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IJPSM
19,2

Unit cost behaviour in public sector outsourcing

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Abstract

Purpose – The aim of this paper is to create a framework in which the behaviour of unit costs in public sector outsourcing situations can be analysed.

Design/methodology/approach – Explorative case study concentrating on theory building.

Findings – Public sector organisations have not concentrated on analysing or modelling the unit cost behaviour in outsourcing situations. The lack of systematic cost management tools seems to lead to poorly managed and non-profitable outsourcing projects or ignorance of the possibilities of outsourcing.

Practical implications – By utilising the results of the study, decision making regarding outsourcing in public sector could be based both on forecast cost development and on political judgement instead of relying only on political judgement without understanding cost behaviour.

Originality/value – The paper introduces a new framework to be used as a tool in practice and to be validated in further studies.

Keywords Outsourcing, Public sector organizations, Activity based costs, Defence sector, Finland

Paper type Research paper



International Journal of Public Sector
Management
Vol. 19 No. 2, 2006
pp. 130-149
© Emerald Group Publishing Limited
0951-3558
DOI 10.1108/09513550610650400

Introduction

Public sector services in many areas confront new challenges as cost pressures increase not only in the private sector but also in the public sector. Many governments and public decision makers are identifying new ways of producing public services at a lower cost. New ways of organising public services are also being explored. One of the trends is to make more extensive use of external resources, which in practice means that services are purchased from private companies (Broadbent and Laughlin, 2003). In the UK, the term used is “public private partnership” (PPP).

The authors wish to thank the two anonymous reviewers of the journal for comments that improved the paper. The research project was partly funded by Matine/Finland and the Emil Aaltonen Foundation.

There have been several attempts to find cost efficient solutions for public service production. Outsourcing in the public sector is often motivated by claims that private sector organisations are more cost-efficient than public sector organisations in the production of certain services (Parker and Hartley, 2003). On the other hand, IT systems outsourcing has produced totally new costs to the principal[1] (Aubert *et al.*, 2004; Barthelemy, 2001). Before outsourcing, not all principals necessarily know what the current cost of in-house operations is. This may lead to an inability to determine whether this in-house cost is high or low, which in turn makes it almost impossible to analyse the future effects of outsourcing on unit cost. This has been shown especially to be the situation in defence organisations (Parker and Hartley, 2003; Humphries and Wilding, 2001). This paper is an attempt to explore the cost effects of outsourcing in the public sector.

An empirical analysis is conducted in order to support theory building on how the unit costs of outsourced activities behave as a function of time in the public sector. This article is built on transaction cost theory, earlier descriptions of PPP experiences, and manageability analysis. The empirical data was gathered in a case study on a large Finnish public sector organisation. The point of view in this study is that of public sector principals, governments, municipal authorities, etc. In the discussion, a new theoretical framework for analysing unit cost development in outsourcing situations is introduced. The theory building is confined to the management accounting perspective. We know that there are many other aspects than management accounting in public sector decision making – political, geographical, sociological, equality of citizens, for example – but our aim is to consider the outsourcing phenomenon from the unit cost modelling perspective. We also concede that the management accounting perspective cannot overrule the others in real life, even though in theory building our argumentation follows the data-analysis-conclusion chain that is typical of the management accounting literature.

Theoretical background

Transaction cost theory

One of the explanatory theories for the existence of firms is so-called transaction cost theory. This is based on Coase's article "The nature of the firm" (Coase, 1937) and further generated by Williamson (1975, 1985). According to this theory, transaction costs are the reason behind different forms of organising economic activity. The two ends of a continuum regarding how to administrate business are markets and hierarchies. Transactions and transaction costs differ between different governance structures in business relationships. Basically, these so-called transaction costs can be assigned to four different classes:

- (1) search costs;
- (2) contracting costs;
- (3) monitoring costs; and
- (4) enforcement costs (Williamson, 1985).

Transaction costs represent "friction in the market" or "cost of using the price mechanism". Coase's (1937) basic rule states that when the marginal costs of using markets (transaction costs) are higher than the costs of running a firm (management

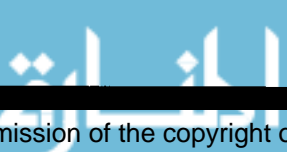
costs), the transaction should be organised within the firm and vice versa. The reasons behind transaction costs are transaction difficulties. These are bounded rationality[2], opportunism[3], uncertainty and complexity[4], small numbers[5], information impactedness[6] and asset specificity[7].

The ideas and terms can also be used when considering public service context. Aubert *et al.* (2004) model the costs of IT system outsourcing, and Parker and Hartley (2003) consider the rationale of UK defence PPP's with the help of transaction cost theory. A later extension to transaction cost theory is a hybrid form of governance, network, which is between market and hierarchy. This combination tries to gain benefits from both ends of the continuum by decreasing transaction costs in the markets and on the other hand reducing the management costs of the hierarchy (Virolainen, 1998). However, as pointed out by Armstrong (2002), complex supply chains and networks may hide the problem of analysing the actual unit cost accumulation. For example, the lowest price supplier in a certain phase of a supply chain may cause a significant cost increase in other phases due to non-optimal activity structure. Therefore, the activity-based costing (ABC) method should not be limited to single phases of a supply chain, as is too often the case in outsourcing; the total unit cost accumulation in a supply chain should be covered (Kulmala, 2003). In the public sector, the decision-makers' understanding of the total unit cost development in supply chain structured service production may be more important than the understanding of transaction costs in a single outsourcing case.

Previous literature on outsourcing in the public sector

Outsourcing issues and problems became common in public sector organisations at the end of the 1990s (Parker and Hartley, 2003; Roodhooft and Warlop, 1999; Stephan, 1998). While there is a lot of previous analysis regarding IT systems outsourcing in the public sector (see, for example, Khalfan, 2004; Barthelemy, 2001), not too many studies concentrating on overall service production have been reported. The concept of PPP includes different forms of private and public sector co-operation – services, subcontracting, joint venture, leasing and private funding, and build-operate-transfer model with many modifications. PPP also includes private sector planning, funding, implementation and temporary assignments given by the public sector. In all such co-organisations, the transformation into the network era places demands for the adaptation and implementation of new management and control systems (Håkansson and Lind, 2004; Mouritsen *et al.*, 2001). In the following, studies illustrating the many sides of unit cost behaviour in outsourcing situations are discussed.

