



Renegotiations and Renewals of Public Contracts

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Abstract

This paper examines the impact of renegotiations on contract renewals. Using an original dataset of procurement contracts in the French car park sector, we show that there exists an optimal level of renegotiations that positively affects the probability of renewing a contract with the same partner. This result holds only when public authorities have discretionary power during the awarding procedure. Such findings suggest that what is usually interpreted as a sign of weakness – frequent renegotiations – might well be good news that indicates that the contracting parties can make contracts adaptable over time.

Keywords Renegotiation · Contract renewal · Discretion · Public procurement

1 Introduction

Public procurement contracts represent (on average) 12% of the EU GDP and nearly 10% of the US GDP (OCDE 2019). They are routinely renegotiated (Beuve et al. 2018), which potentially reduces the advantage of competitive auctions (Gagnepain et al. 2013). This leads many scholars to consider renegotiations as the major flaw of public contracts. As stated by Guasch et al. (2008, p. 421), “*high rates of contract renegotiation have raised serious questions about the viability of the concession model.*”¹

¹ Public procurement contracts consist mainly of two types of contracts: concession contracts on the one hand, which encompass construction and the provision of the public service; and traditional public procurement contracts on the other hand, which include service delivery or construction only – but not both. We will return to the differences between the two below.

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Interestingly, because contractual agreements need to adapt to unforeseen events “*the frequency of contract renegotiation may provide concessions ‘relational’ quality*” (Spiller (2008, p. 12)). Hence, whether renegotiations represent jointly beneficial moves toward greater efficiency or whether they represent opportunistic demands by one of the partners is a crucial issue. To inform this question, (Oxley and Silverman 2008, p. 231) suggest that it is necessary “*to explicitly connect renegotiation to (actual or perceived) performance effects, and to unpack more dis-aggregated detail about which types of provisions are renegotiated in the presence of which triggering factor*”. Our paper is an attempt to follow this path.

In this paper, we shed light on the renegotiation issue in public procurement contracts by investigating the link between renegotiations and contract renewals. Because it is nearly impossible to assess how renegotiations influence contractual surplus, we instead use contract renewals as a proxy. We believe that renewals allow us to assess indirectly parties’ perceptions about their previous relationships, and ultimately their cooperative adaptation and contractual surplus creation during renegotiations. If renegotiations result in a significantly negative outcome, parties are not prone to contract again.

To this end, we use an original database of 252 public contracts in the French car park sector, and we examine the impact of different dimensions of contractual renegotiations on the probability of renewing the contract with the same partner.

Our results suggest that there exists an optimal frequency of renegotiations, in which renegotiating *per se* should not be interpreted as a sign of failure of the relationship. In addition, we find that while some renegotiations clearly increase the probability of renewing a contract, others do not. This suggests a positive, negative or neutral influence on contractual surplus – depending on the frequency and type of renegotiations.

The remainder of this paper is organized as follows: In the next section we review the related literature and develop hypotheses. Section 3 describes the car park sector and the main contractual arrangements considered herein. Section 4 presents the database and our empirical strategy. The results are presented in Sect. 5. We conclude with perspectives for future work and public policy implications in Sect. 6.

2 Related Literature and Hypotheses

Because they address services of general interest, public contracts and their renegotiations are closely scrutinized. Many examples of renegotiations in public-private agreements are provided by Guasch (2004). By studying more than 1000 concession contracts that were signed in Latin American countries between the mid-1980s and 2000, he found that 55% of transportation contracts and 74% of water and sanitation contracts were renegotiated. Some of them led to contract terminations.

The author’s findings also highlight that renegotiations, at first glance, favor the private party. Indeed, the most common outcomes of renegotiations are delays, tariff increases, and a reduction in investment obligations – which potentially reflect the opportunistic behavior displayed by private partners. Those results are confirmed by a more recent study with updated data (Guasch et al. 2017).

