public in-house production is then interpreted as the ownership effect. The problem with this interpretation is that the selection effect of competition will be included in the estimated ownership effect. As Ohlsson (2003) notes, public procurers prefer firms run by high ability managers, and the benefits from contracting with well-managed firms should not be attributed to private firms in general.

Importantly, the effect of introducing outsourcing in the public sector may be different from the effect of increasing it further. Several of the empirical studies deal with occasions when the public sector was first opened up for competition (notably the early UK studies, including Domberger et al., 1986, and Cubbin et al., 1987). To start with, it is intuitive to expect the selection effect of competition to be largest when outsourcing is first introduced. The largest effect of competition could occur as a one-shot effect when a public sector monopoly is first challenged by competitors.²⁹ To the contrary, in occasions where a large share of public services is contracted out, one should not expect a large competition effect from increased outsourcing. Increasing outsourcing from high levels will if anything reduce competition if one competitor (the public sector) disappears. Since the effect of ownership should stay the same as the contracted share increases, variation around high levels of outsourcing could be used to identify the ownership effect. The empirical studies have, however, concentrated on cases where the initial level of outsourcing is quite low.

²⁹ Adopting the concept of contestability (Baumol et al. 1982) to public sector outsourcing provides a reason for a large effect of competition already when the introduction of private providers is seriously considered.

Arguably, competition could become problematic when private ownership is lacking (suggesting that there is an interaction effect between the two). Competition between public units may not result in the same outcomes as competition involving private companies. Therefore, competition between public units only is of particular interest. The UK National Health System (NHS) has proved a suitable testing ground of competition between public units. So far the results are partly conflicting. Propper et al. (2008) combine policy changes with geographic prerequisites of competition. They find that between 1991 and 1999 competition increased heart attack mortality rates but decreased waiting times (which are more visible and easy to measure). However, Gaynor et al (2010) study a later policy reform in 2006 aimed at promoting competition between hospitals. Their difference-in-differences estimates indicate that competition saves lives without raising costs.³⁰ Bloom et al. (2010) use electoral competition (share of government-controlled marginal districts) as an instrument for the number of local hospitals (i.e. competition) and find that competition between neighboring public hospitals in the UK strengthens management quality and reduces heart attack mortality rates.

A final empirical concern is that the gains from outsourcing are with few exceptions based on comparisons between contracted payments and costs for in-house production, which means that they are designed to capture one effect of competition (the effect on effort rather than that on selection). From a theoretical point of view, private ownership, together with the selection effect, create strong incentives for productive efficiency (producing at minimum cost), while competition is also a means of promoting allocative efficiency (which requires that the consumers' valuation of goods and services equals production costs) and ascertaining that a substantial fraction of the surplus can be appropriated by the buyer. If there is an ownership effect, private costs should be lower than public costs, regardless whether this translates into higher profits or lower prices.

Table 3 and 4 collect and regroup the studies from Table 2 that compare the cost effects of ownership and competition in a contracting setting, with the addition of one study of privatization competitions undertaken by the U.S. Department of Defense

³⁰ Specifically, they find that patients discharged from hospitals located in markets where competition was more feasible were less likely to die, had shorter length of stay and were treated at the same cost.

(Snyder et al. 2001).³¹ Table 3 contains a chronological collection of cross-sectional studies and Table 4 of studies with repeated observations of outsourcing. The reader should keep in mind that the selection effect of competition is not included in these studies.

Table 3. Cross-sectional studies of ownership and competition

Study	Sample	Method	Findings
Stevens (1978)	Garbage collection in US cities	Compare cost functions for public monopoly, private monopoly and “competitive market”.	Private monopoly less costly than competitive market and also less costly than public monopolies in cities with more than 50,000 inhabitants.
Domberger, Meadowcroft & Thompson (1986, 1988), Ganley and Grahl (1988)	Garbage collection in England and Wales	Compare dummy coefficients for privately contracted services and for services tendered but retained in-house.	The introduction of competition is critical for achieving lower costs. Small additional benefit of private ownership. However, no comparison between ownership and competition is included in the reply (Domberger et al 1988) to the critique of Ganley & Grahl (1988).
Domberger, Meadowcroft & Thompson (1987)	Domestic services in UK hospitals	Compare dummy coefficients for privately contracted services and for services tendered but retained in-house.	Both competition and ownership matters. But implausibly large initial savings for private contracts suggest “loss leading” and make the comparison difficult.
Domberger, Hall & Li (1995)	Cleaning service contracts for offices, schools and	Two equation recursive model (price and quality).	Indirect and weak evidence that competition matters more than

³¹ The scope of the services in this study implies that it does not fit into the structure of Table 2.

	hospitals in Sydney. 6 quality inspections for each contract. Small subsamples.	Dummies for public and private ownership and for tendered and non- tendered services.	ownership.
Dijkgraaf & Gradus (2003)	Garbage collection in 85 Dutch municipalities	Estimate different cost functions for three institutional forms. Compare dummy coefficients for outside collection and outside private collection.	Competition (outside vs inside provision) is more important than the ownership of the collection service.
Dijkgraaf & Gradus (2007)	Garbage collection in 453 Dutch municipalities	Estimate cost function and use Herfindahl index and C3-ratio to capture competition. Dummies for private and public competitors.	Contracting out (competition) is more important than ownership.

