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MODELING CONTRACT PRACTICES RESULTING IN RISK MISALLOCATION

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Risk misallocation has been a topic of discussion in the extent literature for some time now. The literature points out that risk management is the key to ensuring that optimal risk allocation is achieved. While the focus on risk allocation has been about the party best suited to carry a given risk, the issue of how misallocation occurs is rarely dealt with. This paper modeled how risk misallocation can result from contract practice. This was done through a literature review and 15 purposive heterogeneous semi-structured interviews conducted with clients, project managers, architects, engineers and quantity surveyors in the Zambian building sector. The derived model suggests that misallocation could result from inappropriate selection of risk mitigation mechanisms provided for in the contract, poor selection of contracts and use of inappropriate procurement routes. These findings advance knowledge that necessitates the allocation of risk appropriately as the areas of contract practice and risk management are rarely researched with regards to risk misallocation.

Keywords: Buildings, Casual network, Documentation, Resources, Zambia.

1 INTRODUCTION

Contracts are the main mode of communication between the two contracting parties (client and contractor), providing documentary evidence of what has been agreed. Contracts set out the risks and liabilities to be carried by each contracting party and they generally affect project delivery. It has been argued that fair and carefully drafted contracts with appropriate risk allocation normally result in preferred construction project outcomes of delivering projects within time, cost, with minimal disputes (Mooney and Mooney 2014). However, when the contract is not viewed as fair, this results in projects shortfalls of poor quality, cost overruns, schedule overruns, onerous claims, disputes and risk misallocation (Alsalman and Sillars 2013). Risk misallocation in this context refers to allocations of risks wrongly or inappropriately (Hanna *et al*. 2013). Misallocation could arise from some combination of imperfect methods of allocation, imperfect response methods, allocation to the inappropriate party between client and contractor, allocation of imperfect resources or simply to a lack of allocation.

The construction industry in Zambia and especially in the public sector has evidence of risk misallocations. These are evidenced by rampant claims (Sibanyama *et al*. 2013), poor quality works as well as time and cost overruns (Kaliba *et al*. 2013, Auditor General's Office 2015). However, it is unclear what kinds of risk misallocations are involved. This paper documents an investigation of the various forms of misallocation that can result from contract practice and further displays the practices in a causal network.

2 CONTRACT PRACTICE AND RISK ALLOCATION IN THE CONSTRUCTION INDUSTRY

Risk allocation in the construction industry is mainly done through the various contracts used. Various contract practices aspects achieve the desired risk allocation. Contract practice is exercised at different levels (RICS 2015): firstly, the demonstration of knowledge and understanding of the various forms of contract used in the area of business involved; secondly, application of the knowledge in the use of the various standard forms of contract at project level including the implications and obligations applying to the contracting parties and lastly, provision of evidence of reasoned advice, preparation and presentation of reports on the selection of the appropriate form of contract and warranties for a chosen procurement route. This last practice includes advising on the most appropriate contractual procedure at the various stages of construction or other contract. The construction contract is basically used to allocate risks that are, to assign responsibility for a given occurrence to mainly the contractor and/or client.

Risk allocation can be done using various means namely representations & warrantees, indemnification, limitation of liability, express contractual remedies, payment terms, product warranties, and force majeure clauses (Practical Law Commercial 2013). The aforementioned are allocated in the various contract clauses. To understand the link between contracts and risk allocation, one needs to appreciate that various forms and types of contract allocate risk differently; that different risk mechanisms, warranties and responsibilities have different bearings on risk allocation and lastly that the risk apportionment is different in different types of procurement systems.

Contract forms are legal agreements that are designed to be used by employers and contractors in many situations without modification, however, in practice, they are commonly modified (Mooney and Mooney 2014). Modification may take various forms namely omission of clauses, change in working of clauses and addition of more clauses. Contract modification may make the risk allocation undesirable for one of the contract parties. Since the client in normally in a position to modify, the modification is normally to the detriment of the contractor. By nature, some contract forms are designed with a specific work type in mind, for example, small or large buildings, roads, dams or bridges. The contract procurement may be a standard form or bespoke contract (Smith *et al.* 2014). Correspondingly, risk apportionment may depend on the complexity of the works and the size of the project. Furthermore, the form of contract may be suitable for works with quantities or without. In the Zambian construction industry, the forms of contract used include the various Zambia Public Procurement Agency (ZPPA) forms of 2013 (open international, open national and small works contract), Joint Contracts Tribunal contract forms of 1972, New Engineering Contract 4 of 2017 and the FIDIC forms of contract of 2005.

