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## **WHAT ARE THE COSTS OF PROCUREMENT AND WHO BEARS THEM?**

Who pays for procurement?

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### **ABSTRACT**

The costs of procurement are transaction costs which are separate from the direct costs of a project. In this paper discussion is concentrated on costs of tendering. Types of cost, including money costs and opportunity costs, short-term and long-term costs, private and social costs are defined and examined in relation to various types of product and methods of procurement. The costs of the contractor and of the client are considered and tentative conclusions drawn as to who bears these costs in the short-run and in the long run. They may fall on the parties to the process for the particular project, on other contractors and clients or on society as a whole.

**Keywords:** Cost of estimating, cost to client, cost to contractor, cost to industry, cost to society, procurement

### **TEXT**

#### **Introduction**

Contractors devote considerable time and energy to determining the costs of construction of a project and then in assessing the price they will quote to the client, that is, their costs plus mark-up. The client is interested in the price quoted by contractors. Price is the rate at which exchange may or does take place. Price to the contractor becomes a cost to the client.

However the actual cost of construction is not the only cost which must be considered. The cost of obtaining an invitation to bid, of estimating, of drawing up a contract, of administering the terms of the contract and of dealing with any deviations from the contract conditions are also important. In many cases these costs are a small proportion of the total cost of a contract. There are, however, two main reasons why they may be substantial. The first is the increase in the aspects of the construction project covered by the initial contract and the increase in the number of parties involved. The second is the danger that the contract conditions will not be fulfilled, either by the client or the suppliers of services, and hence that the risks faced by all parties to the process will be high. This paper concentrates on costs at the early stages of a project, that is, of clients in choosing their contractors and of contractors in obtaining an invitation to bid and of estimating, but similar analysis could be used to study other non-direct costs. Consideration is given the nature of these costs and to who bears them in the short run and in the long run. First, types of cost are described. Then some of the procurement methods are discussed. In the main body of the paper the effect of these costs on clients and on contractors, and hence on the construction industry and on society as a whole, are considered.

#### **Types of cost**

The costs of arranging for a project to be constructed are known as transaction costs[Coase (1937)]. They arise in construction because there are a number of parties to the process and the organizers of the total

process have to identify potential participants, select those most appropriate, monitor that they are performing well and take action if they are not. If the person who wanted a building or civil works had in his employ designers, builders, tradesmen, labourers, material producers and so on, there would be no transaction costs. This state of affairs exists theoretically in a centrally planned economy with no private property. In that case there would be no transaction costs but there would instead be high administrative costs [Niehans (1987)].

Economists distinguish a number of different types of cost. Most of these apply both to direct costs of a construction project and to transaction costs. The most important for the purposes of this paper are listed below:

- Fixed costs are costs which do not vary with the amount of work undertaken by the firm or with a particular project. Variable costs are the opposite of fixed costs.
- Short-term costs are those which have to be met in the near future. Long-term costs must eventually be met. Long and short-term are not fixed periods of time but vary according to the matter under consideration. Postponable costs are costs which must be met in the long run but of which payment may be delayed. They include, for example, a proper return on capital employed and remuneration for some staff as high as that they could command elsewhere
- Money costs are outgoings which have a clear monetary value. A cost which is not normally expressed in money terms is opportunity cost, sometimes referred to as the real cost. The real cost of employing a resource in one use is the lost opportunity of using it to produce an alternative good. Thus the real cost of using an architect to design building A is the lost opportunity which arises because he cannot design building B, which he might otherwise have done.
- Social costs are costs to the community. Private costs are costs to the individual or a group of individuals. The community may have to bear the costs which arise from action by private individuals. A current example is the cost of pollution.

This paper deals with the important transaction costs of procuring a project, notably the selection of a contractor and determination of the price. There are very little data on these costs. In 1989 it was found in discussions with contractors that they expended of the order of 0.7-1.0 per cent of turnover in the handling of tender documentation [Flanagan and Norman (1989)]. Costs of tendering are seen by the industry in the UK to be significant, typically quoted as ½- 1 per cent of turnover for fairly traditional projects but 2-3 per cent where the projects are for a public client but with private finance. For some elaborate procurement methods, such as prime contracting, the costs may be even higher.