Ten large organisations[8] which outsourced some or all of their information system activities were studied by Aubert *et al.* (1996). The benefits of outsourcing enabled companies to reduce production costs significantly, or the modernisation of the technological environment was enabled. In three of these ten large organisations studied, the primary benefit was reduction in producing costs per unit. According to Aubert *et al.* (1996), it is obvious that public sector organisations can also reduce their unit costs. The decision is not “to outsource or not”, but rather “what services should be outsourced and how”. As pointed out in the IT solutions sector, badly managed outsourcing may cause significant cost increases and lead to diminished service quality (Deloitte, 2005). It is also necessary to avoid lock-in situations, in which the selected partner firm can define the price of its services due to the absence of competitive suppliers or in-house competencies. This situation can be achieved either



by avoiding outsourcing those activities that require highly specific assets, by retaining possession of these assets, by keeping key personnel in-house, or by establishing protective governance mechanisms such as dividing the outsourced activity between two or more partners or making the length of the contract contingent on the service quality realised.

According to Hendry (1995), the benefits of outsourcing have become so obvious that they have hidden associated costs. Outsourcing involves costs as well as benefits. One of the benefits is that the assignment of costs is more transparent when outsourced, because the overhead costs of activities cannot be buried in the huge amount of general in-house overhead costs. On the other hand, while the unit cost of producing a service has significantly decreased in many cases, the administrative cost of controlling and managing many relationships has increased. For example, outsourcing may lead to an increased amount of work in the purchasing functions. Hendry's (1995) observation falls within the transaction cost theory, but the lack of knowledge in the public sector regarding transaction cost theory is closely linked to the question of how much in-house overheads may increase in the outsourcing situation.

At the beginning of the 1990s, outsourcing was a marked tendency beyond a traditional contractor-employer relationship. Stephan (1998) describes the difference between outsourcing and contractors so that the contractors provide a service based on a specific scope of work for a predetermined price. Outsourcing partners may instead provide a wide range of services and they may be flexible enough to meet the changing needs of the organisation[9]. Unlike contractors, outsourcing partners may behave as if they were employees of the organisation. As a result, a company may reap many benefits by increasing outsourcing activities. In the study by Stephan (1998), transparency of costs and cost efficiency especially were significantly improved. However, at the beginning of the outsourcing process no direct financial benefits could be demonstrated and costs tended to increase initially due to the learning phase in operating with new partners (Stephan, 1998).

One of the relevant themes in cost accounting is the question of sunk cost errors in decision making. The accounting literature has argued that firms over-engage in outsourcing because they tend to ignore the transaction costs involved in buying services from external suppliers. The potential drawbacks derive from partner-related problems and the transaction costs at the principal (Chalos, 1995). On the other hand, according to Roodhooft and Warlop (1999), who studied health care managers, there are situations where the most cost efficient decision would be to discontinue in-house production. However, in many situations the managers display a striking conservatism. They tend to attach excessive importance to asset specificity or they are even more conservative than they should be in incorporating sunk costs into the calculations. While these managers' way of making the calculations may not be wrong, there is always the question of the accounting situation. In the selection of two or more alternative ways to organise service production, most include both common costs (these cannot be increased or reduced in any alternative) and separate costs (these are independent in all alternatives). If sunk costs are taken excessively into account, no changes can ever be made in the service production structure. On the other hand, if sunk costs are not taken into account at all, the life-cycle cost of service production may be exceptionally high because of constantly changing the production structure. Hence, before making calculations, the situation for the outsourcing decision should be understood as well as possible.

Proposition for the study

In the public sector, there is always the question of increased cost efficiency and unemployment. If cost efficiency is achieved via decreased resource consumption, some public sector employees may end up unemployed and the consequence may be increased unemployment costs. On the other hand, the more efficiently a public service is carried out, the less need there is to levy taxes, which, in turn, may leave private sector organisations in a better situation to employ personnel. In this article we do not provide macroeconomic perspectives on this issue, but only discuss the outsourcing situation from the perspective of the public sector principal. Furthermore, we assume that the quality of the outsourced service is comparable to that of in-house service production.

Only start-up firms face “pure” make-or-buy decisions. For existing firms, outsourcing is always a de-integration decision, in which prior commitments to internal production cannot be ignored. In this article we define the situation for outsourcing according to the length of the case principal’s current contracts. This means that some activity costs, such as rental agreements or employment contracts, are fixed for a certain period of time, after which they disappear, and some costs, such as transport, electricity, machinery, etc., may change any time.

Based on transaction cost theory and the earlier literature on outsourcing, it is possible to formulate a proposition concerning the probable behaviour of unit costs in the implementation of outsourcing in public sector organisations. Five assumptions guide the formulation of this proposition:

- (1) the target is and should always be reduced unit costs;
- (2) the probable short run outcome is increased unit costs;
- (3) the increase of unit costs may be surprisingly dramatic;
- (4) the reduction of unit costs is typically not achieved immediately, but possibly after a certain learning period; and
- (5) it is uncertain whether outsourcing will ever lead to the targeted unit costs.

