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The dark and bright side of renegotiations: an application to transport concession contracts

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The Dark and Bright Sides of Renegotiation: An Application to Transport Concession Contracts

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Abstract

Renegotiations of public-private partnerships have recently been the subject of much attention. Economists regularly analyse them through the lens of 'hold up' theories. According to these models, renegotiations are a problem to be avoided: renegotiations become opportunistic because agents are self-interested, and they use renegotiation to seek rents. As a result, renegotiating destroys social surplus. Even when renegotiations occur to fill in the blanks of the contracts, and implement investments that had not been contracted *ex ante*, they typically predict a process by which parties use renegotiations to maximise their short run individual benefit.

This paper sets out an alternative and new view. Through two case studies, we show that renegotiations may be cooperative, contrary to the conventional view. We find that when parties give an important value to their present and future bilateral relationships, they are prone to find solutions that are sustainable and profitable for both parties. Even acting according to their own self-interest, at the stage of renegotiation, parties try to maximise joint utility. In this way, they reinforce the durability of their relationship.

JEL codes: L14, L9

Key words: renegotiation, concession contracts, cooperation, opportunistic behaviour

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1. Introduction

Private participation in infrastructure has skyrocketed since 1990 – at least until the 2008 credit crunch. In 2004, 205 national public-private partnership (PPP) contracts were signed worldwide, involving 52 billion US$ in investments [PriceWaterhouseCooper, 2005]. This trend is not only the case of developed countries. Developing countries have also used it in order to finance, build and operate their infrastructures. However after nearly twenty years of experience, faulty designs and implementations, some observers have claimed that these contracts have had a significantly damaging impact on equity and efficiency for users of the facilities. They are accused of having led to otherwise unnecessary price increases, job losses, lack of transparency, corruption and delays [Estache, 2006].

To a large extent, these negative sentiments are said to be initiated by the implications of renegotiation and the responses to it [Guasch, 2004]. According to Guasch, 30% of PPP contracts (in a sample of around 1000 concession contracts in Latin America and the Carribean region) are renegotiated (74.4% if we only look at water and sanitation contracts). Among them, 62% lead to tariff increase, 69% to delays on investment obligation targets and 62% reduction of investment obligations.

Faced with these facts, both policy-making institutions and academic economic research have focused their attention on how to limit renegotiation. For instance, in the transport sector, the European Union (EU) Commission prohibited cross-financing that was previously used to finance new project element. For example, since 1998, each new section of a road project requires a call for tenders and must be self-profitable or subsidized. In this way, renegotiation with the original contractor is no longer available as a method to deal with a road expansion. To do so is accused by the EU Commission of lacking transparency. On the academic side, Engel, Fischer and Galetovic [1997, 2001] propose to draw up Least Present Value of Revenue auctions in order to avoid opportunistic renegotiations on prices from the private operator in case of negative evolution of the circumstances.

In Guasch Laffont Straub [2006], the probability to renegotiate a contract reflects the quality of institutions' commitment and their capacity to enforce a contract. In this perspective, writing rigid contracts (including for instance a participation constraint defined *ex ante* or an investment in institutions) would close the door to opportunistic renegotiation, albeit at the potentially sizable cost of increased maladaptation costs.

Our paper questions the view according to which renegotiations of concession and similar infrastructure contracts systematically reveal the problem of parties' rent seeking, as implicitly suggested by most articles [Alchian, Crawford and Klein, 1978; Gibbons, 2005]. The literature on contract economics is not clear-cut about the outcomes of renegotiations, but the process is extensively described as being opportunistic. Instead, we show through two case studies that long-term cooperation is sometimes the main objective of renegotiations. We also try to understand why some renegotiations are cooperative and why some others rather relate more to the standard hold up view. We underline two determinants of the parties' degree of preference for a collective benefit rather than for an individual benefit [2]. These are (i): the perspective of future relationships, and (ii): the quality of current bilateral relationships between the parties. Thus, we deny the general perspective that denounces renegotiation as a systematic "lack of compliance with agreed-upon terms and departures from expected promises" [Guasch, 2004]. Indeed, when parties are in repeated or multiple relationships, threats of sanctions or implicit promises on other contracts positively *encourage* contractors to take collective utility into account in deciding whether to renegotiate and, if so, how.

The paper is organised as follow. Section 2 deals with a literature review on renegotiations. We organize this section in the theoretical function of the origins of renegotiation. We identify three types of theoretical determinant: contractual incompleteness, institutional instability and the combination of both. In all cases, the theory suggests that parties are looking for individual and short run benefits when they renegotiate, and in most of them, some social surplus is destroyed. We oppose this to the relational contracting view. Section 3 presents two case studies of renegotiations where both parties were winners, largely thanks to cooperation. Thus they confirm the relevancy of addressing the question of renegotiation drivers through an alternative perspective from the hold up model. In the cases studied, the "spirit of the contract" prevailed over "the letter of the contract" [Mc Neil, 1974]. We try to identify the origins of the implicit dealings between the co-contractors to find a solution that increases social surplus. We conclude in section 4 by providing some implications of future research to be pursued in this area.

[2] "Preference for a collective result rather than an individual benefit" is Brousseau's [1994] definition for "cooperation".