Guasch (2004)'s interpretation is that renegotiations are a consequence of aggressive bids in the context of an *ex ante* lack of commitment from the government (Guasch and Straub 2006; Guasch et al. 2008). Additional reasons, also documented in Guasch (2004), are corrupted governments as well as the fact that firms that are winning bids are also politically connected, which helps them *ex post* to renegotiate contracts (see Ryan (2020) for a recent empirical study).

Other researchers explore government-led renegotiations as well as renegotiations that enable incumbent governments to circumvent budgetary rules before elections (Engel et al. 2019). In the end, generalized renegotiations are often described as a perverse outcome of the growing participation of the private sector in public services (Albalade and Bel 2009; Sarmiento and Cruz 2018). Moreover, regardless of who is at the origin of the renegotiation process, the scant empirical literature on renegotiations mostly considers renegotiations as a negative event and almost never as good news for both contractual parties.

At the same time, public contracts are often complex transactions for which objectives are changing, and it is not easy to anticipate future events that may disturb the relationship. Hence, renegotiations might be viewed as necessary adaptations to fill in the contractual blanks (Grossman and Hart 1986).

If renegotiations are necessary and might be associated with greater surplus, they remain a risky adaptation process that may lead to opportunistic behaviors (Williamson 1985; Fehr et al. 2011; Frydlinger et al. 2019): Contracting parties need a formal agreement to secure their specific investments; but this security should not come without any contractual flexibility to adapt to unanticipated events. This trade-off leads to an optimal level of contractual completeness (e.g. Crocker and Reynolds 1993; Saussier 2000) – which translates to an optimal level of contractual renegotiations.

We posit that the design of contracts is affected by the challenge of including the appropriate level of flexibility for renegotiation to occur when needed: too much, and undesirable opportunistic renegotiations are likely to occur; too little, and opportunities for welfare-enhancing renegotiations will be lost.

Very few studies have tried to collect information on contractual renegotiations to determinate their consequences on public procurement contract efficiency. Bajari et al. (2014) indirectly pursued this question by looking at how the anticipated cost of renegotiations influences the bids that are proposed by competitors. They found a positive correlation between bid level and the expected difficulty of renegotiating *ex post* – which suggests that the costs of renegotiations are substantial.

Gagnepain et al. (2013) looked at how the renegotiation of transport contracts in France prevents regulators from achieving the full-commitment efficient outcome. However, the authors did not study renegotiations *per se* and considered renegotiation as the parties unwillingness to renew their relationship with the exact same contract. We depart from their approach by studying renegotiations in detail during the contract life.

To assess how renegotiations influence contractual surplus, we use another strategy: We examine contract renewals. More precisely, we posit that if renegotiations result in a significantly negative outcome, parties are not prone to contract again. This means that the renewal can be used as a proxy for the

mutually beneficial adaptation of contracts. It will be our strategy to assess indirectly parties' perceptions about their contractual relationships, and ultimately their feelings of cooperative adaptation and contractual surplus creation during renegotiations.

Such an assumption is consistent with the previous literature on contract renewals that posit a threat of nonrenewal as a disciplinary device for better performances. For instance, Dalen et al. (2006) theoretically shows that by threatening not to renew the contract when it finds that the quality provided has been unsatisfactory in the past, the government may give the firms a stronger incentive to provide quality. Similarly, Iossa and Rey (2014) build a model where contract renewal creates an implicit incentive to provide good performance – even when performance and investment are non-verifiable.

Using renewal as a proxy for parties' perceptions about their contractual relationships is also in line with the relational contract theory that states that one means of circumventing opportunistic behaviors is provided by repeated interactions. Indeed, reputation concerns enhance cooperative behavior throughout the duration of the relationship: The repeated interaction of the contracting parties can enforce informal agreements, which thereby reduces opportunistic behavior because of the potential loss of future business in the event of “punishment”: nonrenewal (Coviello et al. 2018, Desrieux et al. 2013).

However, informal agreements are less (or even not) available to rely on in the case of public contracts – where every modification is supposed to be translated through formal amendments (Beuve et al. 2019; 2021). This is the reason why we can consider – as does Spiller (2008) – that public contract renegotiations may provide a kind of relational dimension to the contractual relationship.

