

An analysis of the changing structure of the contractor in the UK construction sector using new institutional economics

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COBRA 2009

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All papers submitted to COBRA were subjected to a double-blind (peer review) refereeing process. Referees were drawn from an expert panel, representing respected academics from the construction and building research community. The conference organisers wish to extend their appreciation to the following members of the panel for their work, which is invaluable to the success of COBRA.

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An analysis of the changing structure of the contractor in the UK construction sector using New Institutional Economics

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Abstract:

There have been considerable changes in the organization of the UK construction sector over the past fifty years. This paper will describe these changes attempt to explain them in terms of the framework of New Institutional Economics as developed by Oliver Williamson and others.

This will focus on the procurement interface and also on the supply chain interface as to how contractors employ subcontractors, suppliers, plant hirers, etc. This analysis will rely on Williamson's schema for contracting and will assume that contractors will organize so as to minimize transaction costs.

Assuming there are no major contractual hazards the default position would be to go for an unassisted auction market solution. If hazards are present such as uncertainty or complexity then some contractual safeguards may be employed to protect the contractor. These safeguards could involve integration along the supply chain or some form of the form of partnership arrangements such as framework agreements.

It will be shown that UK contractor operated a largely integrated form in the 1950s dealing with most if not all trades. This gradually evolved to the situation by the 1980s where the contractors often operated as a management shell with most work being hived off to subcontractors with work let on an auction market approach.

During the sustained boom in construction output, the contractors sought to secure commitment from suppliers and subcontractors using partnerships. Some of the current partnerships of this type may not survive the current recession. A return to unassisted auction market solutions may suit the main contractors better in the current economic climate.

Keywords:

Procurement, supply chains, subcontractors, contractual hazards, New Institutional Economics

1. Introduction

1.1 Objectives of paper

This paper intends to try to explain the changes in the structure of contractors and subcontractors in construction by reference to the contractual arrangements in place at the time in question.

The paper will rely on the theoretical framework of New Institutional Economics as presented by Oliver Williamson (2000). Using this approach of contractual scheme from Williamson (2000), it will be argued that both the contractual systems and the shape of the contractor will be determined by economic forces and the level of capacity that the industry is operating at. The main contracting system has been the dominant structure in the UK over the period studied.

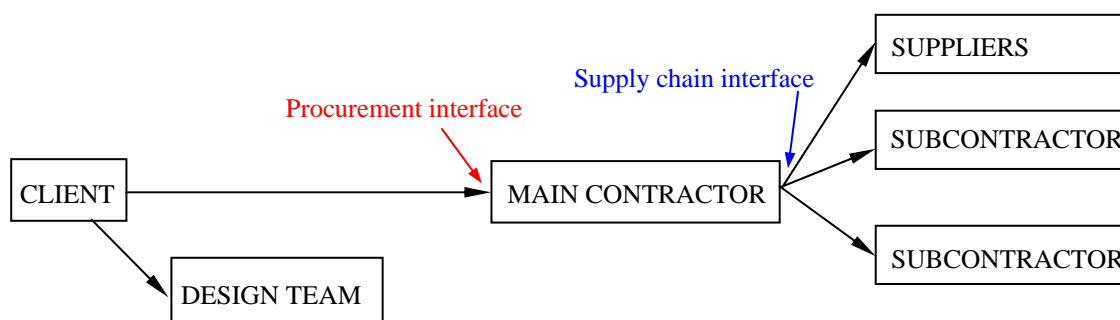
1.2 The main contracting system

The current system of contracting used for construction throughout the UK and the much of the world involves having a single main contractor to whom the contract is let. The main contractor will in most cases sublet part or even all of the work to a number of subcontractors. This evolved from the previous nineteenth century trade contracting system¹ where the project was procured as a series of trades contractors covering traditional trades such as masonry, carpentry, plumbing and plastering.