2. Rent seeking renegotiations described in the economic literature

This section aims at showing that the problems with renegotiations, as they are studied in the economic literature, come from the fact that, according to the models, the parties involved use them to seek to appropriate rents. Using a typology based on the origins of the renegotiations, - contractual incompleteness, institutional instability or both - we show that renegotiations often lead to hold up problems and decreases in economic surpluses.

In what follows, we concentrate on public-private partnership infrastructure contract renegotiations, particularly in transport.

2.1. Contractual incompleteness as a source of renegotiation:

Uncertain environments and limited rationality make contracts necessarily incomplete. Indeed, as no probability can be assigned to unknown events, contracts cannot provide provisions for all possible future contingencies. As they are confronted with risks to which they cannot assign any probabilities, agents find it impossible to write complete contracts.

Transaction cost theory takes this contractual incompleteness as a starting point for opportunism and rent seeking. We consider the organisation of public services and the use of auctioned franchises in order to get competition for the market through call for tender. In these circumstances, opportunism can happen at three different strategic points in a contractual relationship [Williamson, 1976] - the moment of the bids, the execution of the contract and the moment of the reattribution of the contract-. At each stage, opportunistic renegotiation may arise. Basically, transaction cost theory argues that agents try to capture a bigger part of the surplus already generated by the contract, instead of trying to create some additional new surplus.

2.1.1. The awarding of contracts problems

Hong and Shum [2002] demonstrate that the public authority is unable to specify the call for tenders sufficiently to cover all potential contingencies. Indeed, public service contracts, such as infrastructure contracts, are so complex that the public party cannot specify their expectations in great detail. This is all more of a problem if the public authority is small. Compared to large cities, not every single local government can be endowed with high expertise skills in such areas.

This lack of specification may lead to the so-called “winners’ curse” phenomenon when the common value of the object submitted to an auction is not thoroughly known ex ante by the bidders: the most optimistic bidder is selected for the contract because of his under or over-estimation of the works to be made and their cost, leading to faulty design of the contract. But once the parties learn the real state of nature, they will renegotiate the contract, to ensure that the private operator does not go bankrupt. In these circumstances, although the renegotiation has become unavoidable, this situation is clearly sub-optimal because the parties can use renegotiation to engage in rent seeking, and because of the existence of transaction costs. Indeed, had the tender been well specified ex ante, there would have been no need for costly processes to correct such maladaptations.

Problems of tender specification often lead to a situation in which the winner of the bid was probably not the most efficient one to deliver the service. In the end, users or taxpayers support the delays or over-costs implied by renegotiations.

Guasch [2004] provides an example of this situation, for Mexico’s highways. The government hurriedly granted 52 highways tender projects to private operators in the early 1990’s. In the submitted bids, the traffic forecasts were very optimistic and the conditions of the loan were not detailed enough. This led to a situation in 1997 where the Mexican government had to launch a program of 3.3 billion USD to restructure the financing of the highways. Private operators theoretically in charge of the highways may have appropriated a part of this sum, which, in the end, negatively affects the users’ surplus.

In a close but different view, Guasch, Kartacheva and Quesada [2000] and Bajari, Houghton and Tadelis [2004] also underline opportunism problems at the bidding stage. In order to win a contract, operators may be intentionally prone to bid very aggressively even if the terms of their bids are not reasonably financially sustainable. The public party does not know that, because of his weaker expertise skills. In consequence, it may select the bidder who proposed the cheapest price for the service for instance. Then, renegotiation occurs because the private operator cannot commit to the terms of the contracts it has won, since the financial equilibrium of the contract may be unsustainable. At this stage, the government and the operator engage in a bilateral renegotiation, in a non-competitive atmosphere [Guasch, Kartacheva, Quesada, 2000], since competition has been eliminated once the contract was signed. The public party is in a disadvantaged position. Due to political pressure for instance, the government cannot break up with the operator and select another one, since it would

firstly be costly, and, secondly a confession of failure. Hence, this gives significant leverage to the private party to appropriate the quasi-rent.

Again, although renegotiation saves the operator from bankruptcy, it makes parties enter in a bilateral relationship in a sub-optimal way. Users and/or taxpayers end up bearing those additional costs. For example, Alcazar, Abdala and Shirley [2002] describe how the winning bidder for a water concession in Buenos Aires was the one who was most confident in his capacities to renegotiate ex post. Indeed, in this case, the renegotiation appeared to have been anticipated by the operator, since they could not have paid off their loan otherwise.

2.1.2. The execution of contracts problems

Once the contract is signed, the operator generally engages in investments that are specific to the relationship with the public party. The risk that one of the parties tries to appropriate the resulting quasi-rents then becomes stronger. Thus, the public party or the private one – depending on who has incurred the idiosyncratic investments - can renegotiate the contract in his favour, by threatening to breach the contract. The opposite party will be constrained to accept if the request is credible, i.e. he will accept the change required by the party who initiates the renegotiation provided that the quasi-rent remains positive. In this perspective, the co-contractor can renegotiate as opportunistically as he wants, at least up to the limit where the contractor is indifferent between staying in the relationship and leaving it for another one.

Concerning renegotiations initiated by the private party, the risk is all the more serious if the threat of punishment by the public party is not plausible. Indeed, dealing with infrastructure contracts, which, typically, are very long-term ones, because specific investments have to be secured, engaging in a process of resolving a conflict or changing a private partner seems so costly in terms of time and reputation, that it can become prohibitive.

