OPPORTUNISTIC RENEGOTIATION OF INFRASTRUCTURE CONCESSIONS AS RENT SEEKING: THE EFFECT OF LEGAL SYSTEMS

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ABSTRACT

This paper examines the problem of renegotiation of infrastructure concessions in Latin America using a model of litigation with an application to incentive contracts. Opportunistic renegotiation is here defined as a rent seeking game, to show the effect of the legal system characteristics in the probability of renegotiation. A main conclusion is that legal systems where each party pays for their own legal expenses, such as the American, are more prone to opportunistic renegotiation. On the other hand, systems, such as the British, that concentrates legal expenses in one party might discourage opportunistic behavior by making it more costly.

Key Words: Auctions, fee-shifting, incentives, litigation, public choice, rent seeking

JEL **Classifications:** D44, D86, D72

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RESUMEN

Renegociación oportunista de concesiones de infraestructura como rentismo: El efecto de los sistemas legales

Este trabajo examina el problema de renegociar concesiones de infraestructura en América Latina, empleando un modelo de litigación aplicado a contratos de incentivos. La renegociación oportunista se define aquí como un juego rentista, para mostrar el efecto de las características del sistema legal sobre la probabilidad de renegociación. Una conclusión principal es que los sistemas legales en los cuales cada parte sufraga sus propios gastos legales, como el de los Estados Unidos, son más propensos a la renegociación oportunista. De otra parte, sistemas como el británico, donde los gastos legales se concentran en una de las partes, pueden desincentivar el comportamiento oportunista al hacerlo más costoso.

Palabras claves: Subastas, traslado de costas judiciales, incentivos, litigación, teoría de la elección pública, rentismo

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I. INTRODUCTION

In the 1990s concessions for infrastructure in developing countries became increasingly prevalent as a result of the perceived benefits to the country and its inhabitants. These infrastructure concession contracts act to delineate the allocation of rights, risks, costs, and incentives among the contracting parties. For example, a typical concession may allow a private company to build and operate, free from competition, an infrastructure project for a period of 20 years. The benefits from concessions include the freeing up of scarce funds to be used for other public goods, increased efficiency of infrastructure operation as a result of the private profit motive, increased economic growth, and more and better infrastructure services for citizens.

While the burgeoning growth of concessions for infrastructure is encouraging, the high rate of renegotiation of these concession contracts is not. Indeed, over 54% of concessions are renegotiated after only, on average, 3.1 years of the contract signing date, as found by Guasch (2004), the common change being a reallocation of risks among the parties. This rate of renegotiation is doubtfully efficient and leads to the conjecture that either risks were not allocated efficiently

ex ante, or one party (the government or private company) is opportunistically taking advantage of information asymmetries to extract a more favorable outcome or that some type of macroeconomic shock has occurred. In addition, this high rate of renegotiation drives up the cost of capital, resulting in higher tariffs charged to infrastructure users.

Whereas the concept of concessions for infrastructure has been around for hundreds of years, widespread private participation in public infrastructure projects is a relatively recent phenomenon. In the late 1980s, many developing Latin American countries, driven by the incentives discussed above, began to offer infrastructure concessions to private companies. In the 1990s this trend continued and accelerated, as approximately 1500 concession contracts, worth about US$470 billion, were signed in the region between governments and private companies, according to Estache and Quesada (2001). The sheer magnitude (in dollar amounts and units) of concession contracts, along with the astounding rate of renegotiation mentioned above, together act as a very compelling argument for investigation into the determinants of renegotiation and methods to mitigate its occurrence. Economists generally agree that the contracting out of infrastructure facilities in developing countries to private companies is more efficient (and beneficial to citizens) than state run enterprises. But, the problem of renegotiation is yet to be solved.

