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Critical renegotiation triggers of European transport concessions

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ABSTRACT

In this paper, we assess the critical factors for the renegotiation of transport infrastructure concessions. We depart from a literature review on the renegotiation of infrastructure concessions and of the main renegotiation triggers and the methodologies used to assess them. By collecting data from a total of 32 transport PPP projects, in 13 European countries, we identified a total of 37 renegotiations. Our findings corroborate the literature in that a country's economic and legal environment has an important impact on the likelihood of renegotiation. The occurrence of elections is shown to have an indirect impact on increasing renegotiations. Furthermore, both the uncertainty associated with developing new PPP projects with budgetary motivations, and the operational stages of long term contracts, play a critical role in contractual renegotiation.

1. Introduction

Although private companies have long been involved in the provision of services and infrastructures, public procurement has seen fundamental changes over the past 30 years. One can observe a worldwide tendency of governments to create and implement public–private partnership (PPP) policies and projects, which has received increasing attention from academia and policymakers (Hodge and Greve, 2007; Grimsey and Lewis, 2007). In spite of the lack of consensus of the definition, a PPP can generally be defined as a "long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance" (WBI and PPIAF, 2014).

The PPP model for project delivery has increased over the past decades, especially for transport infrastructure projects (COST Action TU1001, 2013b). In 2014, the aggregate PPP European market amounted to EUR 18.7 billion. Furthermore, 80% of European Investment Bank loans made to PPP schemes between 1990 and 2014 were for transport sector projects (EPEC, 2015b; EPEC, 2015a).

Transport infrastructure concessions frequently have a long life cycles of over 25 years and are exposed to various changes arising from the political, social and economic spheres. In particular, these contractual agreements often depart from base-case scenarios which rely on demand and macro-economic forecasts which do not come to pass in many cases (Cruz and Marques, 2013c). Furthermore, concession contracts usually involve large investments and are susceptible to opportunistic behaviour from both the private and the public partners (Guasch et al., 2007, 2008).

We use the definition of Guasch et al. (2014) in that "*a renegotiation of PPP contracts involves a change in the original contractual terms and conditions, as opposed to an adjustment that takes place under a mechanism defined in the contract*". Not surprisingly, Guasch (2004) finds renegotiation especially common in transportation concessions, and it occurs in 55% of concessions, with the private operator being the initiator of renegotiations in 61% of all cases. Such high renegotiation rates are in part explained by the attempt to write prescriptive contracts, in order to address the inherent incompleteness of long term agreements, or simply because incompleteness was not foreseen (Hart, 2003). Thus, one key aspect of PPPs falling short on achieving value for money, is that they often fail to account for uncertainties and needed changes (Grimsey and Lewis, 2005, 2007).

This paper discusses and explores which are the critical factors in renegotiations of transport infrastructure concession contracts. By identifying these factors we can mitigate *ex-post* transaction costs and improve the project's added value. While every project is unique, understanding the reasons that trigger contract renegotiations contributes to the development of better contractual frameworks. Also, by focusing on the European experience, this paper complements previous work developed by the World Bank on renegotiation triggers of Latin American concessions.

Section 2 presents a literature review on contract incompleteness and on the renegotiation of infrastructure concession

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projects. It also discusses the empirical contributions to the understanding of critical renegotiation triggers of concession contracts. In Section 3 we present the methodology and the data used in our analysis and later discuss the results in Section 4. Finally, we derive conclusions in Section 5.

2. Literature review on contract renegotiations

Contracts are, in practice, incomplete, to the extent that it is not possible to anticipate all the future events for any given contractual arrangement. And the problem of renegotiating incomplete contracts as the future unfolds is that it imposes various costs (Hart, 1995). These are burdensome for both public and private partners, potentially compromising the initial decision to undertake the PPP mechanism and they are ultimately passed on to the taxpayer (Albalate and Bel, 2009).

Moreover, public contracts are generally inflexible when faced with unexpected circumstances, requiring formal renegotiation which leads to a higher tendency to litigate (Spiller, 2008). PPP contracts have often been made highly prescriptive (e.g. long term traffic forecasts as a basis for financial compensations) which leads to situations where the public grantor is captured by unforeseeable contingency clauses. One must also take into consideration the high degree of volatility of the environmental variables (e.g. institutional maturity, uncertainty of demand, and trust between partners) affecting long term contracts. By understanding that renegotiations are an eventuality, it is crucial in PPP implementation to identify how they may be used as a tool that allows for adapting to uncertainty (Domingues and Zlatkovic, 2014).

