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Pricing approaches in the construction industry

Akintola Akintoye and Martin Skitmore

Contractors have to bid competitively for most of their work and at the same time deal with the risks and uncertainties connected with bid submission. This article examines the factors involved in tender pricing and how they interrelate. From this, a conceptual model of contractors' pricing strategy is developed.

INTRODUCTION

Contract pricing is not a simple matter. The construction industry is extremely fragmented and highly competitive, contractors have to bid competitively for most of their work and at the same time deal with the risks and uncertainties connected with bid submission. The high level of price competition and low capital intensity that characterise the industry often combine to depress profit margins. A great deal of current information is needed, together with forecasts of demand, cost, competition, etc., to allow contractors to set bids and adjust them to desired profit levels.

In commerce, compared with the construction industry, much research has examined the processes and stages involved in pricing decisions. Pricing strategy, in relation to commerce, is defined as a reasoned choice from a set of alternative prices (or price schedules) that aims at profit maximization within a planning period in response to a given scenario [1]. In relation to marketing, the pricing decision approach involves the following [2]

1. establishing pricing objectives
2. considering factors influencing pricing decisions
3. examining pricing strategies and competitive responses
4. attention to methods of price determination
5. tactical considerations in setting prices.

Conceptual models of this type are expected to enhance our understanding of the factors involved in project pricing by construction contractors. This article presents a pricing framework for construction work in a similarly logical and systematic way.

Methodology

The development of the model is based on an extensive literature search (most of which cannot be reported in this short article) of standard textbooks, materials, proceedings and transactions of conferences, and referred journals.

Figure 1 was developed as an approach to the development of the conceptual model.

PRICING OBJECTIVES

The literature relating to marketing activities continues to report pricing objectives as the logical starting place for price determination. A firm's overall objectives determine its pricing objectives, which, in turn, establish the parameters of pricing policies [3]. Investigation of firms' objectives showed the importance of these objectives in the firms' pricing policy and method [4]. In essence, price should be chosen to achieve a company's objective [5]. Within this field of marketing, numerous pricing objectives have been identified [6]. However, empirical works have specified that the types of pricing objectives usually specified by businessmen or corporations are limited to seven [7-9].

The three major types of pricing objectives are as follows [2]

1. *Cost-oriented objectives* - to pursue a target return on investment and recoup costs over a particular time period
2. *Competition-oriented objectives* - to retain market share, discourage competition, and provide a barrier to entry by other firms
3. *Demand-oriented objectives* - to meet the expectations of clients and the industry.

However, it is claimed that firms' pricing objectives are related to expected profit levels, and usually concerned with either profit maximisation or profit satisfaction [10].

Empirical study found a correlation between the pricing objectives of construction firms and their pricing strategies, the objectives being restricted to target returns on investment and market share [11]. This work also recognised that most of the firms with a target return on investment used a cost-based pricing strategy.

Therefore, it may be expected that a firm's pricing objectives will have different weighted effects on its bid price decisions.

FACTORS INFLUENCING PRICING DECISIONS

These entail gathering information about the various factors to be considered when making a bid price decision. Four broad areas have been identified.

Environmental Factors

Decision makers often assess a unique set of economic factors in the course of project development. These include important macroeconomic variables encompassing a project's economic, political, social, and technological circumstances. These factors largely determine the market situation in the construction industry. For example, general economic conditions could determine the climate for tendering and market price level [12]. Similarly, the relationship between economic and social factors has been used to develop construction cost index [13], while some of these factors could be used to forecast changes in the building market [14].

The economic, social, or political situation may dictate the level of demand for construction work, the number of construction firms registered, and the degree of competition for

construction jobs. In times of economic uncertainty, firms may switch from cost-based to market-oriented pricing strategies. In boom conditions, construction firms may settle for cost-based pricing, and therefore make target returns on investments. Environmental factors could include any combination of the following

- Geographic location of construction demand
- Competitive market conditions
- General state of inflation or deflation
- Local tendering customs
- Governmental policies
- Capacity and facilities available in the industry
- Level of taxation
- Economic well-being of a nation

Profitability

Profitability in the construction industry is generally rather low compared with other industries [15]. At the project level, profitability could be described as the trade-off between winning a tender and making a reasonable profit, expected profitability on a project bearing a close relationship with the mark-up value. For example, Runeson and Bennett [16] emphasise the importance of mark-up in tendering strategies, while factors involved in the construction contractors' mark-up have been identified [17-19].