Consistent with those different strands of recent literature, we formulate the following testable hypotheses:

Hypothesis 1 Non-renegotiated contracts are less likely to be renewed than are renegotiated contracts.

Hypothesis 2 Very frequently renegotiated contracts are less likely to be renewed than are less frequently renegotiated contracts.

The corollary of those two propositions is that, for a given transaction, in order to maximize surplus – a higher probability of contract renewal – there exists an optimal frequency of contractual renegotiations. However, this proposition stands as long as public authorities have discretion over the choice of their partner: when they have the possibility to make contract renewal dependent on what happens during the contract execution.

From this perspective, Coviello et al. (2018) analyze the causal effect of increasing buyers' discretion on procurement outcomes for a large number of public works in Italy. They found that discretion increases the probability that the same firm wins repeatedly, but it does not deteriorate – and may improve – the procurement outcomes that they observed. Their qualitative result about buyers'

discretion that leads to repeated contracts with the same firms without always deteriorating contractual surplus is consistent with the idea that repeated interactions permit renegotiating contracts without overly opportunistic behaviors.

This leads us to the last following hypothesis:

Hypothesis 3 The link between renegotiations and renewal is conditional upon the level of discretion of the public authority at the awarding stage.

3 Institutional Framework

3.1 The French Car Parks: a Competitive Sector

In many European countries, the local public authorities are responsible for the provision of most on-street and off-street car parks. The positive externalities and social benefits (environmental concerns, intermodality, urban development, etc.) that follow from the high quality of construction and efficient management of car parks are the reasons why they are under the remit of local authorities.

Interestingly, although the public authorities must retain the ownership, control and monitoring of car parks, they can outsource the provision of such infrastructure and services through public-private arrangements. To manage 1.3 million parking slots (50% underground and 50% off-street), public authorities in France have extensive experience relevant to public procurement contracts in the car park sector: 72% of car parks are organized via public procurement contracts, compared with 28% provided in-house through public provision.

The French car park sector is also characterized by a high level of competitive pressure between French firms (local operators as well as larger companies) and, more recently, between national and foreign operators (ANFA (2019)).

In addition, a municipality may always decide to return to in-house provision when the contract ends. This ability exists because car park management is a standardized service, and contracting parties are not locked-in through bilateral dependency at the contract renewal.²

As a result, there is a relatively low level of renewal rate in the car park sector (45% in our data) as compared with other sectors such as urban public transport (\approx 90% in France (Amaral et al. 2009)) or the water supply sector (\approx 90% in France (Guérin-Schneider and Lorrain 2003)).

² Several scholars have measured the level or perceived specificity of local public services by asking public managers to rank services according to the difficulty to replace contractors due to specificity and/or lack of competition. In all of those rankings, the operation of parking lots and garages appears among the less specific (Brown and Potoski 2003; Levin and Tadelis 2010; Beuve and Le Squeren 2016).

3.2 Types of Procurement Contracts

Our dataset of car park contracts is characterized by the existence of two different types of contracts that mainly differ along the duration and the discretion that is given to the public authority during the tendering process: *Concession* contracts and *Service* contracts.

Concession contracts are long-term contracts in which private operators build or deeply renovate the infrastructure, deliver the service, and keep the fees that are paid by users. Consequently, *Concession* contracts are subject to political, economic, social and technical changes that may occur during their execution. Such changes may be exogenous to the contract (technological developments, economic shocks, changes in legislation or legal interpretation), or the changes may directly result from internal drivers (evolving business requirements) or contract maladaptations (inappropriate initial contractual design).

Even if the selection procedure for concession contracts is formal, there is room for discretionary power of the public authority that allows taking bid quality, quality of renegotiations and bidder's previous experience into account.

The procedure starts with an open prequalification stage – which is based on firms experience and financial robustness – which enables private firms to become candidates. Second, the public authority writes the call for tenders, which specifies the objectives to be reached by the operator and the selection criteria. Typical selection criteria include: the acceptability of user prices; the rent that the private operator is willing to pay to the public authority to use the public ground; the technical quality of the bid (as the call for tenders is output-oriented, bidders must explain their means to reach the specified goals); and the general quality of the bid. Finally, for shortlists of two or three bidders, the third and final step is a direct negotiation – which is called a “*competitive dialogue*” – between the public authority and each of the remaining bidders before they submit their best and final offers.