Figure 1 illustrates example curves of the proposition and how the target unit cost and reality curves might diverge. The “outsourcing point” is the moment when a principal begins to discuss and search for a partner. In Figure 1 and in all subsequent figures, the

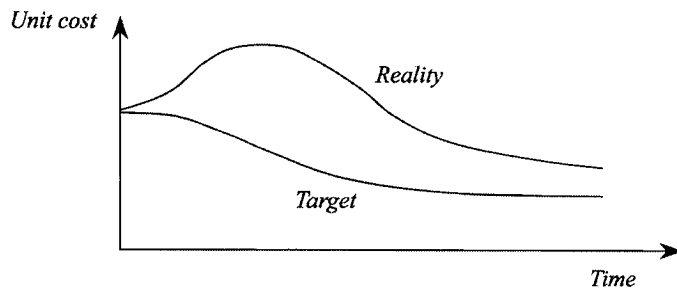


Figure 1.
Proposition of the study

Note: The beginning of the time line is at the “outsourcing point”, and the “Reality” and “Target” unit cost curves begin from the level of in-house unit cost before any consideration of outsourcing

“outsourcing point” is the start of the time line, and all expressed unit costs are real, not nominal, unit costs[10].

In the following, an empirical analysis on the phenomenon at hand is introduced.

Research design

Outline of the study

This study is designed to:

- (1) outline the shapes of the reality and target unit cost curves in public sector outsourcing cases; and
- (2) describe such issues that cause the gap between the target and reality curves or generate possible managerial ways of closing the gap.

Because a profound understanding of a little-studied area was needed, a qualitative research approach was selected. Comparing the objectives of this study and the data gathered from the case organisation, a statement from Miles and Huberman (1994, p. 1) justifies a qualitative approach:

With qualitative data one can preserve chronological flow, see precisely which events led to which consequences, and derive fruitful explanations.

In qualitative research, researchers typically have a relationship to every single observation (i.e. interviewed informant). The researcher may:

- revert to issues that were not clear the first time or in a certain context;
- ask the informant to focus some of his/her messages or acts, for example in the spirit of why, how and what questions, and;
- call into question some or all the actions of the informants in order to encourage the informants to explain and motivate their activities (Miles and Huberman, 1994).

Identifying the nature of the informants and the motives behind their activities may be easier when the researcher has continuous or recurrent access to the context of the informant.

The study was conducted as a single case study in one large public-sector organisation – the Finnish Defence Forces (FDF). A single case study was selected because initial understanding on the studied phenomenon was the target. The study is explorative. Exploratory research aims to bring out phenomena and their relations with possible causalities (Voss *et al.*, 2002; Alasuutari, 1999; Olkkonen, 1993). This study develops the existing theory of outsourcing into the area of its unit cost effects in the public sector. In the development of a theory it is not necessary to find statistical evidence on single issues but rather the aim is to understand and to conceptualise a phenomenon (Voss *et al.*, 2002; Yin, 1994). Case studies are typical for the theory development phase.

In the 2000s, the FDF has launched several pilot projects in order to define how to outsource such maintenance and service activities that are defined as supporting activities for the organisation. The final outsourcing after the pilot projects concerns transport equipment maintenance, medical services, food and catering services, clothing and laundry services, and human resource administrative services. The

objective of the pilots was to identify the most cost efficient way of outsourcing for each of these activities so that the quality and availability of the services was not compromised. Furthermore, in defence there is always the limiting factor of defensive preparedness to be taken into account.

The study was divided into two parts. On the one hand, the unit costs of FDF activities and outsourced work were analysed. On the other hand, an analysis of what kind of risks should be taken into account in outsourcing was carried out. Both these parts of the study were carried out in 2003. However, the researchers' way of thinking evolved over time, so that the initial cost analysis was carried out first, then the risk analysis enhanced the understanding of cause-effect chains that were present in the cost analysis, and finally a refined proposition for unit cost behaviour was built according to the best knowledge available on the FDF environment. Hence, even though we make a numerical cost analysis and our proposition (see Figure 1) is a dynamic unit cost model, the mathematical or statistical effort in the study is directed into the future. We use a constructivist approach in order to create a basis for further studies, possibly to be carried out with a positivist approach, and in order to make the phenomenon behind outsourcing visible in the form of unit cost behaviour. The model-analyse-remodel conduct of this study belongs to the constructivist approach in the spirit of how Voss *et al.* (2002), for example, suggest studies should be conducted in the operations management field, but further positivist efforts in testing the theory and proposition are entirely welcome.

Cost analysis

This part of the study provided empirical data on the transport equipment maintenance of one case garrison. The case garrison was selected so that it belonged to the top three Finnish garrisons measured by the maintenance volume and the usage rate of the equipment. The pilot outsourcing of maintenance activity was started in 2001 (first contracting took place in 2001) and the cost data was gathered from the full year 2002. Three private companies participated in tendering, but only one had facilities to operate on all sites required by the FDF. Short-term pilot contracts were signed, and the FDF did not totally give up its own capabilities to carry out the maintenance activity. This way of piloting made it possible to benchmark in-house FDF activities on certain sites against the activities carried out by the selected partner.

The cost accounting method used was activity-based costing (ABC). ABC was selected as the method because outsourcing influences the activity structure of the principal. While traditional cost accounting methods divide costs into fixed and variable costs, ABC utilises a more sophisticated division so that activities have their costs, both fixed and variable. When the activity structure changes, the cost effects of this change on the organisation cannot be known if costs are only divided into fixed and variable, while these may be mixed in the change. For example, if a maintenance office building is sold to the partner, the cost of the office can be taken into account in the maintenance activity costs but not in the traditional variable maintenance costs (material, direct labour, etc.) because the office belongs to the general overhead costs.

Since the FDF does not use ABC, the authors conducted an ABC analysis of in-house equipment maintenance in autumn 2003. All costs from the maintenance activity of the case garrison in 2002 were included in the cost model. The researchers were careful to include such costs that were common to many activities. For example,

when maintenance and ammunition warehousing managers were located in the same office building, the researchers measured in square metres the area used by the maintenance managers and assigned only this part of the costs to the maintenance activity. In many cases, the FDF did not utilise resources fully. While an employee mentioned that s/he worked only five hours per day on maintenance tasks and the other three hours are mainly waiting, the researchers assigned these three "slack" hours to the preparedness activity or to maintenance, depending on the position of the employee. Those employees not having preparedness responsibilities in their contracts were totally assigned to the maintenance activity.