Profitability factors are mainly related to

- Level of risk and uncertainty in a project
- Human error
- Desirability of a project
- Escalations
- Strategic manoeuvring

Estimating Cost

The first purpose of a cost estimate is to provide knowledge of the likely cost of construction work. In the construction industry, a bid price is traditionally formulated by combining this cost estimate with a mark-up value.

However, the reliability of this process has been questioned. For example, it has been argued that estimators cannot really estimate costs because they have no reliable means of knowing what the actual costs are [20]. Also, few builders know the accuracy of their cost estimates because of lack of reliable feedback created by a combination of the competitive tendering system and variable site performance levels [21]. However, empirical work suggests that cost estimates continue to provide the basis for most contractors' tender pricing [22].

Cost estimate factors consist mainly of design and construction variables. These determine the project's level of complexity, the use of plant, and specifications and buildability of construction work, as follows

Design variables

- Plan shape
- Project size
- Storey height
- Number of stories
- Specification standard
- General project arrangement (including layout)
- Degree of repetition within building
- Site conditions
- Environmental needs (natural daylight, regulations)
- Extent of services and external works

Construction variables

- Construction form
- Degree of repetition with building
- Task complexity
- Level of interdependence of construction operations
- System of construction
- Extent of experience on the type of construction
- Contractor's work programme
- Weather/ground conditions
- True overlap of design and construction

Procurement

Procurement systems are concerned with the execution of construction contracts and the factors involved in this. These include

- Tendering procedure
- Contractual arrangement
- Intensity of competition
- Contract duration
- Financial consideration of client
- Contractor's cash flow manipulation
- Quality of project information
- Designers involved
- Quarter of year in which the bid is submitted
- Drastic contract provisions
- Use of subcontractors
- Quantity of expected variation on a project
- Method of cost estimating
- Level of adequacy of cost data
- Type of client
- Contract value
- Remoteness of project and distance from contractor base

PRICING STRATEGIES

To meet specific objectives, and within the content of factors that influence pricing decisions, firms have to adopt some type of pricing strategy. For example, a construction firm could target a particular market by tendering for such jobs at a low price level. Firms may adopt low-profit pricing during economic recession to maintain market share or penetrate a new market [23]. Investigation of construction firms' market-oriented pricing strategies for bids suggests that construction firms are interested in what the construction market will bear whenever they bid for projects [24].

Different pricing strategies have evolved in other industries. The three major strategies are [2, 25]

1. Cost-oriented methods based on cost plus mark-up, breakeven, and target rate of return
2. Competition-oriented methods based on competitors' prices. This involves pricing in relation to competitors' expected reactions
3. Demand-oriented methods based mainly on the going price or customers' perceived value.

Gabor [26], on the other hand, classified pricing policies into two basic approaches - cost-based and market-oriented pricing. Cost-based pricing encompasses profit-oriented and government-controlled prices, while market-oriented pricing includes customer- and competition-oriented pricing. However, some argue that the structure of the construction industry and the nature of the process are more suited to market- than cost-oriented pricing [24].

Experience and observation of the construction industry indicate that the following six approaches are relevant to construction bid pricing.

Cost-based approach. Two approaches here are relevant - cost estimate plus variable mark-up and cost estimate plus flexible mark-up. The construction literature has emphasised the importance of market conditions on mark-up values.

Market-based approach. This relates to a construction firm's perception of the "going price" of a project, considering the general level of competition, workload in the industry, the client's bid price consciousness, etc.

Standard rate table-based approach. This is based on extracts from standard construction price books such as Spons, Laxtons, Wessex database, etc.