## **Types of project**

The variety of methods of procurement is great because there are differences in the services required by clients and in the selection of the organizations to carry out the needs of clients. Hillebrandt (2000) summarizes these in terms of:

- the methods for the procurement of a building or other facility. These encompass project management, design and build, management contracting, construction management, prime contracting, build operate transfer (BOT). In all these cases the building is to be owned by the client himself or acting on behalf of another owner. The contractor is not the owner. The services the contractor or manager is asked to provide vary. In particular services may or may not include design. If they include design they may require different designs to be submitted as part of the competitive bidding process, one designer may be selected and commissioned or there may be a mixture of the two. The methods also vary in the role taken by the manager of the project and in his contractual position. This in turn determines the extent to which he is at risk.
- the methods for the procurement of a service for the client which happens to require a building to provide the service. These include build own operate transfer (BOOT) and the private finance initiative (PFI). [These are now known in the UK as public private partnerships (PPP).] In these cases the contractor and/or his collaborator is the owner. There is a great diversity in the services to be

provided from running a hospital or a prison to managing a toll road. The bidding process normally involves the contractors in producing separate different competitive schemes for the services to be supplied.

- the method of selection of the contractor or team. There are a number of procedures involving open tendering, selective tendering in some form, negotiation or, in the case of large continuing clients, the prior selection of a number of contractors who are judged to be satisfactory, so that one is chosen for each project with competition being confined to price competition amongst the contractors already short-listed.

In considering the costs of tendering the factors which are specially important are the scope of the goods or services to be provided by each bidder and the number of bidders.

In the sections which follow these and other factors will be related to types of cost to consider the effects of various procurement methods on the parties to the construction process and the economy at large.

### **Costs of the client**

The decision on how to procure a project is taken by the client. His choice will affect, not only his own costs, but also those of all the parties involved in bidding and may, in the long run, have consequences for the industry and society as a whole.

The client's costs are measured mainly in management time but his decisions will put more or less work on his external advisers. In both cases the real cost is the opportunity cost, that is, the value of the output they would be producing if they were not working on that particular project. Opportunity cost can be more or less than money cost. *Prima facie* it would seem that the client's costs would rise with the complexity of the procurement process, though the authors are not aware of any hard data on this matter. It would seem that extra functions required by the contractor or manager would require more expensive management of the selection, especially if there is competition for each function. Such extra costs would be offset to some extent, or even perhaps more than offset, by the saving on the costs of selecting those performing these functions separately. Many large continuing clients have moved to new methods of selection of which partnering is one. In this case selection of all the parties to the process is undertaken in advance of requirements so that when a particular project is let no further selection should be necessary. The reasons for adopting these diverse methods of procurement do not rest on the costs of procurement but on a belief that efficiency in the total provision of the required project is in the long run enhanced, for example by lower costs or less risk of failure [Hughes *et al* (1998)].

Clients do not take into account, and probably do not realize, that the greater the costs imposed on contractors by their procurement methods, the greater in the long run will be the costs of construction by the process described below.

The client's costs of procurement are his private costs; they are under his control and it may reasonably be assumed that the advantages he buys in incurring these costs yield a financial benefit. Moreover they are directly related to the individual project and so are variable. An element of fixity is introduced with partnering where costs of getting to the stage of a partnering agreement are related to an unknown number of projects and cannot afterwards be altered.

### **Costs of the contractor**

The building or civil engineering contractor may become involved with provision of services beyond those of construction, for example, of design, of finance for the construction of a project, of management of the completed facility and the services it provides. This involves team working and the constructor may not be the leader of the team. For the purposes of this paper 'contractor' is understood to mean the party to the process who is contractually committed to the project of which construction is an important part.

The contractor's costs of obtaining work are not under his control. If the contractor wishes to be in a particular business he has to accept the procurement method ordained by the client. There are two aspects of costs of obtaining work to be considered in this section: the cost of winning a contract for one project with various types of procurement methods and the cost to contractors of tendering for work where they failed to obtain the jobs.