Forms of contract that have definite quantities presented in bills of quantities usually have a fixed or lump sum payment mode where most of the risk is allocated to the contractor, while contracts without definite quantities are normally priced on a cost-plus basis where the least risks are allocated to the contractor. Nevertheless, Hackett *et al*. (2007) note that hybrid payment modes can exist on one contract so that some risks can be paid for using a different payment mode than the principal contract payment mode. In ideal situations, the risk allocation is supposed to be negotiated before the signing of a contract. Nonetheless, contracts of adhesion have been known to be formulated using a take it or leave it a model (Kanamugire 2013) and since contractors are always looking for work in the competitive construction industry, they are more likely to engage in contracts that have a risk allocation unfavorable to them. Additionally, projects are on occasion procured using unsuitable procurement routes.

Procurement routes range from conventional design bid build to unconventional types such as design and build, management-oriented routes (management contracting and construction management) and on to framework agreements. The various procurement routes have different risk allocation inherent in them. Design-bid build types have more risk allocated to the contractor with the design expected to be relatively complete while the management types normally have more risk allocated to the client (Smith *et al*. 2014).

3 METHODOLOGY

The research used a pragmatic approach using a sequence of semi-structured interviews, a questionnaire survey, contract documents, and a Delphi as solving of a practical problem (risk misallocation) was envisioned. However, for this paper, only interviews are reported. The interviews were with 15 heterogeneously and purposively selected respondents. The 15 comprised of quantity surveyors (2), architects (2), civil engineers (2), project managers (2), contractors (3), procurement officers (2) and clients (2). The respondents were drawn from both the public and private sector each having at least more than 10 years of experience in the building sector on various types of buildings ranging from residential, industrial and commercial. Prior phone calls were used to ascertain the required parameters and obtain consent for the interviews. Public sector respondents were identified through various government ministries and private sector respondents from professional bodies. The interviews lasted between 30 to 70 minutes. Respondents had between 10 and 30 years of experience in the building sector, on various types of building such as commercial, industrial and residential. The interviews were recorded using a digital recorder or using written notes when permission to record was not given. Recordings were then transcribed, and content analysis was done to make meaning of the data. Interpretive judgment on the transcriptions was used to formulate the nature of the casual relationships between contract practice and misallocation of risk. Miles *et al.* (2014) describe a causal network as an abstract, inferential picture organizing field study data in a coherent way showing how one thing led to another in a linear yet interwoven pattern. The constructing of a causal network involves a list of the antecedent (start variables), mediating variables and outcomes (ibid). The causal network was then mainly based on the researchers' interpretation of the interview data of contract practices identified leading to various types of misallocations such as resource misallocation, inappropriate allocation or use of inappropriate risk response, mechanism were then mapped.

4 FINDINGS

The misallocations resulting from contract practice are presented under three themes as shown below and the derived causal network in Figure 1 sums up the findings.

4.1 Contract Selection

Contract forms are selected by the client, as indicated by respondent PRC2 in section 4.3. The findings show that a common contract used in the building sector is ZPPA suites: Open National, Open International, and Small Works contract (13/15 respondents). These contracts are fixed or lump sum types except Open International, which can be used as an ad measurement contract. The Open International contract is based on the International Federation for Consulting Engineers (FIDIC) harmonized version of 2005. Another common contract used in the private sector is the Joint Liaison tribunal (JLC) contract popularly known as the ZIA (Zambia Institute of Architects) contract (6/15 respondents). Respondents identified several problems associated with the types

and forms used. Firstly, it was highlighted that the selection of contract form in the public sector is based on estimates rather than actual project characteristics, sometimes resulting in the use of an inappropriate form. Secondly, the lack of contracts based on unconventional procurement types and payment modes other than fixed price (which is used for a contract that exceeds 12 months) sometimes leads to unfavorable bids and inappropriate risk allocation as the contracts based on traditional procurement are modified for use in unconventional procurement.