The purpose of this paper is to develop a model to evaluate the potential effect of the legal system on the probability of renegotiation due to opportunistic behavior. Using as a point of departure a simple auction theoretic framework developed by Baye, Kovenock and de Vries (2000), I will develop a model of litigation with incentive contracts. Surprisingly, the literature, in this specific subject, systematically overlooks the effect of political variables, with few partial exceptions, such as Guash,Laffont and Straub (2003) and Guasch (2004). However, although they include some political and institutional variables in their estimation, they barely mention the potential effect of the legal system in the probability of renegotiation.

The structure of the paper is as follows: Section 1 introduces the topic and provides some background. Section 2 points out the role of regulation in infrastructure concessions. In section 3, the problem of renegotiation is defined. In Section 4 the empirical results are briefly presented, with some comments on the reasonability of the hypotheses from Guasch (2004). Section 5 summarizes the results of Baye, Kovenock and de Vries (2000), where a simple auction theoretic approach is used to evaluate different legal systems from a general perspective. In Section 6, I develop a theoretical model of litigation to show the influence of

legal systems in the probability of renegotiation in infrastructure concession contracts. Section 7 provides the conclusions and some policy recommendations.

A. Background: Competition for the Market

When trying to introduce private participation in infrastructure the main challenge is how to align social and private interests under the framework of natural monopolies. A viable alternative is, then, to introduce competitive discipline into the market in such a way that the outcomes will be welfare enhancing in terms of allocative and productive efficiency and consumer and producer surpluses.

Therefore, when a single or few firms can provide the whole market more efficiently, a feasible way to obtain outcomes similar to competitive scenarios is by introducing competition for the market. In other words, to arrange bidding processes in order to assign the rights of serving a specific market to a single firm for a limited period of time.

Accordingly, 78% of concession contracts in Latin America and the Caribbean from the mid 80s to 2000 were awarded through competitive bidding, while 22% were awarded through direct adjudication (bilateral negotiation).

Sound theory, however, does not always translate into sound policy. Competitive awarding and new regulation methods were promoted in Latin America and the Caribbean as the almost infallible recipe for the introduction of private

TABLE 1

Contract Award Processes for Concessions in Latin America and the Caribbean by Sector, mid 1980's to 2000

Award process	Telecomunications	Energy	Transportation	Water and sanitation	Total	Share of Total
Competitive bidding	245	95	231	125	696	78%
Direct adjudication (Bilateral negotiation)	15	143	37	4	199	22%
Total	260	238	268	129	895	100%

Source: Guasch (2004)

participation in infrastructure. Naturally, plenty of issues were unaccounted for when approving the reforms. As a result, the scheme has lost popularity, even with the memories of the poor performance of state-owned utilities still present.

B. Renegotiation Emerges

Competitive awarding was a great advance of the new concession contracts compared to their eighteenth century predecessors.[1] However, the potential vulnerability of contracts to incompleteness or obsolescence remains unsolved.

Renegotiation can accomplish a positive role given the inherently incomplete nature of concession contracts. Moreover, when properly used, it can be welfare enhancing. However, renegotiation resulting from opportunistic behavior can reduce or eliminate the expected benefits of competitive bidding.

Renegotiation is, in essence, a rent-transfer mechanism. Given its impartial nature, it is the ideal vehicle for rent seekers to exploit. Consequently, as was to be expected shortly after the appearance of the first unanticipated contingencies, concessionaires realized the potential of renegotiation in their quest for profits.

The first realization was that the proposals were not binding and that they could be modified after the contract was signed. As a result, the proposals were intended only to win the contest and not to comply with the offered conditions. In this sense, once bidders realize renegotiation is feasible and likely, they will factor it into their maximization program. Thus, auctions might end up selecting not the most efficient provider but the most skilled at renegotiations. Second, in the absence of competitors[2] the quest for rents through renegotiation by concessionaires depends only on the resources or effort destined to obtain the transfer. The effort costs can take the form of legal expenditures, bribes etc.

The Government, on the other hand, may have an incentive to take advantage of renegotiation if it is politically profitable or when it is subject to capture by interest groups (i.e., when the users of the concession facilities are few with big amounts at stake). That is to say, if users are able to exert effective pressure or

[1] The first concessions date from 1777 in France (Perrier water contract); in the US, in 1792, with the turnpikes [the first toll road connecting Philadelphia and Lancaster was chartered in 1792, and opened in 1794 (Klein,(2002)], and London in the 1820's (private water companies).