The system developed into one where a dominant or lead contractor would emerge dealing with the core structural trades. Eventually the lead contractor metamorphosed into a single contractor while the other trades contractors became subcontractors. The assumption was that the main contractor would have completed the bulk of the core structural trades. Subcontractors would be confined to specialized areas such as engineering installations and in some cases the finishing trades.

Figure 1: below illustrates the relationship between the main stakeholders:

Figure 1: The main contracting system



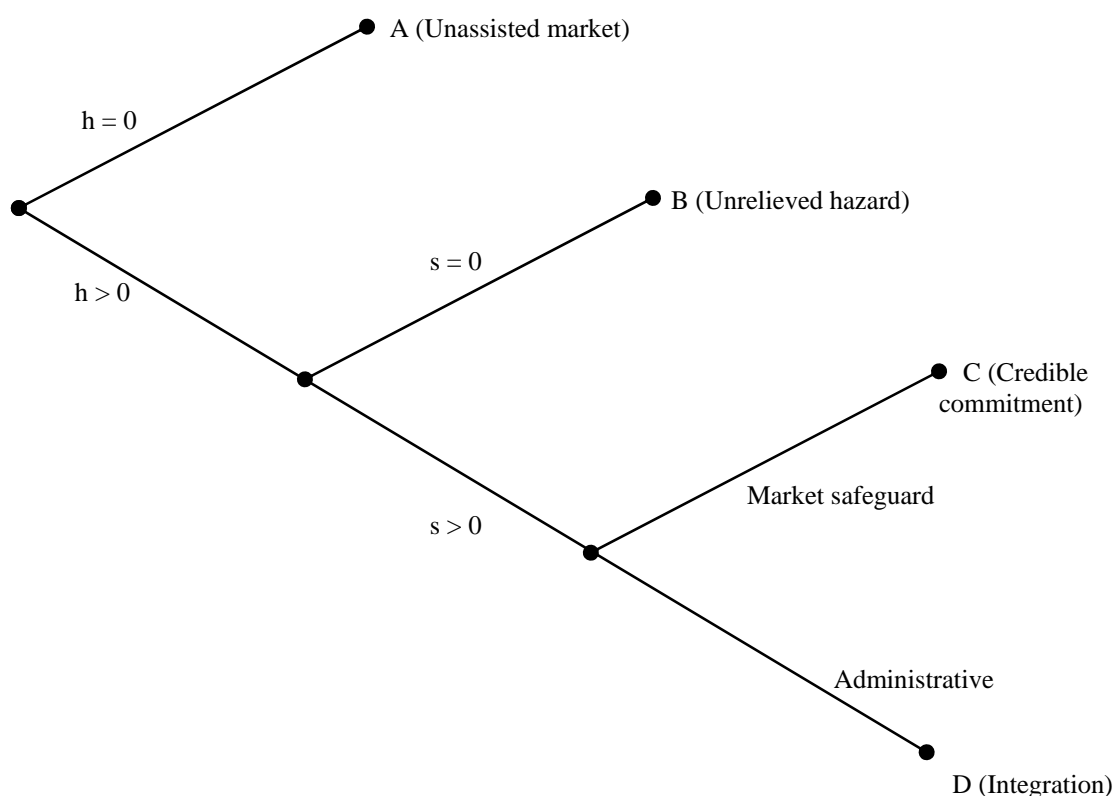
The diagram indicates the two contractual interfaces in the process. Analysis of the above might give some insight into how the structure arose in the first place and how it was likely to evolve in the future.

¹ The trades contracting system continues to be employed in France, Germany, Denmark, Austria and much of continental Europe and was even used in Scotland until comparatively recently.

1.3 The Firm as a Governance Structure

The paper will examine the two key contractual interfaces in the process. The first is that between the client and the main contractor – the procurement interface – while the second is that between the main contractor and the subcontractors and their suppliers – the supply chain interface. In both cases, Williamson's (2000) simple contractual schema is used. This has a first choice of governance is determined by the variable, h , denoting contractual hazard such as asset specificity. The second choice is determined by the variable, s , denoting contractual safeguards. In both cases the decision taken can be seen as reflecting the trade off between the lower standard costs of basic auction markets with the lower transaction costs (Williamson, 1979) implicit in the more complex governance systems.