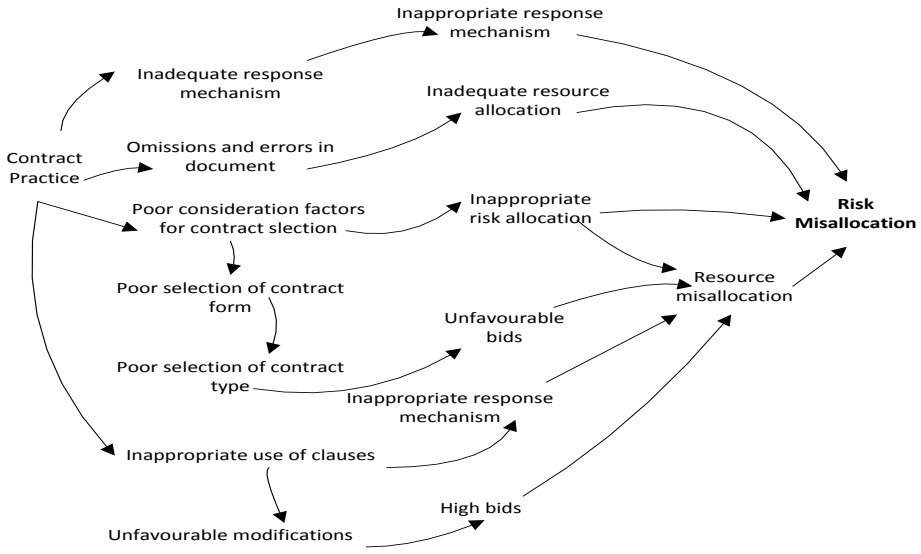

Figure 1. Modeling of risk misallocation resulting from contract practice.

4.2 Mechanisms

"Mechanisms" refers to treatment used to mitigate given risks, for instances the use of testing and sub-contracting. These and more mechanisms can be provided for in the contract. The findings were that on occasion inadequate mechanisms are put in place. An example given was that the 20% subcontracting limit was often inadequate as more than 20% of the works would need to be done by specialist subcontractors. This was indicated by one of the respondents "*there are times when the specialized work is more in value compared to the rest of the works e.g. combining plumbing, electrical works, and mechanicals such as lifts, escalators, air-conditioning"- PUCL*. Inappropriate use of clauses could also result in an inappropriate allocation. Fifty-six percent (8/15) of the respondents had used integrated procurement modes, yet the traditional contract form was used, resulting in inappropriate risk allocation when contract modifications were not made.

4.3 Contract Preparation

Standard contract forms in the building sector are seldom used without modification (11/15 respondents). Due to the modifications, unfavorable allocations are experienced (See comment by PRC2 below). Additionally, inadequate response mechanisms are put in place due to the inappropriate use of clauses, which also results in inappropriate risk allocation. Ultimately, unfavorable modifications result in high bids, which then result in resource misallocation.

"…because they know if those clauses are there, their risks will be high and they would be found wanting and because they are the ones who have the sole privilege of coming up with the form of contract that they want to have. Us as contractors have no input in that if anything those contracts that we use are just shoved down our throats…."- PRC2

Omissions and errors are also common in contract documents as indicated by respondent PUQS below. These result in resource misallocation and lack of cover for a given risk provided by the contract.

"Sometimes they do not indicate the retention period or omit the retention clause entirely, other times the insurance minimum cover is not indicated. Liquidated and ascertained damages are not indicated at times. There are many deficiencies". - PUQS

5 DISCUSSION

Misallocations in the Zambian building sector arising from contract practice are mainly from contract documentation, followed by contract selection and lastly mechanisms provided for. The most common mode of misallocation is resource misallocation. In line with the understanding of contract practice as laid out in RICS 9+/(2015), it appears that professionals in the building sector and particularly in the public sector need to improve their practice in certain areas while practice in other areas could be considered to be moderately adequate

The professionals demonstrate familiarity with and understanding of the various forms of contract used in the construction business. There is an appreciation of the various forms through their selection is commonly flawed because it is dependent on estimates (amounts). Additionally, different procurement modes that are supposed to be accompanied by their respective contract forms instead rely on the traditional contract form. This implies a need for the contract portfolio to include contracts based on different procurement systems.

At project level in the building sector, application of knowledge about the use of the various standard forms of contract, including their implications and obligations for the contract parties, is upheld to an extent. However, modifications to clauses change the obligations and implications for the parties. The client mainly initiates these changes and it is unclear to what extent the contractor is allowed to negotiate them. This negates the predictability of standard forms of contract.

The area that seems to need the most work is the provision of evidence of reasoned preparation and selection of the appropriate form of contract and a chosen procurement route, seeing that a variety of misallocations stem from contract selection. The findings also point to problems resulting from procurement routes. This is an area of practice that needs to be worked on to improve contract practice and reduce misallocations in the building sector. Use of appropriate procurement routes should be promoted in line with the selection of the appropriate form of contract.

6 CONCLUSION

Contract practice involves various aspects that all contribute to the successful fruition of a project. In the Zambian building sector contract selection, contract preparation and mechanisms stipulated in the contract document have been found to contribute to a variety of risk misallocations which the contract is supposed to guard against. These misallocations are illustrated in a causal network derived from the interview data. Eliminating such misallocations would be a basis for improving contract practice in the Zambian building sector. This study focused particularly on the building sector and future research might reveal how far its findings also apply in other construction sectors such as roads.

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