The cost data concerning the partner company that took care of the maintenance of similar equipment was gathered both from the company and from the purchasing data of the FDF. All the calculations were made without value added tax (VAT) in order to standardise the cost analysis between public and private sector organisations.

Risk analysis

A study of risks and risk management in FDF outsourcing was conducted in 2003. In the risk study the following themes were studied:

- *Special characteristics of the defence forces in outsourcing.* In this section, questions regarding the interviewees' understanding of outsourcing in general and in the defence industry and public service production especially were elicited. The aim was to identify what characteristics distinguish outsourcing in the defence sector from outsourcing in any other sector.
- *The present state of using external resources and the interviewees' comments on partnerships.* In this section, all the current outsourced services were analysed both from the FDF purchasing and management and the partner firms' service production points of view. The interviewees described the reasons, practices and outcomes in the outsourcing cases tested.
- *Risks and risk management issues regarding outsourcing.* In this section, the service buyers and providers described their experiences of what kind of risks had been identified and how these risks were managed. The special focus was on risks that might not occur in traditional private-to-private sector outsourcing cases.

Data was gathered in in-depth interviews with key personnel in different sections of the FDF. These sections were the Ministry of Defence, Main Headquarters, and Headquarters of Materiel Command. The interviewees were heavily involved in outsourcing issues within the FDF. Some of the interviewees were on a strategic and also more political level, where the general outlines for the governmental outsourcing attempts are created. A few of the interviewees were on a more operational level, being responsible for the outsourcing pilot projects. We also interviewed individuals in three private firms that were partnering with the FDF. In the firms, the interviewees were either general managers or business unit managers collaborating closely with the FDF. The method used was a semi-structured interview covering the three areas mentioned above. The interviews lasted about two-three hours. The results are based on the written interview notes including the risks mentioned and special characteristics of outsourcing experienced in the FDF.

Empirical observations

Comparison of in-house and outsourced production

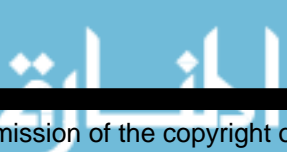
The ABC analysis of the maintenance activity was based on dividing all the maintenance costs into material and activity costs. In the following, the unit costs of maintaining one unit of the total equipment are illustrated.

The material costs were same to the principal and to the partner firm because the purchased material is on the one hand very special and sold only for defence purposes and on the other hand the partner firm could keep to the same contract with the material supplier as the FDF did. Hence, the difference in the maintenance costs could be fully explained through differences in the operations. The operations were divided into four cost elements:

- (1) direct labour;
- (2) indirect labour;
- (3) fixed labour; and
- (4) capital expenses.

For in-house production, the activity costs were 50.2 per cent higher than for the outsourced production. This was explained by three phenomena:

- (1) The partner firm had a higher rate of capacity utilisation than the FDF. This was caused by the greater number of customers and variety of orders. The partner firm sold services both to private-sector markets and to the FDF, which enabled them to utilise their machinery and real estate in two or three shifts while the FDF had maintenance work with their own equipment in only one shift. The FDF is not allowed to sell services to private markets. Some of the over-capacity identified in the FDF can be explained through the national defensive interest in preparing for crises, but the utilisation of the active peace-time capacity and passive preparedness capacity was not controlled in an economical sense at all.
- (2) The number of fixed personnel, such as management, planning, administration, technical support, etc., is significantly smaller in the private sector than in the FDF. This is partly due to tasks connected to the preparedness for crises. In the FDF, many of the maintenance activity personnel had responsibilities in planning how maintenance is organised in a potential crisis. In the private sector, such tasks do not occur because preparedness for crises is not a task of private-sector organisations. While many of the FDF personnel conducted this preparedness task only part-time or not at all, their labour costs were assigned primarily to the normal maintenance activity, although the actual need for this kind of fixed labour force during peace time was less than the number of these personnel. In addition, the FDF has a strong historical background in management organised military-style. This has resulted in more levels of hierarchical managerial positions than in the private sector.
- (3) The lead time of the maintenance work for a single unit at the partner firm was about 10 per cent of the lead time at FDF. This was due to the differences in working shifts and scheduling. While the partner firm operated in two or three shifts and scheduled maintenance of vehicles following the maximal use of maintenance area, the FDF began the work but did not finish it because there was sufficient maintenance area so that new units for maintenance could



always be taken in although older units were still being maintained. Hence, the partner firm tried to deliver vehicles as soon as possible in order to free maintenance area. The FDF has no such interest. This led to a situation in which in-house maintenance demanded almost 30 per cent more units to be included into the equipment in order to get as many units to run as in outsourced maintenance.

Figure 2 summarises the unit costs in maintenance. The costs represent the situation compared to the maintenance at the FDF. The total unit costs (material and activities) of the maintenance work at the partner firm were 81.8 per cent of those at the FDF.

The outsourcing caused new costs at the principal, however. There were two extra persons in indirect labour for managing the paperwork of outsourced maintenance, and several contract negotiations that took the time of the fixed personnel. All these costs were measured. Since the FDF also had agreements according to which it could not sell or remove the real estate and machinery in order to avoid over-capacity, and lay off or change the job descriptions of personnel short-term, this led to significant over-assignment of labour costs and capital expenses to the outsourced work. Hence, most of the old fixed costs were still assigned to the maintenance activity, but an extra administrative cost, the partner firm's fixed cost and capital expenses were added. This caused the total unit costs of the maintenance activity to be 111.3 per cent of the initial in-house costs. Figure 3 illustrates the situation.