[2] Renegotiation is not subject to competitive pressures and their associated discipline.

create motivations for politicians and government officials to obtain a favorable outcome in the opposite direction of the interest of the concessionaire.

Nevertheless, in the case of concession contracts, consumers are large numbers with relatively small amounts at stake, while producers are only one and previously organized entity (no competitors) with a large amount at stake. This gives a definite advantage to concessionaires, given the inherent difficulties of collective action for the affected users. (Olson 1965). As a result, under the renegotiation scenario, concessionaires are more effective in the pursuit of their interests than consumers. Furthermore, other relevant aspects in developing countries such as institutional weakness, corruption, and budget restrictions,[3] exacerbate the problem and incline the balance even more in favor of concessionaires.

In conclusion, opportunistic renegotiation can be characterized as a rent seeking game «which embodies a social cost in terms of the foregone product of the resources employed in rent seeking» (Tollison, 1997). As such, it poses an important concern for less developed countries, where renegotiation is increasingly utilized.

To address this problem, extensive work have been done regarding the design of concessions in terms of allocation of risks and regulation (Estache and de Rus, 2000), awarding methods (Engel and Galetovic, 1998), contract enforcement (Laffont and Meleu, 2001). Some of these exercises try to cope with the presumably unsolvable[4] problem of contract incompleteness. Also, they almost always take politics as a «given», thus neglecting problems such as legal systems, weak institutions, interest groups, regulatory capture and rent seeking behavior, among others. A good illustration of this is the increasing promotion of «independent» regulatory agencies formed by experts responsible for designing and administering increasingly sophisticated models of regulation. Although well intended, sometimes this approach neglects the fact that independent commission schemes lower the cost of «capture» by concentrating regulatory decisions.[5]

[3] In the sense that there are less resources available to respond to litigation, given the financial constraints and the high shadow costs of public funds (resources are more socially profitable in health, education etc).

[4] It is often argued that transaction costs are the main reason for contract incompleteness. First, is impossible for the parties to a transaction to know every relevant fact or anticipate every relevant contingency, and, second, even if one could foresee all contingencies, they may be so numerous that describing them in a contract would be too costly. Thus, the cost of writing contracts may lead to incompleteness.

[5] Moreover, besides bribes and other commonly used means, more ways to capture are available under this scheme. For instance, the prospect of a well paid job for expert commissioners after the tenure, also known as the «revolving door», which is a common practice.

II. THE AMBIGUOUS ROLE OF REGULATION

Most academic work regarding economic regulation of infrastructure is based on the idea of the so-called public interest. For instance, independent regulatory agencies usually have discretionary power to set fares and service standards according to the public interest. The first problem with this approach is to define what the public interest is. One can argue that the public interest is something that can not be defined or discovered through rational analysis. As put by Gómez-Ibáñez (2003, p. 40), «There may be widespread agreement when goals are stated at a very general and abstract level, but the consensus often dissolves when the goals are translated into specific policies». Moreover, even if there is a public interest it may not be discovered through the rational deliberations of an expert regulatory agency. «Some critical information may not be available with reasonable time and effort, or so much information may be required that even a large and expert staff can not comprehend an analyze it all» (Gómez-Ibáñez 2003, p. 40).

The second problem that makes this approach vulnerable is the possibility of capture by special interests. There is ample evidence that independent agency members are rational actors and that their behavior is motivated by self interest.[6] As noted by Bernstein (1955), firms have much more subtle and legal methods to capture regulators than bribes. The prospect of secure, well paid jobs (or as consultants) after they retire (revolving door), campaign contributions to legislators who oversee the regulatory agency, and even in some cases industry representatives, might capture the regulators intellectually simply because they spend so much time in each other's company. In Latin America it is common to see regulators go from regulatory positions to jobs within the previously regulated industry, as well as other evidence of influence from special interests.[7]

Some may argue that the second problem should not be a matter of concern because it is precisely competition among special interest groups which encoura-

[6] Typically, they are expected to respond in predictable ways to incentives in the form of salaries, work overload, budget, or other conditions. Moreover, even with carefully designed institutions that control for these variables –such as constitutional provisions– other, more subtle ways emerge.