Figure 2: Simple contracting scheme
Source: Williamson (2000)



The assumption here is that an unassisted market will generally provide the cheapest way of letting the subcontract or the supply agreement unless there are significant transaction costs in not entering a longer-term commitment.

1. Asset specificity will apply where the resources required to carry out a particular task are somewhat unique either in terms of the skills needed or the fixed capital assets employed (plant machinery, etc).
2. Uncertainty in terms of the availability of resources that might encourage firms to secure supplies by longer-term contractual arrangements.
3. Complexity such that the company will again seek to ensure that they can obtain the management expertise needed to complete the task. This relates to asset specificity in that a complex task is more likely to involve asset specificity than a simple task.

Where this above hazards apply in most cases either long-term complex contractual arrangements will be made or the company may seek to use vertical integration to secure the necessary assets.

In either case the objective is to minimize transaction costs arising through legal disputes, breakdowns in arrangements, etc. This would also include such issues as costs sunk in fixed capital investment or staff training specific to a particular client or main contractor.

2. The Procurement Interface

2.1 Vertical Integration

Traditional contractual procurement will be found at Node C or Node D. There is a limited extent of vertical integration with the roles of contractor and client effectively fused.

The first category concerns speculative development. This is generally found in new house building and also in office and industrial units. This may be thought of as backward integration of the contractor into development. Rather than waiting for contracts to be awarded, the contractor-developer will buy up land and builds houses or units ahead of demand and then sells or leases them on completion. This enables the contractor to have greater control over their workload and also to eliminate transaction costs.

The second example is that of direct labour and is generally restricted to the area of repairs and especially responsive or unplanned maintenance of existing buildings. Sometimes direct labour organizations engage in planned maintenance or even new build but this is less common. Most examples of direct labour organizations are found in the local government sector although many private sector companies – notably Cadbury and ICI – have had sizable works divisions. The motivation for forward integration by the client is to eliminate transaction costs and to secure supply. This is particularly the case with small messy repair and responsive maintenance tasks that are difficult to tender for in the conventional way. In addition such works tend to be less profitable than new build and speculative work so the client sometimes may have problems letting such contracts during periods when the construction sector is near to full capacity.

2.2 Credible Commitment

Construction projects may involve a limited degree of asset specificity. For example there may be a limited number of firms will and able to build the project within the locality (site specificity). Most construction projects will be characterized by uncertainty and complexity. There may also be reputational constraints. This will generally eliminate the option of procurement at Node A in all but the most basic types of project.

Construction projects have been subject to legal action. The industry has traditionally operated using lowest price competitive tendering. Often the firm that wins the project is the one who has made the most mistakes with the tender. A company winning a project under such conditions and facing a loss will often then scrutinize the contract documentation to find a pretext for a claim to claw back the lost profit. This led to the culture of claims that was endemic throughout construction.

Because of the above, construction contracts have evolved to deal with this type of situation. The main standard contracts used in construction² over the past fifty years in the UK are

² Joint Contract Tribunal, GC Works 1, Institution of Civil Engineers Contract, and New Engineering Contract

sophisticated and provisions for compulsory Arbitration are present. In addition most contracts include for optional Adjudication to reduce the risk of litigation. This ensures that the unrelieved hazard at Node B will not apply to most traditional construction projects.

Thus the bulk of traditional construction projects, not subject to forward or backward integration, covered above will be procured at Node C (Credible commitment).

3 The Supply Chain Interface

3.1 Subcontracting

Applying the same model to the supply chain interface produces very different results. Taking the contractual safeguard first, while standard subcontract forms are available – for example the Joint Contract Tribunal form – they are not always used. Main contractor/subcontractor relations may be dealt with using *ad hoc* or less sophisticated, maybe one-sided documentation.