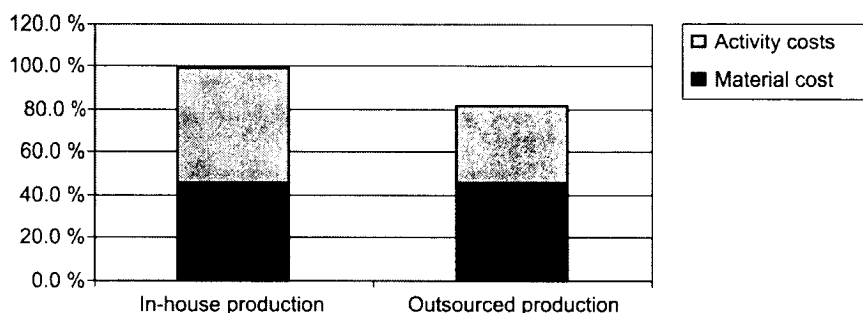


Figure 2.
Unit costs of equipment maintenance (production only) in the case garrison and in the partner firm

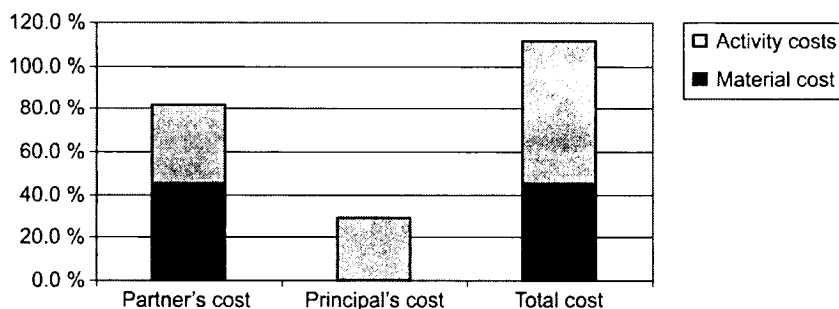


Figure 3.
Total unit costs of equipment maintenance after outsourcing

Note: Total unit cost on the right is the sum of partner's production unit costs and principal's purchasing and administration unit costs

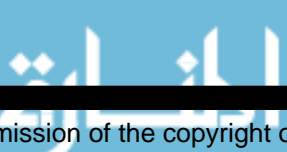
In this case, almost all the potential benefits of outsourcing were lost, although they were clearly expressed in the form of calculated ABC results. The case shows that, in the short term, outsourcing in the public sector may cost more than in-house production. At the same time, the inability of public sector organisations in the active management of real estate and personnel assets may lead to the persistence of non-cost efficient production. Furthermore, the discussion on the factors that influence the total costs of outsourcing revealed that outsourcing includes several risks to be managed in order to achieve the potential benefits desired. While the phenomenon presented in Figures 2 and 3 can be clearly explained without the actual cost levels, there also seems to be novelty value in the magnitude of the principal's and partner's costs. There are no case studies available indicating how Nordic defence organisations, for example, perform compared with the private sector.

Effect of risks on the target cost curve

In this section some key findings that seem to have an effect on the unit cost curves are presented. The assumption here is that the risks are the actual reasons for the unwanted development of the unit cost curve. While outsourcing can be done fast, the existing contracts defining the short- and mid-term future costs may still persist. This, in general, may lead to double costs for outsourced activity for a certain period of time because the principal is paying the partner and for the in-house resources at the same time. In this analysis, we do not set any exact time limit for the existing contracts, but expect them to expire through step-by-step fade out. As a consequence, the magnitude of risks is easier to assess in the early phase of the outsourcing than in the later phases[11], but in this article we concentrate on qualitative analysis of what was and what can be behind the dynamic development of the unit costs.

The environment and function of the organisation imposes some crucial limiting conditions that have to be considered when making an outsourcing decision. In the context of the FDF, the *raison d'être* of the organisation is to ensure the nation's integrity and sovereignty. By outsourcing the goal is to ensure "value for taxpayers' money". The ultimate risk in outsourcing is that the key task cannot be carried out. In general, outsourcing decisions are usually made under a certain level of uncertainty, both in the short and long term. A minimum requirement for this public service outsourcing is that at least the same service level should be produced at a lower total cost. In the case of the FDF, the peace and crisis division is important. The crisis-time functionality is built and maintained during peace time. This causes costs that are not clearly separated from the peace-time operations costs. While the accounting systems do not fully serve the activity structure, there are severe problems in calculating in-house unit costs for certain activities. These accounting system problems lead to accounting failures and a biased understanding of in-house unit costs. In practice, in-house unit costs for any peace-time service seem to be assessed very low, because there is an organisational tendency to explain most of any costs to be caused by the preparedness activity, which actually takes rather little time of rather few employees.

One of the general risks mentioned was the concern that the costs cannot be decreased after outsourcing. This argument was substantiated by mentioning that costs related to personnel or facilities cannot be easily adjusted. This is because these costs seem to be more or less fixed, at least in the short timescale. Personnel costs remain because of legal labour rights, and also because the FDF behaves like a



responsible employer. Rental costs for the real estate remain at the same level as the rental times are long. Furthermore, there is also the question of whether personnel adjustment is possible at all because of the need to prepare for crisis.

A typical reason for friction in costs is resistance to changes among the personnel. This is natural human behaviour, as the changes are normally seen to be changes for the worse. In the FDF, this has been taken very seriously and a so-called partnership programme is openly communicated in subtle ways. People still tend to see outsourcing as a threat to their jobs. This fear and possible redundancies may also cause motivation problems for the remaining workers, at least in the short term. People are uncertain about their own situation and commitment to the organisation may be undermined.

The change from in-house production to outsourcing creates pressures for capabilities in both buying and selling organisations. Usually there is some learning curve effect at the company that is starting to supply outsourced activities. At the buying organisation, there may be insufficient knowledge and skills to be a professional buyer. The costs and length of this disorganised period may cause surprises. In some cases the costs of creating an organisation's own capabilities as buyer are not evaluated and understood. In general, there seemed to be a lot to learn in professional buying. However, the variation in buying skills was great. Some departments had been buying and already had good skills, but on the other hand many departments had no skills in the area. In the case of FDF partnering, suppliers may also have some problems with the products, services, or the co-operating procedures with the defence forces. The FDF has long traditions in a certain way of working and this may cause some problems with firms.