If contract abrogation is not a credible option, then there is additional vacuum which allows the private party's opportunism emergence. The public authority, representing the interests of taxpayers (and by extension of users) is the loser in this situation. The social surplus decreases when the operator uses blackmail, threatening to breach the contractual relationship. The operator can hold up until it gains the totality of the quasi-rent.

Crocker and Reynolds [1993] analyse the optimal level of contractual completeness as a trade-off between the expected costs and benefits of the degree of precision in the contract. In their model, some of the expected costs relate to the possibility of unconstrained

renegotiations. Anticipating these opportunistic behaviours, there is a disincentive to invest ex ante. Hence, they show that the more complex the environment is, the more costly is contractual incompleteness in terms of the potential for opportunistic renegotiations.

2.1.3. the reattribution of contracts problems

Once specific investments have been made, the parties switch from a nearly competitive situation (the operator can be re-emplaced with few difficulties) to a situation of bilateral dependency. This is what Williamson [1985] calls the "fundamental transformation". Because of this, the incumbent holds the first mover advantage [Williamson, 1975], which means that he will be more likely to be re-selected, because he has significant experience and cognitive advantage relative to others who would be new entrants. The inefficiency of ex post competition is all the more important the more that the initial contract implied long-term physical and human asset specific investments. The public party is a prisoner to the operator's opportunism. Being re-selected, the private operator widens the gap with the other bidders. This increases the quasi-rent that the operator will try to hold up to the public party.

Throughout, transaction cost theory analyses renegotiation through the lens of rent seeking, due to the incompleteness of contracts. Most of the time, it is the operator who renegotiates the contract in an individualistic way so that he captures a bigger share of the surplus: users of the facility always bear the costs associated with this opportunism. Thus, contractual and regulatory choices are made following a trade-off with maladaptation costs. Numerous articles follow this approach, e.g. Bajari and Tadelis [2001] which deals with regulation schemes. In their model, price cap and cost plus contracts offer different levels of incentives to the operator. They propose a model of trade-off between incentives provided to the operator to innovate for cost minimization and ex post transaction costs due to renegotiation. They theoretically show that cost plus contracts better fit complex contracts, because they need more adaptations. Hence, they reduce the likelihood of opportunistic renegotiations.

In addition to contractual incompleteness, individualistic renegotiations may also arise from institutional deficiencies. We study this point directly below.

2.2.Institutional instability as a source of renegotiation

2.2.1. Government-led renegotiations and political agenda pursuing

Contrary to transaction cost theory, agency theory assumes that contracts are complete [Akerlof, 1970]. In this theoretical framework, agents are perfectly rational and the environment is supposed to be risky, so that probabilities of occurrence are attributed to future events. Initially, this framework did not model the possibility of renegotiation. However, this proposition is no longer sustainable when the principal lacks credibility of commitment, i.e. if he is not able to commit not to renegotiate. In this way, judicial and institutional vacuums give incentives to the principal to behave opportunistically.

When dealing with government-led renegotiation, political and electoral goals are regularly cited as relevant determinants. Engel, Fischer, Galetovic [2006] offer a political economy explanation to renegotiation. Renegotiating enables governments to circumvent administrative and budgetary processes. When the government wants to get into debt, this must be approved by the Congress. Thus, the political opposition may criticize this increase. And, on the eve of an election, such a contestation may decrease the probability for the incumbent party to be re-elected. By contrast, renegotiations are not subject to the regular budgetary process, and thus, they do not have to be approved by the Congress. This rule allows the incumbents to spend more in infrastructure with no supervision, which will be paid with future income. The anticipation of infrastructure improvement is a good argument during an election period, so it increases the chances to be re-elected, while the franchise holder obtains better conditions. In the end, this process does not penalize the private operator, who is offered good conditions to accept the deal. However, it adversely affects social surplus and future administration because the political agenda is the only determinant that drives renegotiation, instead of socially improving investments.

Guasch, Laffont, Straub [2006] develop a model of government-led renegotiation dealing with electoral concerns also. They use a framework in which a new government has been elected, *i.e.* the incumbent has not been renewed. The new government may renegotiate to account for changes in agents' preferences (and thus to ensure its approval rating), while keeping the same level of utility for the firm. Or, the new government may renegotiate to renege on the initial contract, and on extreme case, to expropriate the firm. This paper enhances the importance of an efficient regulatory body, to prevent from weak governance and political opportunism only aiming at claiming new positions. The example of the water service provision in Limeira, Brazil [Guasch, 2004], may well illustrate this case: after the change in the municipality of Limeira, the new mayor argued that the concession was based on an unfair contract which did not take the municipality long-term's interests into account. Among other things, the mayor then decided to prohibit the tariff adjustments, which allowed prices to rise

in line with inflation, even though this was initially written into the contract. Taking this uncertainty into account, the operator stopped most new investments, continuing only with those that produced a rapid return.