Contractual renegotiation has typically been seen as undesirable, as it imposes high transaction costs and may also induce opportunistic behaviour from both the private and public parties. On the other hand, a successful renegotiation that leads to revising the terms of trade within the contract can be welfare-enhancing, rather than welfare-reducing (De Brux, 2008). While one would expect both partners to dialogue in order to exit this prisoners' dilemma, the issue of trust and communication has been central in overcoming the setbacks of contract incompleteness (Dassiou and Stern, 2009; Hart and Tirole, 1988).

2.1. Renegotiation of infrastructure concessions

Increasing attention has been given to the issue of the renegotiation of PPPs, with the first studies departing from a database of over 1000 concessions awarded in Latin America between 1985 and 2000, covering the telecommunications, energy, transport and water sectors (Estache et al., 2003; Guasch, 2004). The complexity of these contractual arrangements allowed for multiple analyses of the problem. Guasch et al. (2003) studied firm-led renegotiations and Guasch et al. (2007) their counterparts. Guasch et al. (2008) narrowed the sample to analyse firm-led renegotiations of concessions in the transport and water sectors, given their higher renegotiation frequency. In a different direction, Estache et al. (2009) researched the impact of multi-criteria auctions of road and railway concessions in Latin America. At a more theoretical level, the predictions of Guasch et al. (2006) are broadly consistent with the empirical results in Guasch et al. (2003). Finally, Engel et al. (2006) researched a political-economic explanation for renegotiations of Chilean highway concessions and later on, Engel et al. (2009) expanded the sample to other infrastructures and services (e.g. airports, public transport, jails, and water reservoirs).

For the rest of the world, research on triggers of concession renegotiations is more recent and, to a large extent, concentrated in one early adopter of the PPP model: Portugal. Cruz and Marques (2013a) classified determinant renegotiation factors, and looked at those endogenous factors that affect the case study of a light rail transit system in Lisbon's metropolitan area. Conversely, Cruz and Marques (2013b) analysed the exogenous factors influencing renegotiation of Portuguese concessions in the transport, health, water and energy sectors. Sarmento (2014) introduced new variables and explored their likelihood to trigger the renegotiation of Portuguese transport PPPs. Macário et al. (2015) departed from the successful renegotiation of a Portuguese urban rail concession to assess the transferability of best practices to other modes. De Brux (2011) studied the impact of renegotiations on the likelihood of contract renewal in the French car park sector. Domingues and Zlatkovic (2014) reviewed the critical success and renegotiation factors of infrastructure concessions and compared them with nine European transport PPPs.

2.2. Critical renegotiation triggers

The increasing usage of the PPP model has provided literature with a multitude of projects that are notable for both their successes, and their failures. Given that many projects are currently in their operational stage, case study analysis is a powerful bottom-up approach for assessing the critical elements of the renegotiation process of infrastructure concessions. The novelty of the findings allow for testability and empirical validity (Eisenhardt, 1989). This is the case of the literature on European PPPs (Cruz and Marques, 2013a; Domingues and Zlatkovic, 2014; Macário et al., 2015). Nonetheless, the majority of the empirical research so far consists of developing dummy dependent variable models to estimate the probability of renegotiation (i.e. probit models). The purpose of the model is to determine which variables have a greater influence on the probability of the renegotiation of concession contracts (Cruz and Marques, 2013b).

Conceptually, Cruz and Marques (2013a) classify the critical renegotiation triggers as being exogenous or endogenous. The former concern aspects that are external to the contract (e.g. macro-economic shocks, regulation, governance and institutions, political cycles, sector, mode or project specificities), whilst the latter relate to contractual clauses that influence the likelihood of renegotiation (e.g. risk allocation matrix, financial guarantees, termination clauses, and key performance indicators or investment requirements). Similarly, Domingues and Zlatkovic (2014) propose a typology consisting of four key areas. Exogenous factors are divided into three groups: 1) institutional and regulatory frameworks, 2) political and social environment, and 3) macro-economic environment. Finally, endogenous factors are explained by 4) contract design.

Table 1 presents the main literature on renegotiation of PPPs using probit models. It compares the statistical significance of different variables and their contribution to increasing (positive), or decreasing (negative) the likelihood of triggering the renegotiation of concession contracts. The study of Guasch and Straub (2009) deserves special attention, given that it considers two panels of data, differentiated by who initiated the renegotiation process. The first symbol in column 5 refers to firm-led renegotiations, whilst the second concerns renegotiations triggered by governments.

2.2.1. Institutional and regulatory frameworks

Institutional quality and governance are typically captured by indexes (e.g. bureaucratic quality, rule of law, government effectiveness, etc.) elaborated by either supranational organisations or consultancy firms (e.g. World Bank, Transparency International, and PRS group). The existence of a regulatory body is one of the most significant variables and is particularly relevant for Latin American concessions awarded after the late 1980s. This relates to