There is also a risk of a lock-in situation with a powerful supplier. The supplier may achieve a position where it has the power to make the conditions for co-operation. All the knowledge and understanding of a certain task can be outsourced and there are no possible competitors for this specific service. In this case, the long-term cost development may be negative from the buyer's perspective. The FDF did not want to see the same development as some UK public-private partnerships. This attitude was supported by the knowledge that in many cases long contracts and single suppliers have caused increasing prices and a poor service level due to lack of competition.

Another issue in the power of suppliers was the strategic development of a certain supplier. If a supplier's business is taken over by a third company or a certain business area is downsized, what power does the FDF to halt any negative developments that might mean the end of an outsourced service? When the legal situation was analysed, the FDF was worried about their capabilities in writing contracts that would guarantee the continuity of outsourced services in any situation.

The crisis aspect imposes demands for outsourcing and its evaluation. One area that remains unanswered is the warehousing costs related to the state of readiness. In practice, this means the storage of necessary parts or equipment for a possible crisis. Capital is also tied up in maintaining a certain level of capacity for crisis needs. These costs are usually more difficult to ascertain and may even be forgotten in outsourcing cost evaluations.

A new framework

In this section, we reconstruct and refine the proposition (see Figure 1) based on the case study experiences. This is done in order to develop the proposition in two directions:

- (1) in this phase of outsourcing research the scientific community needs a model for further testing;
- (2) the public sector needs practical tools to conceptual thinking in cases where outsourcing is seen as an alternative to service production.

The model proposed is dynamic because it concentrates on the development of unit costs over time. While the discussion of the potential managerial use of the model is stressed with the cost perspective, political judgement may, of course, take place in any phase of the outsourcing project.

Figure 4 illustrates a refined proposition based on the experiences from this study. The refinement is based on the following knowledge. All the short-term (less than two years) unit costs before and after the “outsourcing point” were calculated exactly (see Figures 2 and 3). This makes the short-term development in the case clear and reliable. Since the contracts made define the unit cost of outsourced work for the mid-term (2-5 years), alternative or potential mid-term in-house unit costs had to be estimated. This was done by assuming that the real unit cost of activities will remain at the same level on which they are at the “outsourcing point”. It is not possible to calculate the mid-term unit costs exactly because the cost will be accountable only retrospectively. Furthermore, costs that will emerge in the long-term future (more than five years) were subjected to critical estimates and analysis. Hence, it should be remembered that the reliability of the unit cost analysis and the refined proposition is at its highest in the short- and mid-term.

It seems that at least at the start of an outsourced service, unit costs will increase because administrative costs are at their highest and the resources that were formerly used for the production of the service are still there but at least somehow underused. The initial increase in administrative costs is well-forecasted in transaction cost theory (see Williamson, 1975) because the searching costs, for example, occur here. However,

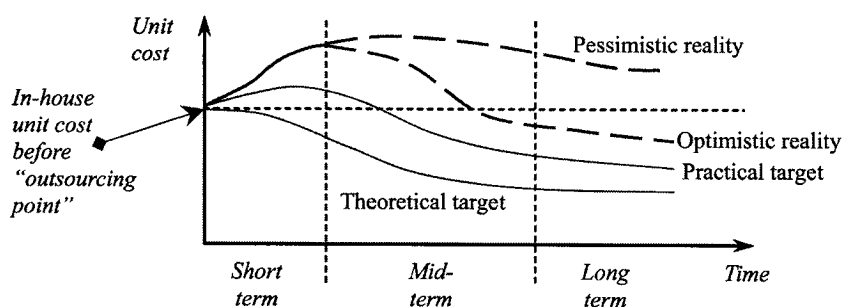


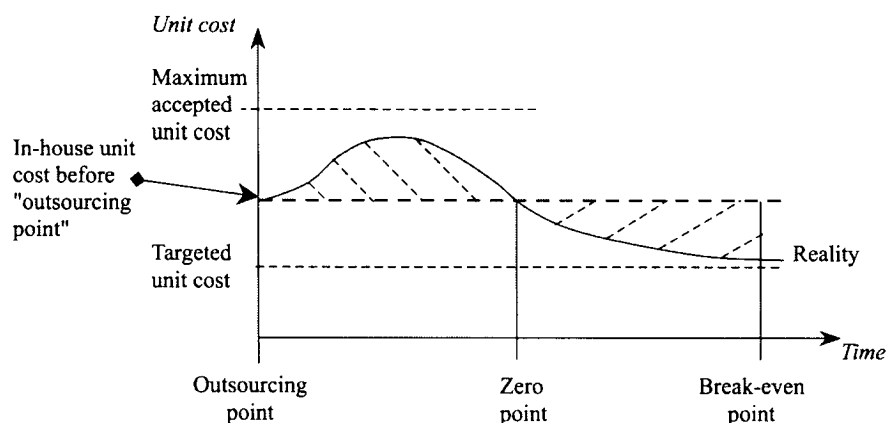
Figure 4.
Refined proposition of the study

Note: The broken line describing the level of unit costs in in-house service production before the “outsourcing point” cannot be calculated after the outsourcing decision, but can be expressed in the figure as a benchmark for outsourcing (see the following text for correction coefficients such as local cost-time indices)

the new observation concerns the inflexibility of public sector organisations. The legislation and regulation may offer public sector organisations an opportunity to outsource, but not opportunities to adjust the number of employees or the facilities to the new decreased resource demand. The two reality curves in the refined proposition are drawn according to the development calculated in the case organisation so far. The optimistic and pessimistic reality curves represent situations in which the final unit cost is respectively lower and higher than the current in-house cost. The broken lines in the reality curves represent the anticipated developments, depending on whether the organisation can or cannot find new tasks for the personnel whose tasks were outsourced. If the current personnel are retained but no new tasks are assigned to them, the utilisation rate of resources will decrease. Hence, when allocating the cost of the unused resources to new cost-objects, the unit costs of other services or the administrative costs of the outsourced service will increase. In this case, the pessimistic reality curve may never meet even the current in-house cost. This is a huge challenge for public sector organisations trying to benefit from partnerships with private sector companies but typically suffering from inflexible in-house production-oriented legislation.