Levy and Spiller [1994] also insist on the importance of appropriate governance structures, as much as on incentive structures, to prevent political opportunism and private investment expropriation during periods of infrastructure reform. In their framework, the properties of infrastructure reforms are the fruit of political processes, rather than economic efficiency considerations. So, depending on the instability of the institutional environment, the public party is more or less prone to change the rules of the game, i.e. to political opportunism, leading to unfair renegotiation towards the private operator. In the worst cases, the operator goes bankrupt, which cancels the benefits of investing in a public-private partnership with high asset specificity. For instance, in Venezuela, the so-called Nationalization Decree totally changed the rules of the game for the private operating oil companies. In May 2007, the Venezuelan public oil company took control over the projects of the sector. However, this happened after private companies had invested several billions of US$ to develop their field, which led to the bankruptcy of private operators.

On the whole, limited commitment seems to make it impossible to rely on contracts, because parties are discouraged to enter in contractual relationships. (See, for instance, Laffont [2004] and Estache and Wren-Lewis [2008]). In this way, renegotiations are an indicator of the capacities for the government to commit not to renegotiate. Guasch, Laffont and Straub [2003] show that in Latin America, between 1985 and 2000, 40% of water and toll road contract concessions were renegotiated, with a majority at the request of the public party. In their view, it is the uncertainties about costs, about demand and macroeconomic instability that make an impediment to commitment. The consequences are crushing for less developed countries. They cause increases in the cost of capital and reductions in investment.

2.2.2. Third party opportunism

In a recent article, Spiller [2008] adds third party opportunism to governmental opportunism. Third parties are interest groups or political competitors. Indeed, they might be useful whenever the public party wanders from his announced political program, acting like “fire alarms” [McCubbins and Schwartz, 1984]. However, the problem with such third parties is that they are interested in fulfilling their duty only when it is in their benefit to do so, even if it does not benefit the social surplus. Their influence may be negative for both the economic and the political sphere. Concerning economic issues, the operator may, at the extreme, be

replaced by another one; alternatively, the terms of the contract may change in a way that satisfies the third party interests. Politically, it may also lead to the replacement of the public agent. Spiller focuses on the probability that the third party will try to challenge the contract implementation through renegotiation. He argues that this probability increases with complex and flexible contracts. So, in general, more rigid and low powered incentive ones will be signed. In the end, to avoid the political and economic threats, it seems that operators have a strong incentive to be more reluctant to sign public contracts, and public agents will be of a lower "quality" [Dal Bo and Di Tella, 2006].

The example of Atlanta's water contract breakdown contract provided in Spiller's article, illustrates the third party threat. To prevent from their rent seeking, the contract was highly inflexible. Due to problems of contract specification, and because of contract rigidity, adjustments would have been in neither parties' interest because it would have been too financially and politically costly. This is why they had to terminate the contract. In the end, the users of the facility have to foot the bill for the delay and malfunction costs, as well as all the costs associated to the granting process[3].

2.3. Contractual and institutional incompleteness as a source of renegotiation

A different conception of renegotiation emerges from the incomplete contract theory, which takes contractual incompleteness for granted. This time, contracts are incomplete because some elements of the contracts can be observed but they cannot be verified by third parties [Grossman, Hart, 1987] (institutional incompleteness). In this framework, renegotiations occur because not all contingencies have been written in the contract ex ante (contractual incompleteness). As our paper deals with public-private partnerships, we only focus on renegotiation in the case of private management (we do not address the question of renegotiation in the case of public manager.). In this case, renegotiation occurs to give incentives to the private manager to implement investments increasing quality. The private operator and the public authority write amendments to the contract in order to share the surplus generated by this kind of investment [Hart, Shleifer, Vishny, 1997]. If they do not renegotiate, the private operator does not have incentive to invest in quality - he only has incentives to invest in cost reduction -. According to their bargaining power, parties will manage to negotiate a more or less important share of the surplus generated by the investment

[3] Other researchers have argued that more flexibility and less rigidity in contracts can be beneficial – at least provided that regulatory and other institutions can support ordered renegotiations. See, for instance, Dassiou and Stern (2008)

in question in the amendment. A procedure of Nash bargaining is generally used in incomplete contract theory models to account for the renegotiation between the partners. This implies that each party looks for its own interests and maximizes its own payoff function during renegotiations. Consequently, renegotiations are an individualistic process.

So, as in the transaction cost theory, renegotiations emerge because of contractual incompleteness, but they are not supposed here to reflect maladaptations. On the contrary, they happen to adapt the contract in a way that better fits the situation - this approach is fully supported by our case studies which are discussed in Section 3 -. Moreover, in Hart, Shleifer and Vishny [1997], agents are individualist but not opportunistic during the stage of renegotiation, i.e. they will not try to put the co-contractor in a position of weakness, but neither do they behave cooperatively: the goal is still to get the biggest share of the surplus creation.

This individualistic feature is also present in the private manager's behaviour when he invests to reduce operating costs. As he has incentives to do so, there is no need of renegotiation. Hart, Shleifer and Vishny's model suggests that such investments have strong adverse effects on quality since private managers have more incentives to invest in cost reduction, as compared to public managers.