[7] In Colombia, for example, most coal or gas-propelled power plants are located in the Caribbean coast region, while hydroelectric plants are located in the Andean region. Often, members of the Energy Regulatory Commission (CREG) favor regulatory decision according to their place of origin (ie., regulators from the Andean region favoring and promoting regulation beneficial to the hydroelectric industry and vice versa). This happens, presumably, due to the available room for patronage in the appointment process.

ge policies that favor the broader public interest (Becker, 1983). However, reality seems to be more in accordance with Olson's logic of collective action (Olson, 1965). Olson relies on the rational choice concept of group behavior. He argues, contrary to the Becker's assumption of private benefits, that the output of the interest groups is non-excludable (public). Thus, there is an incentive to free-ride. As a result, interest groups will fail to provide the optimal level of output. Furthermore, Olson identifies the difficulties in creating new interest groups, which Becker does not recognize. It takes creative talent to form an interest group. Moreover, the transaction costs to organize an interest group can be very high, depending on the size of the group. Thus, a key condition for an interest group to succeed that it be small and homogeneous. Therefore, the problem of capture by special interests is not only relevant when explaining the ambiguity of the regulation process but critical in renegotiation events.

Surprisingly, given the importance of political issues, public choice problems are not properly addressed when dealing with infrastructure concessions. Policy documents devote extensive space to technical issues, such as sources of project financing, level of investments, pricing, length of concession and awarding methods. They usually neglect political issues and treat them as secondary, though regulation is as much a political as a technical endeavor.[8]

III. DEFINING RENEGOTIATION

In order to characterize renegotiation it is important to classify the reasons for a profit maximizing firm to attempt to renegotiate (Bell, 2003). First, there are exogenous constrains. When a firm is operating in a new institutional environment it may underestimate the costs of running its business and may have paid too much for the right to operate. The second reason is the presence of exogenous events. The costs of insuring against many natural disasters, social unrest, and other outside events may deter firms from doing so. Instead, they tend to rely on renegotiations in case such events adversely affect their operations. The third rea-

[8] One intuitive explanation may be that, among «technical experts», politics has a rather negative connotation (as the work of politicians). Consequently, they tend to disregard political issues and take politics as a «given» or something than cannot be dealt with.

son is endogenous manipulation. When firms realize that contractual institutions are weak, they may try to take advantage by asking for renegotiation once they have a better understanding of the operating environment. Their argument here will be that the costs on which they base their proposals are unexpectedly higher due to any of the two reasons previously mentioned.[9] This is what we will call opportunistic renegotiation.

Likewise, the government may be interested in renegotiation, arguing the first two cases in the opposite direction. For instance, cost being overestimated for the concession design for the first reason or macroeconomic shocks that benefit the firm[10] for the second reason. Moreover, the government will also try to renegotiate when it is politically profitable[11] or when it is captured by interest groups —a case that falls under the category of endogenous manipulation or opportunistic renegotiation. Notice that, in the third case, analogously to the firm, the government will rely on arguments attributable to the first and second reason.

IV. THE EMPIRICS

Theories of renegotiation provide several hypotheses, some of them quite evident. The following were tested by Guasch (2004):[12]

1. Macroeconomic shocks increase the incidence of renegotiation.
2. More extensive investment obligations in a contract (that is, regulation by means as opposed to regulation by objectives) increase the incidence of renegotiation.
3. A more competitive award process (as opposed to bilateral negotiations) increases the incidence of renegotiation.
4. Minimum income guarantees decrease the incidence of renegotiation.

[9] Exogenous events, such as natural disasters or macroeconomic shocks, are unambiguously observable. However, even in these cases there is scope for disagreement. As a result, some effects attributable to the firm itself will tend to be associated to the event.