The empirical analysis of the changes in cost structures after outsourcing, and the ways of avoiding the increase of unit costs when outsourcing, revealed a phenomenon that may have a very general nature. To conceptualise the phenomenon and to make further studies possible, a new framework for the behaviour of unit costs in outsourcing situations is proposed. The theoretical proposition is introduced in Figure 5.

Compared to current in-house costs, two time limits for the cost realised after outsourcing are introduced. First, "zero point" is a moment when the total unit costs (all partner's and principal's costs included) of an outsourced activity are equal to the initial in-house costs before the "outsourcing point". At "zero point", the temporary increase of unit costs after outsourcing has turned into a decreasing trend and there are no extra unit costs compared to the initial situation. Second, "break-even point" refers



Note: For technical reasons, the areas within broken lines cannot be drawn exactly equally large but they are intended to be such

Figure 5.
A proposed framework for
analysing the
success/failure of
outsourcing decisions with
the help of unit cost and
total cost savings

to a moment when the realised and reduced unit costs have produced cost savings equal to the losses incurred by the increased unit costs at the beginning of the outsourcing (areas with broken lines represent equal sums of money). At "break-even point", the principal's total cost over time from "outsourcing point" to "break-even point" is the same as it would have been without outsourcing. Break-even point refers to the beginning of cost savings regarding total costs because it illustrates a point after which a principal really benefits from the outsourcing decision compared to the alternative of having continued in-house production.

When outsourcing, certain measures are needed in order to design, manage and control the project. "Zero point" and "break-even point" are possible time measures for analysing the success or failure of the project from the perspective of management accounting. In addition to time measures, two cost measures for the realised unit cost after outsourcing are introduced. First, "maximum accepted unit cost" refers to the level of unit cost that is accepted to realise after outsourcing. If the unit costs at any time after the "outsourcing point" are higher than the accepted maximum, the outsourcing project should be reassessed. This reassessment may, for example, entail the gathering of decision-makers and managers in order to ascertain why the unit costs are overshooting and if something can be done for the state of affairs. As the most dramatic alternative, reassessment can also tackle the question of whether the outsourcing decision will ever lead to as low unit cost as before outsourcing or as expected. It is natural that there are not always options to cancel the outsourcing project, but this does not mean that nothing can be done for the unwanted unit cost development. Second, "targeted unit cost" refers to the unit cost level that is set as a target for the outsourcing project at the outset. Without such a target the project may appear too explorative. The meaning of the "maximum accepted" and "targeted" unit costs is to design the project beforehand and to control it in all phases so that the unit costs are not just "taken as they occur" but systematically managed.

The framework proposed may also have significant managerial value as a tool in the analysis of what kind of outsourcing projects there are and how they could be managed so that the future cost savings of outsourcing would be maximised. Figure 6

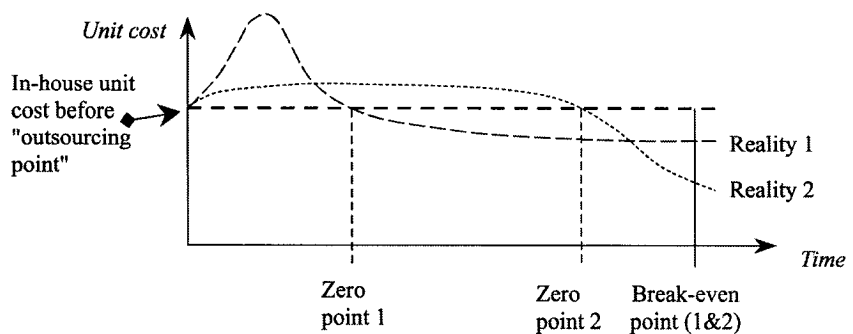


Figure 6.
An illustration of two different unit cost behaviours and the cost effects of outsourcing in the cases described

Note: For technical reasons, the areas above and below the "in-house unit cost before outsourcing point" line cannot be drawn exactly equally large but they are intended to be such

illustrates two different outcomes of an outsourcing project and their reality unit cost curves (Reality 1 and Reality 2). An outsourcing decision implemented in two different ways may lead to the same "break-even point". However, the shape of the unit cost curves may be totally different. While in case 1 "zero point" is reached in the very beginning after a short period of peaking unit costs, in case 2, reaching "zero point" takes a long time. However, the increase of unit costs does not peak but is rather moderate. When analysing the situation after the "break-even point", case 2 seems to lead to more unit cost saving. If a fast "zero point" is preferred, the final unit cost reduction in this example will be less than if a slow "zero point" is accepted. The time line should, naturally, be proportional to the service lifetime case by case, so that the longer there is a need for the service, the more incentives the principal has to achieving unit cost curve as in Reality 2.

The proposed framework is based on at least four assumptions:

- (1) The current in-house cost is relevant in comparisons so that a principal could also, in practice, keep the activity analysed in-house. The framework is not relevant for situations in which in-house activity is not possible.
- (2) If an activity is fully outsourced, it is impossible to calculate real in-house unit costs for it. The in-house unit cost after the "outsourcing point" must be calculated by utilising local cost-time indices (Tilastokeskus, 2005). The index includes information on how labour costs, materials, interest rates, etc. develop over time in a specific geographical area. Therefore the comparison of in-house unit costs and outsourced unit costs should be made by comparing the latest calculated in-house unit costs that are adjusted to a new time according to the index development and the real unit cost of outsourced activity. This use of a correction coefficient (cost-time index) makes it possible to compare real unit costs at different times although only nominal unit costs are available.
- (3) The in-house cost is comparable only if major changes in the technology used have not taken place after the outsourcing. If a totally new technology reduces all the unit costs in an industry, for example, the reduction of unit costs would also have taken place in in-house production. This may make future comparisons irrelevant[12].
- (4) The production in the analysis is continuous. Single projects or occasional production may not fit into the proposed framework because the analysis of the break-even point is based on the development of unit costs over time.