The relationship is generally not equal between the parties given the dependence of the subcontractor on the main contractor for work. There may also be asymmetric information with the main contractor likely to know more about issues such as the specification and the design of the project. Extracts from the tender documentation sent to the subcontractor during the bidding phase frequently missed out key specification clauses.

Each party may have their own ‘standard conditions’ that they will wish to apply to all transactions. It is not unknown for subcontractors to slip a sheet of standard conditions in with their tender in the hope that this will ensure the provisions included apply instead of the default position or common law.

3.2 Hazards in Subcontracting

There are hazards in subcontracting but probably less than for main contracts. There will certainly be uncertainty and complexity. This will be less than for the main contract as it is broken down into a number of tasks. The main contractor is more likely to be held responsible if things go wrong. There will be little or no asset specificity in this case. Plant and equipment used will not be an issue as all will be available to hire from several sources. Many tasks are likely to be standardized via the specification.

In cases where highly specialized tasks are involved, the client and the design team have often specified the use of a nominated subcontractor to perform the task. This occurs when there is a reputational constraint. The theory is that the main contractor would not do the work themselves so the design team would like to nominate exactly who undertook the work. The same contractual position as for the main contract will apply for nominated subcontractors. The use of nominated subcontractors has declined over the years.

3.3 Suppliers

The same criteria will apply in the case of suppliers. Materials and components used will generally be homogenous and covered in the specification. Specialized materials have been specified in the past using a nominated supplier in response to reputational constraints. The provisions of the Sale of Goods Act will generally apply to suppliers.

3.4 Contractual organization

In most cases, the above issues should logically point to Node A (Unassisted market) or Node B (Unrelieved hazard) for main contractor/subcontractor and contractor/supplier relationships.

However, in the 1950s, most UK contractors were highly integrated, at Node D, employing operatives in most trades and owning most of the plant they required. There was limited use of manufactured components or off-site prefabrication with most tasks being undertaken on site using traditional materials. Components and materials tended to be sourced from builders' merchants and manufacturers with whom the contractor had a long term working relationship.

3.5 Vertical Disintegration

The response over the next twenty years was vertical disintegration. This took a number of forms:

1. Subcontracting was increased beyond the traditional services and finishing trades to cover core structural trades.
2. Plant hire increased in scope with many construction firms hiving off their plant divisions to form separate plant hire companies. Contractors increasingly relied on hired plant with only regularly used items being owned by the companies.
3. Labour only subcontracting came in, initially as a tax-saving exercise, as an alternative approach to employing labour on a self-employment basis. This came into trades such as bricklaying, traditionally the preserve of the main contractor.
4. Use of ready-mixed increased as the expense of contractors using on-site batching plant.
5. Off-site prefabrication and use of manufactured components were used more at the expense of traditional building materials.

This process culminated with the emergence of the modern contractor. Essentially this took the form of a fully vertically disintegrated shell structure. The firm would only employ site management staff plus head office staff. Subcontractors generally employed all site operatives. Most supply and subcontract arrangements will be at Node A or Node B.

This brought things almost full circle back to the original trades contracting system with the work carried out by subcontractors operating on a trade basis and the main contractor reduced to a management organization. Procurement routes – management contracting and construction management – emerged to institutionalize this situation.

4 Recent Developments

4.1 Background

The adversarial model applied and generally it was the subcontractors and suppliers who came off the worse. Subcontractors were often subjected to one-sided contracts and along with suppliers could be kept waiting for months if not years for payment.

Inevitably this situation ends up harming all concerned. Companies holding a reputation as 'subby-bashers' or who were known as slow payers would be likely to encounter problems. This would apply to hiring subcontractors on favourable terms or obtain materials at good prices. Even the site managerial staff were often employed for the duration of the project rather than on permanent employment terms.

This would be on top of the transaction costs associated with the numerous operations including materials supply, plant hire, subcontract, and labour employment. These transaction costs will tend to be more significant as the industry becomes busier. The costs of hiring labour and employing subcontractors will be higher as the industry nears capacity. Paradoxically the transaction costs of employing subcontractors can also rise during a slump for the construction industry. This is because of the increased risk of insolvency on the part of the subcontractors. Having a subcontractor go bust part way through a project will leave the main contractor with a substantial transaction cost.