Historical price-based approach. Previous bid prices are adjusted for the effects of time, location, current economic conditions, variations in design and construction, etc. This is more relevant to serial tendering, in which a firm is bidding for a similar project executed for the same client in the past, at the same or different site location(s).

Subcontractors' bids-based approach. If a contractor can guarantee the quality and integrity of the subcontractors and the ability to adhere to schedule and stay within estimates,

subcontractor bids may constitute a huge proportion of the prime contractor's bid price. The contractor may treat these bids as a cost on which to base the mark-up. In essence, the more work a contractor subcontracts to others, the lower will be the contractor's risk and thus the lower the potential mark-up on the total value of the contract [27].

Cover price. Many reasons prompt a contractor to quote a cover price in competitive tendering. Lack of desirability of a job and lack of time to prepare detailed cost estimates or market studies are very important.

THE CONCEPTUAL MODEL

Individual firms' pricing objectives and perception of the factors influencing the pricing decision will to a great extent determine or dictate the pricing policy to adopt on bid pricing. Figure 2 models a general framework for contractors' pricing strategy. This model suggests that pricing objectives, which can be broadly categorised as profit maximisation and profit satisfaction, determine the pricing policy of firms. For example, a firm that adopts target return on investment as a pricing objective could be regarded as satisficing rather than maximising the profit [28]. Such firms set prices by adding a standard mark-up to costs and are therefore not profit maximisers [29]. On the other hand, a firm whose pricing objective is sensitive to competition, workload, and price consciousness of clients could be regarded as a profit maximiser and generally adopts market-oriented pricing policy.

Factors influencing pricing also influence estimation and allocation of risk and uncertainty. To a great extent, project profitability depends on the expected risk and uncertainty involved in a contract. A firm that intends to spread risk and uncertainty may settle for a subcontractors' bids-based pricing policy. In essence, the subcontractors' pricing process will be central to the overall pricing process [30].

The procurement system determines the contractual relationship between client and contractor. The level of confidence a contractor has in this system will determine whether the contractor adopts a flexible or fixed mark-up pricing policy. A firm that has little confidence in a contract procurement system may bid based on a cover price.

Environmental factors determine the workload available for the industry. Turbulent environmental conditions characterised by sluggish construction demand, intense competition, fluctuating interest rates, high corporation taxes, harsh government regulation, etc., lead to quick changes in firms pricing policies. In essence, pricing policies are fine tuned to prevailing economic conditions, such that a firm changes from cost-based to market-oriented pricing (which pays more attention to environmental dynamics) in times of economic uncertainty or when there is a need to break even or penetrate into a new construction market. Figure 3 proposes a model for construction contractors' detailed pricing strategies. It indicates the detailed pricing objectives of firms and factors specific to profitability, environmental conditions, cost estimating, and procurement systems known to influence firms' pricing policy decisions. The model considers all the stages in the development of pricing strategies identified in Figure 2, and establishes the links or relationships among the different stages of price determination. For example, Figure 3 shows that cost plus fixed mark-up in tender price determination is based on a profit satisfaction objective. It identifies the factors related to cost estimating and mark-up and establishes a link between mark-up and profitability, type of work, location, and procurement system. For other

pricing policies (market oriented, subcontractor bids based, historical price based, and cover price based), the linking factors can also be traced in the model.

In essence, the firm's pricing objective is central to a pricing strategy. Pricing strategies are expected to be flexible and change with the circumstances of a construction project. Factors influencing the pricing decision are important and provide a pointer to the risk level of a contractor.

CONCLUSION

This article describes a conceptual model of construction contract pricing strategies and identifies the links between all the stages involved in bid price formation.

However, rigorous research is necessary to assess the strength of these relationships. The tender success rates of these strategies need investigation, while the contribution of each to project profitability is another important area for study. Research is also necessary to assess the dynamics involved in terms of changes in strategy and strategy type through changing market conditions, company resource levels, etc., and particularly the transition from cost-based to market-oriented strategies as the market price of construction becomes less certain.