Discussion

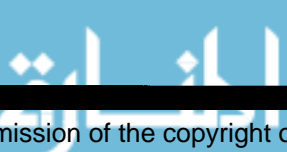
The outcome and unit cost effects of outsourcing development can be modelled by utilising the unit cost concepts introduced in this paper. Furthermore, it may be more important to think about the potential shape of the reality curve than to calculate the results exactly. This thinking and the analysis of the manageability of the curves may lead to the identification of pitfalls in outsourcing, which may, as such, lead to avoiding them and cost savings. The practical driver for this kind of research is to make real the potential benefits of outsourcing by concentrating on how to outsource. Selecting the most appropriate activities for outsourcing in the public sector might result in the greatest cost savings. On the other hand, some activities could remain public if an analysis in the proposed framework proved them to be inappropriate. The critical use of

the unit cost behaviour framework presented here could lead decision making to favour public or private service production depending on the case-by-case experiences or expected outcomes instead of only (and in some cases very often changing) political interests.

This study provides some important insights into the applicability of transaction cost thinking (see Aubert *et al.*, 1996; Williamson, 1985, 1975). First of all, the transaction cost theory is context-free, so that both private and public organisations seem to have relevant use of it. It must be stressed that the management accounting perspective on outsourcing does not depend on the ownership structure of the outsourcer. The ideas of transaction uncertainties can easily be adapted to support the outsourcing cost and risk analysis. In the case of supplier opportunism the cost curve will turn upwards in the future as the suppliers perceive an opportunity to price their product or service as the principal has no other option to buy or produce the product. There is a possibility of losing the practical contact to production and so to become a victim of information impactedness and bounded rationality. Especially in the case of countries like Finland, it is also a real concern of small numbers, in other words, the number of true potential suppliers is small. This weakens the competition and is a potential source of increasing prices over time. In the case of outsourcing the risks and their cost effects should be evaluated in order to identify which risks are the most significant threats to the cost efficiency of outsourcing.

Second, while transaction cost theory provides understanding for a single outsourcing situation, the public sector should, with the continuity perspective of public service production in mind, be able to understand the cost effects of outsourcing, also in the longer term. This means that the possibility of more than one consecutive outsourcing/in-house decision should be taken into account. In this case, transaction cost theory without evolutionary thinking may fail. As shown in this study and many learning curve discussions before, it is very hard to divide all the costs between static principal's and partner's costs as in traditional transaction cost analysis. By contrast, the development of unit costs over time differs between outsourcing projects, which may lead to totally different outcomes over a ten-year period, even though the basic static transaction cost analysis gave a similar result. For example, if the FDF had been able to sell all the unused real estate after maintenance outsourcing, the unit cost would have decreased faster. Hence, decision makers should concentrate on understanding the outsourcing environments case by case in order also to guarantee the preferred unit cost development in the longer term. The use of transaction cost theory as the only management tool could accept changing between in-house service production and outsourcing every second year, which in certain cross-sector business and negotiation power environments might lead to higher total costs than sticking with one production mode all the time.

Third, going back to Armstrong (2002), if outsourcing is selected as the operational way to produce services, ABC calculations should be built to cover the total supply chain as illustrated by Kulmala (2003) in order to avoid the selection of the lowest price supplier instead of the lowest cost supplier. The outsourcing decision, in practice, should attract many companies in the tendering phase so that the public sector principal can model the in-house administrative activity structure for each of the potential suppliers.



Fourth, as management accounting is not the only decision-making parameter in public sector service production, there may be more need for evolutionary thinking on unit cost development than in the private sector. While private sector organisations can accept more short-term oriented decisions and structural changes, the public sector should be less stop-go. Understanding the logic behind the unit cost effects of certain outsourcing cases, as illustrated in the FDF case, could improve the chances of public sector decision makers to anticipate smooth and balanced service production.

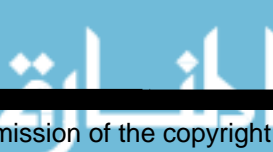
As this empirical study revealed a phenomenon in the public sector organisation and private company interface, it is reasonable to suppose that the proposed framework is generalisable to any outsourcing situation. As a contribution, this study also identified explanatory factors behind the unit cost development in public sector outsourcing cases. Further studies should be conducted to identify the most typical unit cost development curves both in private and public sector outsourcing cases. While the explanatory factors for the potential shapes of the unit cost curves were exploratively and illustratively studied in the empirical part of this study, more detailed statistical analysis on the weight of these factors in the overall unit cost effects is needed in the spirit of the positivistic research approach.

Notes

1. In this article, "principal" refers to the organisation that outsources an activity and "partner" to the organisation that becomes responsible for carrying out this outsourced activity.
2. The rationality of human behaviour is limited by the actor's ability to process information.
3. Human beings are prone to behave opportunistically. Opportunism is defined as self-interest seeking with guile.
4. The real world is characterised by considerable uncertainty and complexity.
5. In the real world small numbers of trading relationships are frequently found.
6. Information pertaining to a transaction, or set of transactions, is frequently asymmetrically distributed between the parties to an exchange. Thus one party may have more knowledge than another.
7. This refers to investment in assets that are specific to the requirements of a particular exchange relationship.
8. The organisations included both private and public, and their differences were not analysed in-depth against the ownership structure.
9. The flexibility of partners is naturally dependent on the contract structure and text. It is possible to outsource under such contracts that provide the partners with no incentives at all to improve service quality, cost efficiency or to be flexible. We thank the anonymous reviewer who pointed this out.
10. Real costs are used in order to avoid the problem of drawing inflation/deflation or other monetary effects into the figures. The effect of this selection on calculations is explained later in the text.
11. We thank the anonymous reviewer who pointed out this issue.
12. The incentives of public and private sector organisations in introducing new technology have to be taken into account here. If the private sector is more interested in adopting new technologies the situation is different and unit cost development should be evaluated against this observation. We thank the anonymous reviewer who pointed out this issue.

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