The hold-up problem in the management of construction projects: A case study of the Channel Tunnel

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Abstract

The hold-up problem in the presence of asset specificity poses great transaction hazards. Therefore, having a sound understanding of this problem is an important managerial issue. The purpose of this research is to apply the perspective of transaction cost economics (TCE) to the analysis of three major disputes that arose in the Channel Tunnel project during 1988–94. A special form of asset specificity is identified for construction projects: process specificity. This yields additional insights into the root causes of the hold-up problem. Three parameters, including ungovernable uncertainty, degree of lock-in and amount of money under dispute, are identified. It is shown that the observed connection between bargaining power as specified by this TCE model and the outcomes of dispute resolution is in line with the theoretical predictions. The lesson learnt from this project is that clients should not stretch the protective strength of a lump-sum contract too far and that the hold-up problem can indeed in some circumstances be regarded as both serious and unsolved by existing administrative structures and governance.
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1. Introduction

The hold-up problem has occupied a central place in transaction cost economics in explaining the differential efficacy that various organizational forms exhibit in governing transactions of different attributes [20,15,27]. The origin of this problem stems from various types of asset specificity, such as physical asset specificity and site asset specificity [29]. In the context of construction projects, a new type of asset specificity is identified, process specificity, a development of Masten et al.'s [25] concept of temporal specificity. It captures the fact that construction clients are vulnerable at post-contract stage if the initial requirements need to change after the signing of the contract and, combined with incomplete contract, the vulnerability

can be exploited by contractors and give rise to transaction costs [16]. These costs take the form of expensive measures taken by clients, as attempts to prevent or mitigate vulnerability to the hold-up problem. Naturally, whether this is a genuine threat can be challenged. For instance, a special issue of Journal of Law and Economics in 2000 was devoted to exploring whether the hold-up problem did exist in the classic case of General Motors vs. Fisher Body. Ronald Coase concluded that no factual evidence supports the existence of hold-up problem in that case [17]. The main purpose of this research is to conduct a case study of a construction project to demonstrate a case where process specificity and a hold-up problem did exist. The case study methodology can complement the econometric testing that is currently predominant in the TCE empirical literature because, by examining the details of contracting, the arguments in transaction cost reasoning can be put under a more focused scrutiny.

The Channel Tunnel (Chunnel) project provides an ideal case for exploring the economic nature of construction

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process from the perspective of transaction cost economics for three reasons: (1) The performance of this project concerned a wide-ranging set of stakeholders, including shareholders (more than one million shareholders), lending institutions (more than eight billion pounds raised from financial institutions), and British and French governments. Consequently, it received extensive coverage by the media and its story has been written in books [14,18] and in a pedagogic case study [31], making the details of its important events accessible to researchers; (2) A billion plus pound claim dispute (TML claimed first £1.47 bn, then £1.98 bn, and settled for £1.14 bn) between concessionaire (Eurotunnel) and contractor (TML) set off a bitter battle in which all kinds of weapons available to both parties (walkout, go slow, suspension of interim payment, liquidated damages) were exercised, and therefore how powerfully these weapons may affect bargaining position can be examined; (3) The likelihood of yielding to hold-up may be more to do with economic calculation than with the personality of decision makers. However, if a person as tough as Mr. Morton,[1] CEO of the Eurotunnel, gave in at last, it would strongly indicate the severity of the transaction hazard arising from hold-up.

2. Theoretical foundations

2.1. Origins of the concept of process specificity

Lee and Png [23], in a paper cited by Masten et al. [25] but since rather neglected in the construction literature, have shown that, in the absence of interim payments, contractors would be vulnerable, because of their sunk costs, to hold-up by clients (*ex post* renegotiation of the contract price) on completion.

They assume a legal context in which the product belongs to the contractor until the client pays a sum agreed with the contractor; and a technological context in which projects comprise stages, the completion of which is readily verifiable by a third party (adjudicator or judge). Third parties however can only at considerable cost and difficulty verify the value of the completed project to the client (which may be idiosyncratic). The salvage value of the project to the contractor is zero, if they either cannot finally agree renegotiated terms with the client or obtain court enforcement of their contract (damages for breach by the client).

> "Because his costs are sunk, the contractor's bargaining position in ex post renegotiations of the contract price will be relatively weak. Thus the...hazard is that the prospect of ex post renegotiations may deter contractors from entering into otherwise profitable transactions."
>
> Lee and Png [23, p. 83-4]

Lee and Png's paper is mathematical and couched in game-theory terms. What follows is the present authors' attempt at a 'penny plain' rendition. Those interested in the argument should of course compare what follows with the original.

Assume there is no provision for stage payments. Imagine a project with *ex post* benefit (value) to the client of $B = 100$, cost of construction, $C = 80$, and *ex ante* price, p, of 90. The client now proposes a settlement price of, say, 70. If they cannot agree on that price, the client does not obtain the profit of $B - p$ (100 − 70), but the contractor does not get p (70) and thus faces a negative cash flow of 80. If the client is known to be wealthy, and to be able to wait for their $B - p$ if necessary, and has selected a contractor who will find it difficult to survive without that 70 until the time when a court may award them 90, the contractor may be forced to agree the renegotiated terms.

In Lee and Png's model there are projects that would yield gains from trade that will not be undertaken, because the contractor cannot be sure they will receive their expected (pre-negotiated) price. This is the sunk-cost problem.

Lee and Png show that interim (stage or milestone) payments are a solution to their form of the sunk-cost problem, especially if they are not renegotiable (so that renegotiation of final payment is restricted to the residual proportion of p not already covered).

Thus, if $p = 90$ and 80 has been advanced in non-renegotiable stage payments, then the lowest offer the client can plausibly make on completion to obtain hand-over is 1, making the 'floor' *ex post* price 81. What does it mean to say stage payments are non-renegotiable? The 'strong' meaning is if the relevant body of law recognises that:

> "The issuance of a Certificate for Payment will constitute a representation by the Architect...that the Work has progressed to the point indicated (and) the quality of the Work is in accordance with the Contract Documents."
>
> (Lee and Png, p. 95)

The 'weak' meaning is if in the relevant law:

> "As a rule, the payments contemplated by...provisions (*for interim certificates*) are not conclusive or binding on either party...as expression of satisfaction with the quality of the work or materials (and) therefore are subject to readjustment upon final certificate."
>
> (Lee and Png, p. 95)

The courts in this instance regard the purpose and meaning of interim certificates to be solely to assist the builder's cash flow. Lee and Png characterise the former quotation as a rendering of the position permitted in US law, and the latter as the position in English law.

Nevertheless, even in English law, a point not made explicitly by Lee and Png, but implicit in their model, is that possession of the cash improves the bargaining position of the builder. The client must now sue to get their

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[1] A vivid description from Sunday Times [2] is pertinent here: "*he will fight them every inch of the way if he believes their claims for extras to be unjustified.*"