[10] For instance, when an unexpected improvement in the economic environment leads to substantially higher demand than the one estimated when the concession was awarded.

[11] When users of the facilities constitute a high percentage of the voting population.

[12] With a smaller sample Guasch, Laffont and Straub (2003) found similar results.

5. Existence and structure of a regulatory agency reduce the incidence of renegotiation.
6. As the number of concessions granted in a country increases, the incidence of renegotiation decreases.
7. Awarding concessions shortly before or shortly after elections increases the incidence of renegotiation.
8. Closer affiliation between winning bidders and the government increases the incidence of renegotiation.
9. Extensive corruption in a Country increases the incidence of renegotiation.

TABLE 2
Infrastructure Concessions in Latin America and the Caribbean by Country and Sector

Award process	Telecomunications	Energy	Transportation	Water and sanitation	Total	Share of Total (percent)
Argentina	17	31	40	14	102	10.8%
Bolivia	0	17	5	2	24	2.5%
Brazil	87	7	50	50	194	20.6%
Chile	12	81	27	3	123	13.1%
Colombia	0	0	44	7	51	5.4%
Costa Rica	0	31	1	0	32	3.4%
Dominican Republic	1	10	3	0	14	1.5%
Ecuador	0	2	0	0	2	0.2%
Guatemala	1	0	2	0	3	0.3%
Honduras	1	8	0	1	10	1.1%
Jamaica	2	0	0	0	2	0.2%
Mexico	63	51	91	58	263	27.9%
Panama	0	0	5	0	5	0.5%
Peru	85	17	5	0	107	11.4%
Trinidad and Tobago	1	1	0	1	3	0.3%
Uruguay	0	0	2	1	3	0.3%
Republica Bolivariana de Venezuela	3	0	1	0	4	0.4%
Total	273	256	276	137	942	100.0%

Source; Guasch (2004).

As can be seen, hypotheses 1 to 4 are more related to technical[13] issues, while hypotheses 5 to 9 are more related to institutional and political issues. Notice, however, that almost none of the studies provide any indication or even mention the potential effect of the characteristics of the legal system. Moreover, with few exceptions [certainly, Guasch (2004) and Laffont and Straub (2003)], none of the works treat in any detail the political issues. In the two cases cited, the authors developed hypotheses 5 to 9, although with one serious flaw in hypothesis 5 for empirical testing. Given the ambiguous role of regulation and the clear possibility of capture, there is no reason to expect that the relationship will go in that direction.[14] Again, only brief mention is made of the potential effect of the legal system. Specifically, they mention that the existence of formal arbitration rules, making renegotiation less costly, increases the probability of renegotiation, but do not mention the characteristics of the legal systems and their potential effects.

V. SUMMARY OF RESULTS

Not surprisingly, the existence of the regulatory body is the element with the greater (positive or increasing probability) incidence in the probability of renegotiation. Oddly, however, Guasch explains the result citing the fact that independent regulators in Latin America are still the exception rather than the rule and that it is difficult to measure independence.

Another feature of the results that is worth mentioning is the effect of political issues on the probability of renegotiation. For instance, type of regulation —which, in spite of consistently being treated as a technical variable, is as much political— indicates that the some methods of regulation have a stronger effect in the positive direction (increasing probability) than others. Specifically, the effect of price cap regulation is greater than the effect of rate of return. Other results show that award criteria (i.e., minimum tariff or revenues) increase the probability of renegotiation.

[13] For instance, source of project finance, level of investments, length of concessions, awarding methods and macroecomic shocks.

[14] The ambiguous role of regulation necessarily leads us to think that it could go either way or even with more probability in the opposite direction. That is to say, the existence and structure of regulation increases the incidence of renegotiation.