*Prima facie* costs of being selected and of estimating will be lower the simpler the project for which the contractor is bidding and the greater his knowledge and experience of that type of work. If functions other than construction are added to the bid, notably design, provision of finance or management of the services provided by the project, the costs of bidding escalate. For partnering work the initial costs to the contractor of passing the selection process may be very high. This is especially so since the process will probably take the time and effort of a large number of senior staff for whom the opportunity cost may well be higher than their money cost. Once the contractor has passed the tests, the cost of estimating the price, which for multidisciplinary projects may itself be high, is the only cost. Costs of being vetted for partnering agreements cannot be altered. They are the same whether the firm gets no work as a result or a lot of work. The manpower used up in the process of selection *ex post* has no alternative use so it has no opportunity cost and ought not to be considered in the decision-making process. This means that the firm should not tender for a project for which it has gained a position on the select list just because it has spent a lot of money and effort in getting to that position. The decision should be based on the current and future costs and benefits only. Costs which have been incurred in the past and have no current opportunity cost are known as sunk costs.

There will also be the problem that, if the contractor is inexperienced, the estimate may be too low so that the actual project makes a loss. He is particularly vulnerable if he is relying on outside specialists with attendant risks of delays, escalating costs and non-fulfilment of contracts. These risks are not part of the cost of obtaining work but should rather be included in the contract price as part of the mark-up.

The cost of estimating and the costs of being asked to bid for an individual project are variable costs, that is, they are directly related to turnover, though the success rate determines the exact relationship. The cost of estimating for a particular project could be included in the cost estimate for that project. It is understood that that is not normal practice. All costs of obtaining work are regarded as overheads and included in the mark-up for contracts as appropriate. The total cost of obtaining work is high. Taking the estimates of costs of tendering mentioned above of ½ -1 percent for traditional contracts and 2-3 percent for those involving finance, and assuming that for traditional contracts contractors obtain one in six of contracts bid for and one in four for complex projects, then the total costs of obtaining work become 3-6 percent for traditional work and 8- 12 percent for complex work. The National Joint Consultative Council for the UK recommends five to eight contractors for selective tender [NJCC (1994)]. We do not know whether these figures are correct but they indicate that costs are high and that costs for complex work are probably a higher proportion of turnover than for simpler work. Thus the client in determining what procurement method to use is affecting contractors' overheads across the board and not simply for the one project he is currently concerned with.

If the change to more complicated procurement methods increases the cost of obtaining work and hence overheads, can contractors simply add this extra amount to their overheads and hence charge more for contracts generally or will they, in so doing, become uncompetitive and lose their place in the market? There is no evidence of what happens in practice but theory goes some way to elucidating the position. Answers depend, amongst other things, on the level of competition and the relative power of the players in the construction process.

If there is effective competition in the industry, then contractors in general will be making just enough profit to keep them in the industry. This level of profit is known as 'normal profit'. If they make more than that, others will enter the industry and their extra capacity will drive down prices to the level at which normal profit is made. If firms are making less than normal profit some firms will leave the industry, thus reducing supply so that prices rise to allow normal profit. Individual firms may in the short-run make more or less than normal profit but in a truly competitive situation it will pay them to expand or to shrink so that

they too are making normal profit. The economic system is in a constant state of adjustment towards an equilibrium situation [Hillebrandt (2000)].

With effective competition, if all contractors were in the same markets in the same proportions, they would all have the same increases in overheads and their costs would rise to the same extent. They would be able to increase their prices but as they did so the demand for construction would fall and some firms would shrink or go out of business. However all contractors are not in the same markets. If those relatively few contractors who are in the complex procurement project market as well as in other markets try to add the extra overheads for the former onto all their projects, they will become uncompetitive in the traditional markets where they are competing against contractors who are operating only in these markets. Their tender success rate will fall, their costs will rise and their profits will fall. If however they add the higher mark-up on to the complex projects they will be in the same position as other contractors, provided their competitors are doing the same thing. Logically they all have no choice but to separate the markets in applying overheads though it is probable that, in determining mark-ups, this argument is swamped by the other factors determining mark-ups, such as the overall state of the market, and the expected competitors. Nevertheless a rise in price may choke off demand as in the case where all contractors are in the same market.