Although based mainly on a literature review, the conceptual model presented here could be helpful in the development of computer aids for construction contractor pricing strategies, while simultaneously enriching our understanding of the pricing decision process of construction firms.

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Figure 1: Construction price determination approach

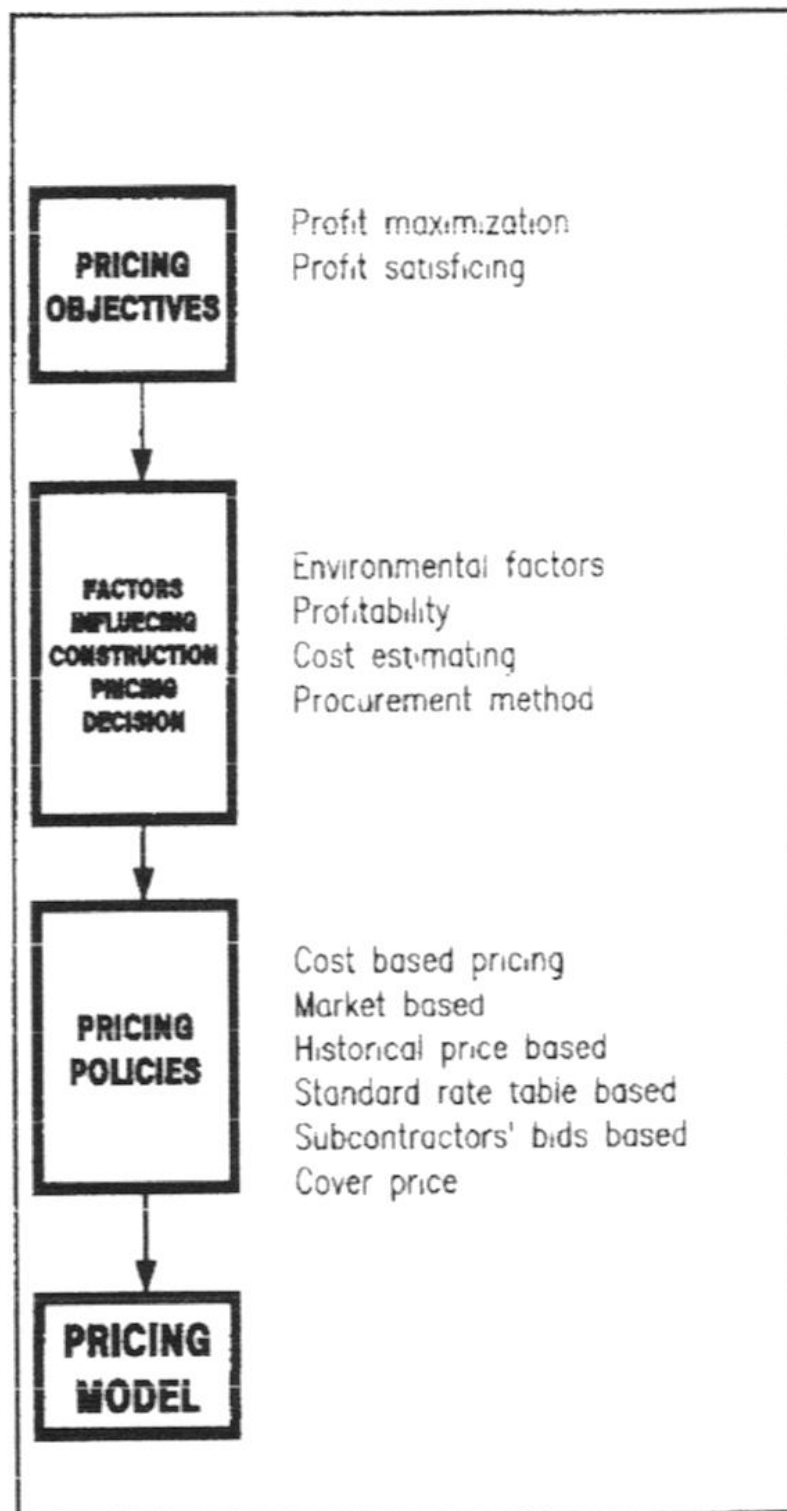


Figure 2: General framework for pricing strategy

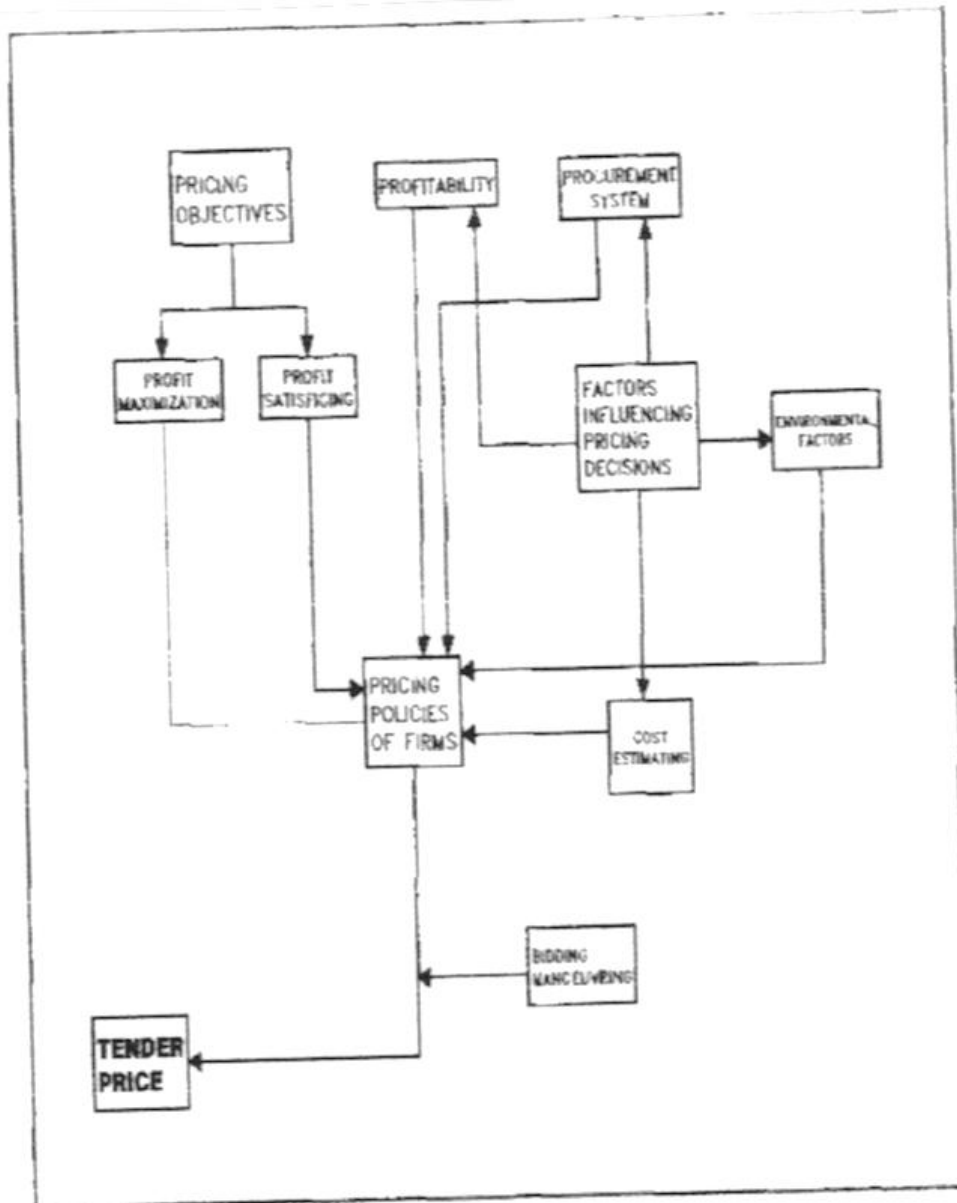


Figure 3: Construction contractors' pricing strategies