TABLE 3
Marginal Effects of Significant Variables on the Probability of Renegotiation

Significant variable affecting the probability of renegotiation	Marginal effect on probability of renegotiation
Existence of regulatory body	20-40 percent
Award criteria	20-30 percent
Type of regulation	20-30 percent
Autonomy of regulatory body	10-30 percent
Investment obligations	10-20 percent
Nationality of concessionaire	10-20 percent
Extent of the competition in awardprocess	10-20 percent
Macroeconomic shocks	10-15 percent
Electoral cycles	3-5 percent
Award process	10-20 percent

Source: Guasch (2004).

Finally, it is worth mentioning that macroeconomic shocks have a lower than expected effect on the incidence of renegotiation, compared to political, institutional and other technical drivers of renegotiation. Moreover, political and institutional issues appear equally relevant as the technical drivers for the incidence of renegotiation, even without taking into account that most technical issues have political elements embedded. Therefore, these aspects should be analyzed to have a better understanding of the problem of renegotiation, rather than continuing to devise increasingly complex methods of regulation and awarding that do not take into account the political and institutional reality. Following this line, Section VI a model will be developed to show that the characteristics of legal systems do have an effect on the probability of renegotiation.

VI. LEGAL SYSTEMS AND RENEGOTIATION

The normative criterion to evaluate the outcomes of different legal systems in a rent seeking scenario is minimum aggregate legal expenditures. That is to say,

legal systems where aggregate litigation costs are low are superior to those that have high levels of aggregate litigation costs.

Baye, Kovenock and de Vries (2000) develop a simple auction-theoretic framework to compare equilibrium legal expenditures that arise under different legal systems, modeling litigation (rent seeking) as an «all pay» auction. For that purpose they characterize the legal payoff functions under the following assumptions:

1. Monotonic Legal Production Function. The quality of the case presented by each player is a continuous and strictly increasing function of their own legal expenditures.
2. Justice is always served. If party *i* presents the best case, party one wins with probability one. If the two parties' cases are of identical quality, each party wins with probability ½.
3. Internalized Legal Costs. There are no subsidies or taxes; all legal expenses are borne by the litigants.
4. Regularity of Conditions on the Distribution of Valuations. The density of valuations is continuous and strictly positive on its support, [0, L_{max}].

The general payoff function is formulated in terms of alpha and beta,[15]

$$u_i(e_i, e_j, L_i) = \begin{cases} L_i - \beta e_i - (1-\alpha) e_j & e_i \rangle e_j \\ \dfrac{L_i}{2} - e_i & e_i = e_j \\ -\alpha e_i - (1-\beta) e_j & e_i \langle e_j \end{cases}$$

Where e_i are legal expenditures and L_i is party *i* valuation.

Among the evaluated systems we have:

American System ($\alpha = \beta = 1$): Each party pays its own legal expenses.

British System ("$\alpha = 1$ and $\beta = 0$):The loser pays his own legal expenses as well as those of the winning party.

[15] Fee shifting parameters.

Continental system: ("$\alpha = 1, 0 < \beta < 1$): The loser pays his own costs and, in addition, a fraction (1- β) of the winner's expenses.

Quayle System ("$\alpha = 2, \beta = 1$): The loser pays his own costs and reimburses the winner up to the level of the loser's won costs.

In proposition 8 they found that litigant's expected equilibrium legal expenditures are given by :

$$TC(\beta) = \frac{2}{\beta} \int_0^{T_{max}} vf(v)\left[1 - F(v)\right] dv$$

Thus, they conclude that legal systems with higher betas result in unambiguously lower total expected costs, and the payoffs are strictly increasing in beta.

To summarize, they found that «the effective costs to society of a given legal system depend not only on the expected expenditures per trial[16] under each system, but the number of trials induced by each system. *Ceteris paribus*, systems that generate lower expected expenditures per trial provide greater expected payoffs from litigation, and therefore result in more cases being brought to trial». This is a very useful and interesting result. It is too general, however, for our purpose of showing the effects of legal systems on the probability of renegotiation within the context of infrastructure contracts.