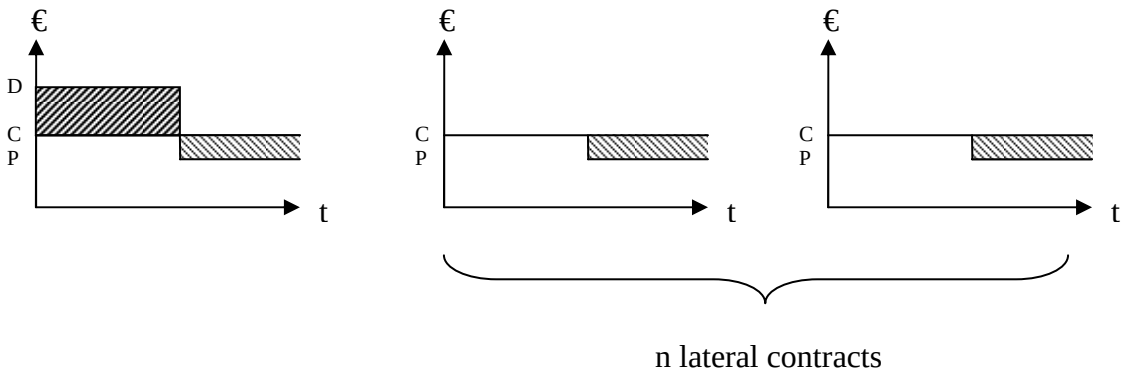
An extension for future research proposed in Hart, Shleifer and Vishny is to consider repeated interactions. Even when not all contingencies can be written in the contract, the possibility of ex post competition would limit the incentives of the private operator to over-invest in cost reduction. This is basically our point in this article. We consider naturally monopolistic activities, which exclude the possibility of competition in the field. In the sectors we deal with however, ex post competition for the field is a threat, which enhances the incentives of purchaser and seller to cooperate during the life of the contract. In Baker, Gibbons, Murphy [2002] in particular, and in the game theory in general, there is no precise focus on renegotiation nor on public-private partnerships, but the emergence of repeated interactions is underlined as a factor promoting cooperation.

2.4. Relational contracts

In order to explain why firms may perform better than markets, Williamson [1975] opened the way to relational contracts in economics. The general idea was that markets rely on formal contracts, which are observable, verifiable and enforceable by courts. On the contrary, firms have recourse to the so-called relational contracts, i.e. informal dealings, to enforce their contracts. In other fields, the sociologist Macaulay [1963] insisted on the importance of such

"non-contractual relations" in business. In law, Macneil [1978] found that classical contracts are enforced to the letter by courts, whereas relational contracts are interpreted by the parties themselves.

In this trend, Gibbons has focused his attention on relational contracts, defined as informal agreements about observable but non-verifiable parameters sustained by the value of future relationships. Indeed, "relational contracts may allow the parties to utilize their detailed knowledge of their situation to adapt to new contingencies as they arise" [Gibbons, 2002, p. 4]. Therefore, those contracts are self-enforcing. Since the parties are concerned by their own reputation in the long run, the temptation to renege, even once, on the relational contract is lower, because this might have a negative influence on the rest of the relationship. More precisely, for as long as the present value of the future stream of payoffs from cooperation overweighs the payoff from defection followed by lower payoffs because of punishment, then parties are prone to cooperate. This can be illustrated with the following Graph 1, inspired by Gibbons':



Graph 1: NPV of cooperation Vs NPV of defection and punishment

In Graph 1, the net present value of cooperation can be derived by adding up the three areas under the horizontal lines – C lines - which represent the payoffs of cooperation. This surface has to be compared to the area with striations down to the left – between C and D lines and which represents the gain from defection -, followed by lesser outcomes due to punishment - areas of cooperation, minus the three areas striped down to the right, which represent the amount of punishment – P line - . It comes back to compare the defection area to the sum of punishment areas.

In this way, the repeated game framework enables to let cooperation emerge: “when people interact over time, threats and promises concerning future behaviour may influence current behaviour”.
This is precisely what the following two case studies will show. In both cases, the parties seem to consider their future (but also past and current lateral) relationships as very important: it really conditions their behaviour at the stage of renegotiation. Had they defected on the agreements or had they not tried to find a mutually efficient solution when confronted by unexpected problems, they would have lost the benefits that would have arisen from continuously cooperative behaviour.

This literature review is not exhaustive, but it enables us to show that in the existing theoretical literature, parties renegotiate public-private partnership contracts in order to appropriate rents. This may come from the opportunism of the public party or from the private operator’s: winning an election, changing the rules of the game to implement a reform that mainly relies on political concerns, disrespect of promises done during the competitive bidding, difficulties to enforce an incentive regulation, etc. This may also be a lack of consideration for repeated transactions. We have tried to relate the existing case studies associated to those problems, but to our knowledge, no research yet exists concerning an alternative way to consider renegotiations: i.e. the willingness to reach a collective and co-operative result (including the private operator, the public party and users) rather than an individual benefit. This is the aim of the next two case studies.

3. Case studies and emergence of cooperative behaviours at the stage of renegotiation.

This section aims at developing two case studies of renegotiation where the purchasing and supplying parties cooperated. After describing the context of each situation and the result of the renegotiation, we enhance the vectors of the parties’ cooperative behaviour.

3.1. Case study n°1: institutional problems and cooperation

3.1.1. The context: an exogenous choc coming from institutional and political instability

The first case study concerns a contract in the Kingdom of Cambodia. We show that it is possible that renegotiation does not necessarily reflect opportunism, even in a poor country with high levels of corruption.

A brief description of the political, historical and institutional environment helps to understand the context and the reasons of this renegotiation.