If competition in the industry is not strong, for example, if there are few contractors in the market, if there is overt or tacit collusion or if one contractor has a monopoly, the profits being made will be higher than normal and the contractors will probably absorb part of the higher overheads so that the price rise is less than in a competitive situation, or even nil.

The construction industry is notoriously subject to fluctuations in demand so that the overall market demand and supply situation is constantly changing. This means that equilibrium is never reached and often, for long periods, not even approached. Thus in the short run the effect of higher costs will depend on the relative power of clients and contractors. If work is short, the contractors will have to bear extra costs and profits will fall below normal levels. In a period of boom, when clients are having difficulty in finding contractors to undertake work, the contractors can recoup all overheads and much more besides. Profits will be super-normal.

It is important to realize that high costs of obtaining work and of pricing projects, through their effect on contractors, affect other clients and the operation of the industry as a whole. Because a healthy industry is important to the economy, that is a matter of concern to society as a whole. Society is also concerned with other broader issues which are discussed below.

### **Costs to society**

There are two main ways in which the method of procurement adopted by clients impacts on society. The first is that the construction industry costs can rise, as outlined above, so that price of construction increases to the detriment of other clients and the economy. There may however be advantages of a more elaborate procurement process if this leads to better buildings in terms of, for example, design, quality of construction or life cycle costs. Clients take account of the benefits and their own private costs but not of the increase of costs on the industry. Thus the private costs and the social costs are not the same.

The other, probably more important, consequence of elaborate procurement processes is the use of scarce resources whose cost is not necessarily reflected in their price. Consider, as an example, the resources used in design. In the traditional process for building the client chooses an architect and commissions him to prepare the designs for the project he requires. Only one architect is involved. In a design and build competition, or simply in an architectural competition, several architects are producing designs for the same building of which only one will be used. In other types of procurement, such as PFI or prime contracting, many designers are employed on different solutions for the same project. The money costs of this will be reflected in the costs of the individual contractor and the cost of the unsuccessful bids must be recouped as outlined above. The real cost however may be quite different. If there is a shortage of good architects, while some of them are working on the one project, they are not working on other projects and,

as a consequence, some projects may not get built, may be delayed or be designed by less competent persons. The opportunity cost of employing these architects would be high. In the long run economic forces would correct this situation. The price (fees) of architects would rise and more architects would emerge. The problem is that the training period for an architect is a minimum of five years and for an experienced architect much longer. The rise in the fees of architects would serve to increase the cost of projects without solving the supply problem. In this case the social costs of elaborate procurement methods may be much higher than the private costs to the client.

It may be that there is a surplus of excellent architects. In that case the opportunity cost of the employment of several on one project is low and may be lower than the money cost. Their use would be beneficial to society in other ways, perhaps reducing unemployment benefits or social security payments, and certainly, by increasing their incomes, stimulating the economy as a whole. Thus, in this situation, the social cost of employing architects on the project with a complex procurement process may be less than the private cost.

Similar arguments may be applied to the cost of arranging financial packages, assessing and minimizing full life costs, assessing the costs of providing a service linked to the building or other works and so on.

### **Conclusions and implications**

It is the client alone who takes the decision as to what method of procurement to adopt. Yet this theoretical investigation of the costs of procurement has shown that the costs to the client of elaborate methods of procurement are only a small part of the potential costs to contractors, to the industry, to other clients and to society as a whole. Some of these costs may be offset by benefits of procurement methods which may produce buildings and civil works which are better than they otherwise would be. There is very little information either on the costs of different method of procurement or the benefits derived from them.

The matter is of concern because of the potentially high costs of elaborate methods of procurement to other clients and to society as a whole in a situation of high demand in the industry, when resources required to achieve inclusion in the list of contractors selected, to produce viable schemes and to assess their cost are scarce.

The discussion has produced results which justify further investigation of the situation. As indicated the data on the magnitude of costs for various methods of procurement are scanty—indeed virtually non-existent. The authors of this paper are hoping to undertake research into the money costs and real costs of various procurement methods. It would be helpful to know of anyone working on this topic so that we may exchange information and ideas.

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