VII. A MODEL OF LITIGATION IN CONCESSION CONTRACTS

Assuming conditions 1 to 4, following Baye, Kovenock and de Vries (2000), an «opportunistic» firm presumably faces a trade off in its maximization program, between investing in effort to reduce costs and effort for litigation (renegotiate). The decision of investing in cost reducing efforts is preferred for society, while the decision to engage in litigation is clearly a rent seeking game, where the legal

[16] Notice, however, that under the « efficient rent seeking» concept (Tullock 1967) total legal expenditures are constrained by the value of the claim v.

expenditures represent a cost for society «in terms of the foregone product of the resources employed».

A. The Model[17]

A government and a firm claim L through litigation. The government spends x and the firm spends y. Let " P(x,y) be the probability the government wins and $C_G(x) = c_G \cdot x$ the government costs and $C_F(y) = c_F \cdot y$, the firm's. The government objective is to maximize the expected value of $U_G(x,y)$ where:

$$U_G(x,y) = \begin{cases} L - C(x) \text{ with prob. } "P(x,y) \\ -C(x) \text{ with prob. } 1 - P"(x,y) \end{cases}$$

while the firm is to maximize the expected value of $U_F(x,y)$ where

$$U_F(x,y) = \begin{cases} -C(y) & \text{with prob. } " P(x,y) \\ L - C(y) & \text{with prob. } 1 - "P(x,y) \end{cases}$$

In the case where,

$$P"(x,y) = \begin{cases} 1 & x > y \\ \frac{1}{2} & x = y \\ 0 & x < y \end{cases}$$

And, $c_G > c_F$, (to indicate the high shadow costs of public funds, see footnote 3).

Under American Legal System. It is easy to show that the most the government is willing to incur in litigation effort is x*

1. The effect of a «loser pays all» system

The expected rent from litigation is null. Thus, the agent will not litigate and thus his cost-reducing effort is optimal since this situation is identical to the one obtained in the case where the contract is fully enforceable.

[17] The full model is not shown but is available upon request to the author.

Clearly, the agent faces a trade-off between investing in effort to be efficient or investing in effort to opportunistically renegotiate. Moreover, when the second alternative is chosen, we are taken to an inferior state. In this case, investing in efforts to opportunistically renegotiate might provide the agent relatively more profits while imposing rent-seeking costs to society.

Therefore, systems, such as the British, that affect negatively the expected value of renegotiation (litigation), making it less attractive to the agent, will surely discourage opportunistic renegotiation.

To summarize, the type of legal system has a direct incidence on the probability of «opportunistic» behavior from the firm and, therefore, on the probability of renegotiation. Thus, a greater rate of renegotiation is to be expected in infrastructure concessions in Latin American countries where legal systems are similar to that of the United States. Likewise, countries that have legal systems similar to the British, or «loser pays all» systems, are expected to have lower rates of renegotiation.

VIII. CONCLUSION

In this paper, I have shown that political and institutional issues are as important as the technical issues in determining renegotiation. Thus, any reform intended to tackle the problem of opportunistic renegotiation should necessarily include them. Complex regulation methods that are the result of technical sophistication that does not take into account political and institutional realities have largely failed. An example of this has been application of price cap regulation in Latin America. Furthermore, more regulation is not the answer. The imposition of requirements that are potentially intrusive runs the risk of ultimately incurring in social costs that outweigh potential welfare losses, even when the method was effective in preventing these welfare losses. Any advance in that direction will take us to an inferior state. Opportunistic renegotiation is a clear example of this.

Therefore, efforts to design policy should be oriented also towards the analysis of the political and institutional environments where the problem emerges. For instance, we have shown that the characteristics of the legal system have some influence in the probability of renegotiation. Thus, any recipe that neglects this and other relevant issues of the same nature will surely fail to solve the problem.

For those countries with legal systems similar to the American, our findings suggest the advisability of introducing British-style reforms. However, attempts

to reform entire legal systems are time-consuming, costly and might have critical and unpredictable consecuences in other areas. Therefore, a viable short term alternative would be to include into concession contracts clauses that explicitly allocate the litigation costs in the desired way.

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