To this day, the Kingdom of Cambodia has not recovered from the problems of the Cold War, and of the civil war initiated while the Khmer Rouges were at the power, with a peak in 1975, as well as the Vietnamese invasion and subsequent occupation from 1978 to the end of 1989. The result is that the Cambodian economy still widely relies on international financial help: Word Bank help, Asian Bank of Development help and help from several bilateral relations (In 2001, one-third of the budget was made of foreign grants and loans). Cambodia is classified in the group of low revenues by the World Bank[4], with a population around 14.000.000 inhabitants, of whom 51% are less than 18 years old. Corruption is omnipresent (the Corruption Perception Index of Transparency International ranks Cambodia 162nd out of 179). In addition, the 2007 Doing Business report ranked Cambodia as the 145th country (in a set of 176 countries), which implies that it is a weak judicial system. The educational system is also very poor. The economy of the country is based on rice, fishing and cattle rising. During the wars, a significant fraction of the population was killed or decided to leave the country. As a result, during the early 90s, Cambodia suffered a massive depletion of its human and infrastructural resources. To illustrate the magnitude of this depletion, while Phnom-Penh and Siem Reap are two cities separated by a distance of 430 kilometres. However, in 1993, it took more than 18 hours to travel from one city to the other.

In this context, Cambodia needed to concentrate its forces on development and growth. Transport is possibly a good place to start that development process. In the early 90's, the Cambodian government started to tackle this. It decided to organize a competitive procurement process to allocate a concession for the only international airport of the country, in Phnom-Penh. Public funds were scarce and the airport was in a very bad state, failing to meet the requirements the International Civil Aviation Organisation (ICAO). Calling for the skills of a private firm, which would bring private investment funding, was agreed by the Cambodian Government as the best way forward; but also a very risky challenge for the potential operator. Airline traffic flows to Cambodia were very low and had probably been falling for some years, because of the Khmer Rouge destructions and the Vietnamese

[4] Source: Private Participation in Infrastructure Database

invasion. Hence, in spite of the tourist attraction of Angkor's temples, only 200,000 passengers flew to Phnom-Penh in 1995 (there are no data available before 1995, as such records were probably destroyed or burnt).

Phnom-Penh airport, which had been built in 1955 during the French colonial period, was in a very bad state, because the runway, of 2500 m long, had become a battlefield in the 80s. Only a few Russian planes continued to use it. It was not adapted at all to international prevailing norms, so not only did the runway and the terminal have to be consolidated, extended and strengthened, but also another one had to be designed, built and operated, which implied for the operator to bear a very high traffic risk.

In 1995, after an abortive attempt, a call for tenders was launched. Five bidders answered the bid. A French group concluded an agreement with another Malaysian firm to form a consortium and their bid was accepted. The contract was then signed. The concession duration was for 20 years. Considering the uncertainty prevailing over the environment, the lowest option was adopted for the traffic forecast. But the existing facilities were rapidly consolidated so that airport traffic levels started to grow in 1995 and 1996. The bank consortium was set up and ready for the financial closing, in the aim of building the new terminal. The terminal should have been consisted of several modules, each costing 38 million USD.

However, during the summer of 1997, two unpredictable events happened: the Asian economic and financial crisis started to spread over Cambodia with the depreciation of their currency; and a military insurrection erupted in the capital of the country. Those two elements had deplorable consequences for the concession: capital outflow in the whole region and a collapse of the traffic in the airport, from 350,000 to 0. The turnover of the concessionaire went from 4 million USD before the crisis, to – 40 million USD after it. Inevitably, the banks started one after another to cancel their loans. The concession was approaching bankruptcy and the airport was more and more damaged, day after day, with any valuable good being pillaged or used as a rocket.

3.1.2. A triple-win renegotiation

It was written in the contract that, in case of force majeure, "*either party may terminate the concession agreement*". In that case, "*the parties shall consult each other […] to reach a fair*

and equitable solution". The concession company could have used its COFACE[5] arrangement and move away from this very instable and uncertain country. Indeed this is almost certainly what would have happened if the French delegate, responsible for this project in Cambodia, had not refused to accept this solution. At that period, the French government wanted to forge closer ties with Cambodia, a former colony. By tightening their links, France could promote the Cambodian development and thus create a privileged commercial relationship. Abandoning the airport concession would have sent a negative signal for this mutual aid. Although the Cambodian government first encouraged the concessionaire to resign because uncertainty was much too prevalent (only losses, no financing, no traffic), after long negotiations, it was decided that another solution had to be found (Note that no monetary transfer was made from the French to the Cambodian government to induce them to accept this solution). The "spirit of the contract" (a moral commitment, to both enhance development and succeed in the realisation of this concession) prevailed over the "letter of the contract" (some written clauses enable to leave the concession in such emergency cases) [Mc Neil, 1974]. This is how the first amendment of the first worldwide airport concession contract was born in July 6th 1997.

The content of the amendment is rather easy to analyse. It consists in a kind of compromise between (a) compensation for the concessionaire's losses, and (b) ensuring that Cambodia's financial situation does not deteriorate further. The concession was extended for a period of 5 more years, to a total of 25 years and a compensation account was created, to make up for the 1,679,328 USD sustained in losses by the contractor because of the 1997 events. This account was credited with the insurance compensation received and with a portion of the revenue sharing that the Cambodian government was entitled to.