4.2 Decline of Traditional Procurement

The traditional procurement route has declined in importance over the years. The private sector has increasingly gone over to design and build contracts. It is not that different in structure to traditional procurement except that the design construction functions are fused under the control of the contractor. This is a form of partial integration but had little effect on the actual construction process.

The public sector has also shifted away from traditional procurement in most cases towards design build maintain and operate contracts styled as the Private Finance Initiative (PFI) or Public Private Partnerships (PPP). This could be seen as integration in that the contractor will take over traditional client roles such as maintaining and operating the building throughout its life. The contractor would also assume the developers' role of raising the finance and 'renting' out the facilities to the NHS or the public sector agency concerned. An alternative known as prime contracting is used for most public sector contracts the above is ruled out. For example it would not be deemed appropriate for many defence contracts to be let on a PFI/PPP basis.

4.3 Partnering Agreements

On the issue of dealing with subcontractors and suppliers, there have also been major developments. The key is partnering as a means of getting away from adversarial relationships. The process was encouraged by two major Government sponsored reports: the Latham Report (1994) and the Egan Report (1998)

The complimented the emerging area of supply chain management. In this context, supply chain management has little to do with logistics but is concerned with managing the relationships between the contractor, subcontractor and suppliers. This is clearly aimed at reducing the transaction costs involved.

The solution suggested by partnering is that long-term relationships should be encouraged between the contractor and the supply chain on the basis of cooperation rather than conflict.

Clearly the culture of the industry will not be changed overnight. Any contractor facing a loss because of a mistake by one of his subcontractors will usually think of a claim and if necessary legal action as his first course of action.

As a possible means of transition, the Joint Contract Tribunal has produced a standard form of subcontract and also a framework agreement. The suggestion is that the parties would sign the long-term framework agreement and a contract for the first project. Subsequent projects would involve further contracts. However one the fourth or fifth project the assumption is that the emphasis should shift from the contract towards the framework agreement as trust is built up.

Other contractual forms in particular the New Engineering Contract has increased in usage because it has evolved specifically in line with the recommendations of the Latham Report. It is now the preferred choice for most public sector projects in the UK.

Partnering arrangements are intended to create a long-term agreement that comes close to a joint venture. This could be seen as a form of vertical integration. Joint ventures are seen as integration. An example of a joint venture is TransManche Link, a consortium of ten British and French contractors and five banks that was set up for the purpose of constructing the Channel Tunnel. The long-term joint venture implicit in partnering can equally be seen as vertical integration (Monahan, 2006).

This sort of relationship involves a much higher degree of asset specificity. The demands for higher quality and stronger safety regulations also provide a push towards an element of integration. The move towards design & build and design build maintain & operate provides a further incentive.

The fundamental structure of construction firms appears to be clearly influenced by the type of contracts used. This confirms the suggestion that viewed through the lens of contract; the firm becomes reconceptualized as a governance structure (Williamson, 2002).

The various pressures on the industry have in turn forced it to a vertically integrated structure and then to a highly disintegrated structure. Later the pressures appeared to be pushing the governance structure back towards integration. The first circle appeared to have been completed.

4.4 The current recession

The signs are that the recession over the last couple of years has slowed down the development of partnering agreements at the supply chain interface. Indeed there is some evidence, albeit anecdotal, that contractors are starting to abandon such agreements with a return to lowest competitive tendering. This corresponds to a move back to Node A or Node B of the Williamson model above.

The priority has shifted from securing supplies for the short to medium term towards cost cutting. The likelihood is that an open auction market will come up with a cheaper price in situations when the construction sector is below capacity. This will not necessarily apply in situations where the industry is near to capacity (Gardner, 2009).

There are also some shifts at the procurement interface with some clients reverting back to traditional procurement. These trends seem to signify a rolling back of the changes from the 1990s (Latham, 2008). It remains to be seen what will happen after the recession.

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