Table 4. Studies of ownership and competition with repeated observations

Study	Sample	Method	Findings
Szymanski & Wilkins (1993)	Garbage collection in England and Wales, panel 1984-88. Quality of data declining over time. Only a few observations were tendered but retained in-house.	Cost regressions. Yearly cross-sections with Heckman's correction for sample selection, pooled cross-sections, and panel with fixed authority and year effects.	Inconclusive findings. Unstable estimates between models. Difference between contracting out and tendered but kept in house is unstable and statistically insignificant. Still, the overall impression is that competition is more important than ownership.
Szymanski (1996)	Garbage collection in England and Wales, panel 1984-94 (update of data in Szymanski & Wilkins (1993), from 1988 when compulsory competitive tendering (CCT) was introduced.	Pooled cross-sections and panel regression with fixed authority and year effects. Dummies for privately contracted services and for services tendered but retained in-house.	Both ownership and competition matters and are about equally important.
Snyder et al. (2001)	All 3548 privatization competitions undertaken by U.S. Department of Defense 1978-94	Reduced form model with multiple nested levels to handle censoring and selection	Savings arise both from ownership and from competition. The share from competition was 24% (but amounts to 64% of potential savings).
Milne & Wright (2004)	Cleaning services. Balanced panel of 176 hospitals from 1986-87 to 1990-91 (880 observations).	Fixed effects model. Use "invitations-to-tender" as instrument for number of bids.	Both competition and ownership matter. Slightly larger effect of competition.

Turning to the empirical findings, Table 3 and 4 show that it is primarily in cross-sectional studies that the effect of competition dominates that of ownership (when it

comes to cost savings for the studied services). This conclusion is hard to maintain in studies that are based on panel data. Among the panel studies in Table 4, competition is most important in the earliest study with notable data problems (Szymanski and Wilkins 1993). Studies with a time dimension rather seem to indicate that ownership and competition are about as important. Needless to say, this difference could be due to the well known problem of omitted variables in cross-sectional studies. However, it could also be due to the fact that many of the cross-sectional studies focus on time periods when competition was first introduced. While it is only to be expected that competition is most important when a monopoly is first contested, the pure ownership effect of increased outsourcing should remain after private production have been introduced. This difference between competition and ownership has been neglected in the empirical studies. It is indeed the case that the largest competition effects are found in studies of the introduction of competition (Domberger et al. 1986), whereas the effect of ownership is relatively large in the longer panel studies (Szymanski 1996; Snyder et al. 2001).

We conclude that the claims in previous reviews that competition dominates ownership cannot be maintained. Given the problems in existing empirical work it is hard to go beyond the conclusion that both competition and ownership matter and seem to be about as important for the outcomes of public sector outsourcing. More empirical work is needed to qualify this conclusion.

5. Conclusion

In line with the property-rights framework, ownership appears to be more important for the effects of public sector outsourcing than previous empirical reviews have concluded. In many countries moreover, the effects of ownership are more relevant today when the public sector has already been opened up for competition. Still, competition appears to be about as important as ownership for outsourcing outcomes, but has not been included in theoretical models of public sector outsourcing, as noted by Snyder et al. (2001). The HSV model, for instance, does not have much to say about competition.

In our review of theoretical work, we stressed the property-rights framework for understanding ownership, and the importance of contractibility issues for deeper insights into the pros and cons of contracting arrangements. We share with much of the literature

on outsourcing public services some asymmetry in the treatment of contracting with private actors on the one hand, and in-house production on the other. It seems desirable for the literature generally to invest more in the understanding of the internal workings of public-sector bodies.³²

When presenting the consequences of outsourcing separately for services with different contracting difficulties, we documented quite favorable outcomes in terms of both costs and quality for many services, although public sector outsourcing appears particularly problematic for credence goods, with residential youth care as the prime example.

Our review has identified several dimensions in which there is room for improvement in future studies. To start with, the fact that no published study has been able to make use of exogenous variation in outsourcing is perhaps not surprising given the nature of the choice under study; nevertheless it remains a major weakness of the empirical findings. It would also be valuable to compare the costs in private and in public production (rather than to compare private prices and public costs). In doing this, the studies should also be more transparent about how the costs in private and public production have been computed. The inherent difficulty of measuring outcomes that are difficult to contract on should be given more attention and in so far that measured quality coincides with contracted quality, this should be acknowledged; to the extent that it is possible to measure dimensions of quality that are difficult to contract on, this should be exploited and emphasized.

³² See Prendergast (2003) for a step in this direction.

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