In that perspective, the financial model of the concession was modified to fit with the adjusted traffic forecasts (lower estimates than in the initial contract until 2001). Moreover the concessionaire was required to provide a monthly report to follow the status of achievement of actions defined in the contract and the addendum.

Hence, we may call this renegotiation a win-win-win game:

-The Cambodian government now has a running airport, and the traffic has increased steadily since the end of the Asian crisis, so that the revenue sharing rapidly went back to normal. This

[5] The Coface is a kind of insurance guaranteeing that the operator can leave the concession without losses in case of force majeure.

success might have helped in the re-election of the government (but no one can really assert it because of fraud presumption in the electoral process).

-The concessionaire could rapidly generate again positive profits, and now benefits from an important reputational gain. Not only have they been able to cope with the first airport concession worldwide (a major technical feat), but they also succeeded in over coming the institutional and political challenges, in a country with very high uncertainty.

-Finally, one should not forget users, who were also winners at the stake of this renegotiation. In such a devastated country, having an operational airport means growth. It is directly induced growth first, because the contract stipulated that "*as far as possible, local staff and local sub-contractors had to be employed*". Indirectly then, because possessing an airport in good state enables the country to host more tourists in the city of Phnom-Penh and develop the tourism attraction of Angkor, which reinforces economic activity and development.

Thus, the first amendment of Phnom-Penh airport has been a triple-win game. Cooperation for development (both human development and business development) has prevailed over opportunism.

In addition to showing that cooperation is possible, it is also important to understand that renegotiating was absolutely necessary in this case. If this amendment had not been signed, both the public and the private parties would have been obliged to interrupt or cancel the contract. Indeed, considering the huge financial losses and the pull back of banks support, the airport could not have continued to run. For the operator there would have been two possible outcomes: use the COFACE or go bankrupt. For the government, this concession would have been a dead-weight loss: organizing two calls for tenders, and still having an unusable airport, would just have represented time and financial losses. All the sunk costs and cognitive costs for the acquisition of knowledge to concede an airport, and the specific assets developed to grow accustomed to the Cambodian institutional environment would have been no more than lost transaction costs. Finally, had there been no renegotiation, the local population would have probably been the most adversely affected party.

3.1.3. The vectors of cooperation

This case study underlines a lack in the economic literature which rarely takes macroeconomic shocks into account as an origin of renegotiation. The exception is Guasch, Laffont and Straub [2003], who presume that the importance of macroeconomic shocks determines whether governments will be able not to renegotiate. In their view, this leads to

public party opportunism, and disincentives for private operators to contract in less developed countries (see Section 2.2.1.)

In this case study however, we show that the shock was faced both by the government and the operator. In such a situation, it tightened their links. It is probably the positive externality of the political and commercial links between the two countries –which we call 'lateral contracts'- and the perspective of future transactions which acted as drivers for a cooperative renegotiation. Indeed, acting uncooperatively at the stage of renegotiation may represent a threat for 'lateral' contracts. If one party reneges at time t, on contract A during renegotiation, the other party will not only punish him at time t+1 on contract A, but also on contracts B and C. As applied to the case study, the private operator reneging on the airport contract would probably have meant the end of privileged commercial contracts in Cambodia, since reneging on one transaction would have implied potential sanctions on other transactions. For the public party, the Government of Cambodia, any unwillingness to work for a mutually beneficial agreement would have destroyed the confidence the parties had one in one another. In practice, the threat and promise of other relationships worked like a hostage provision in the lead-up to and during the renegotiation process. In this way, individualism was at the service of cooperation both in the short and long run. Thinking about repeated interactions enables both parties to maximise their own welfare and achieve a superior solution for the Cambodian citizens as well as actual and potential airport users.

3.2. Case study number 2: unforeseen demand and cooperation

3.2.1. The context

The second case study deals with a concession contract that was signed in 1990. The object of the concession was to build, finance, operate, maintain (and then transfer) a tolled road tunnel during a period of 30 years. The contractual time limit for construction was four years and the tunnel was built within that time period. The operator estimated the cost of the project at about one hundred and eighty million Euros (value 2008).

The life of the contract has been going on without any major problems. Eight amendments to the contract were mutually agreed and signed by the parties. The one we study here is the last one.

The eighth amendment was concluded in August 2005. It involved a new initiative in an area where congestion in the city was unexpectedly growing, namely in the perimeter of the principal train station of the city. Thus, the municipality wanted a connection between this congested area and the tunnel.

3.2.2. The content and outcome of renegotiation: a winner's game

The amendment states that the public party would make some preparatory works and build the concrete foundations of the new underground connection (the cost of these works is estimated to 2 millions Euros). It had to be done in this way as otherwise, according to the French law, it would not have been an amendment but a new contract. The contract adaptation also mentions that the private operator would have to be in charge of all the works inside the new connection, such as the public road works (cost of this project for the operator: 17.3 millions Euros).

At first sight, what is striking is that there is no financial compensation to the private operator for this additional task. However, some questions to managers of the private company revealed that the connection had generated significant traffic growth in other tolled parts of the concession which were expected to cover the additional costs. The new section generated a traffic increase of 1,000 additional vehicles per day. Thanks to this increase and to the toll adjustment formula, the cost of the additional works should be amortized by the end of the concession period.

The outcome of renegotiation for the different actors is the following:

- The public authority did not have to contribute to any funding for the works inside the connection beyond paying the cost of the additional foundations.
- The private operator benefited from the traffic increase, i.e. new revenues. Moreover, the fact that it did not seek a financial compensation for the additional investment probably contributed to its reputational gain.
- Users of the city road and tunnel network saved time thanks to the fluidity improvement due to the new connection, which is 600 m long. They now need 1 min to cover this distance at peak hours, whereas this ride used to last ten to fifteen minutes before the existence of the connection[6]. This improvement of quality standard is at no cost for users, since no new toll was put in place.
- The amendment studied here also took environmental concerns into consideration: less congestion, thanks to the connection, led to a fall in CO_2 emissions. These environmental benefits can be estimated following the method proposed by Koning, Kopp and Prud'homme [2007][7]. Before the tunnel connection was built, the average

[6] Before the connection, vehicles had to cover 800 metres.

[7] For a basic car travelling at under 50 km/h, cars emit (0.624 – 0.00925 * speed) kilograms of CO2 per kilometre. And when they go between 50 and 100 km/h, they emit 0.16 kg/km.

speed was 3.2km/h, which amounts to 0.4755 kg per ride. And with the connection, it falls to 0.096 kg/ride, assuming a road speed of 60 km/h. The improvement in CO_2 emissions is then of 0.3795 kg per vehicle, which is equivalent to around 138.5 tonne per year. Assuming that CO_2 is valuated at 25 € per tonne, this represents a value of 51,937€ of environmental gain until the end of the concession.

3.2.3. The vectors of cooperation

This amendment is clearly the result of a cooperative renegotiation, leading to increased social surplus. The driver of this renegotiation was the additional need from the Municipality, which did not depend on changes to the core of the original contract. In accordance with Hart, Shleifer and Vishny's [1997], the origin of the renegotiation is a need for new investments. And, as what they suggest for future research (see Section 2.3), we take reputation into account.

In this case study, we see clearly that the private operator was not trying to save operation costs through cost-reducing investments. In this way, the case study illustrates how potential adverse effects on quality from cost-reducing investments can be addressed by the possibility to sign additional long run contracts or contract amendments.

Indeed, the amendment results from a simple and quick negotiation between the parties, as after fifteen years of collaboration, each party knew both how to meet the requirements of the other. It also shows that a completing reputation through cooperative behaviour is both self-profitable and useful for the other party. We suppose that the learning effect and the perspective of future relationships had positive externalities on present behaviours and enabled the alignment of the parties' preferences.

4. Conclusion and perspectives

This study has enabled us to confront different views about renegotiations. The theoretical literature enhances the "dark side of renegotiation", i.e. renegotiation driven by rent seeking of the parties. By contrast, the two case studies presented here have shown that social surplus improving renegotiations can often exist when parties cooperate. That is the "bright side of renegotiation".

We have shown that the determinants of cooperation are future relationships and/or lateral relationships. Such a result is consistent with the literature on relational contract [Baker,

Gibbons, Murphy, 2002 and 2004]. When relationships are repeated, cooperation becomes potentially profitable for both parties, particularly in the longer-term. In such situations, parties are benevolent, but it does not mean that they are selfless. Implicit dealings, threats and promises encourage them to take the interest of others into account.

The point on which we differ from classical works on relational contracts however, relates to self-enforcement. Most of the time, relational contracts are considered as a way to avoid renegotiations. By using repeated game models and considering that incentives and behaviours may change, they expect the underpinning informal dealings to become self-enforced. By extension, amendments do not have to be written since parties adapt themselves automatically and cooperatively to unexpected events. As applied to our cases, it would mean that parties would not have had to write an explicit contract amendment.
This is not the case in our view. We emphasized that concerns for future business give incentives to parties to draw compromises when an adaptation is needed. But one cannot avoid renegotiations if changes are needed to maintain the viability of the contract. Self-enforcement in our view means that there is no need to negotiate too long to find a solution which fits everyone at the stage of the renegotiation. Parties will not think in a short run individualistic way only (they will not fight to get a bigger portion of the surplus generated by an investment in quality, like in Hart Shleifer and Vishny, 1997, for instance), nor will they try to hold up the quasi-rent. Instead, they know that their efforts to maximise social surplus will be profitable for everyone in the long run, which gives them the incentive to do so. But because long-term contracts need adaptations, the need for amendments to the contracts is unavoidable. In some cases, it is even illegal not to leave any written record of the changes that occurred during the life of the contract[8].

This paper is also a contribution to analyse the efficiency of public-private partnerships. The number of renegotiations of a contract is often said to be inversely proportionate to its efficiency. Our paper does not systematically support this view. On the contrary, renegotiating may enrich the contract and improve the relationship of the parties. Future empirical research should study the influence of the number of renegotiations on the number of later additional contracts.

[8] In France for instance, dealing with concession contracts, when the change represents 5% of the contract or more, it is compulsory to have the agreement of a conciliation board.

To sum up, our two case studies suggest a new way of considering renegotiation. Future research should stress on how to transpose incomplete contract theory into a dynamic analysis through a theoretical model to study whether contractual dynamics have an influence on the sequence and outcomes of renegotiations.

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