Service contracts are short-term contracts where the public authority obtains the revenues and pays a fixed price to the private operator for managing car parks and collecting (on behalf of the public authority) user fees. Since the tasks that are assigned to the operator are simpler and easier to define,³ the award procedure for *Service* contracts is stricter. It includes only one stage and features standard criteria: The bid-price that is asked by the operator to manage the car parks is generally the unique feature.

Thus, public authorities have little or no discretionary power. As *Service* contracts are less complex and more complete than *Concession* contracts, one might expect renegotiations to be less likely to occur. Moreover, irrespective of the frequency of renegotiations, the public authority should hold no sway over the probability of contract renewal, because it must base its decision to award a contract on the bidding price only: The public authority has no discretionary power.

³ The operator is in charge of only a few tasks. Moreover, a specification booklet has been published by the state administration in collaboration with representatives of private operators and the association of local councilors that proposes a contract framework that the public authorities can use.

Indeed, previous experience must not be taken into account in the decision to renew a contract, as is illustrated by a statement from the Administrative Court of Paris. In 2009, a public authority that was in charge of public procurement contracts in the field of social housing was sanctioned for disqualifying a candidate because of a bad previous experience. The court forced the public authority to reorganize the call for tenders and re-evaluate the candidacy of each operator – including the complainant.⁴

4 Empirical Strategy

4.1 Data

In the French car parking sector, data are neither centralized nor collated because of the lack of a national regulatory authority. Therefore, in order to generate the dataset that we use in this study, we examined all of the expired contracts that were signed between one of the biggest operator and 136 different public authorities over a 42-year period: 1965–2007.

To explore whether the sequence of renegotiations influenced contract renewals, we considered a contract to have been renegotiated when a revision occurred that was not envisioned in the original contract. In the end, we examined 252 expired contracts and their respective 782 renegotiations.

4.2 Dependent Variable

Our dependent variable – *Renewed_i* – takes the value of 1 if the expired contract was renewed with the same private partner at the contract renewal time and 0 otherwise. The renewal rates that are in our dataset were 45% and 78% for *Concession* and *Service* contracts, respectively (summary statistics are provided in Table 1).

In practice, there are several possible reasons why a contract is not renewed: (i) the public authority selects another operator; (ii) the public authority returns the activity to public provision; or (iii) the private operator chooses not to rebid for the contract.

While a general explanation is that the parties are unwilling to contract again because of dissatisfaction in their previous relationship: the information that we collected from our interviews with the head of the legal department of the car park company confirms that in practice the incumbent private operator is always a candidate for

⁴ Administrative order n°0907878, Administrative Court of Paris, June 2009.

Table 1 Descriptive statistics

	Concession contracts				Services contracts			
	Mean	St. dev.	Min	Max	Mean	St. dev.	Min	Max
<i>Dependent variable</i>								
Renewed	0.45	0.50	0	1	0.78	0.41	0	1
<i>Renegotiations variables</i>								
No_Reneg	0.27	0.45	0	1	0.67	0.47	0	1
Reneg_Ratio	0.36	0.31	0	1.80	0.25	0.38	0	1.33
Reneg_Ratio2	0.29	0.32	0	3.24	0.20	0.38	0	1.77
Reneg_Tariffs	0.03	0.07	0	0.29	0.01	0.04	0	0.4
Reneg_Investment	0.07	0.17	0	1	0.03	0.12	0	1
Reneg_Quality	0.04	0.08	0	0.4	0.03	0.11	0	1
Reneg_Financial_Eq	0.01	0.04	0	0.22	0.01	0.09	0	1
Reneg_Duration	0.14	0.23	0	1.33	0.08	0.37	0	4
<i>Controls</i>								
Past_Experiences	2.04	2.27	0	11	2.55	3.13	0	14
Multi_Contract	0.67	0.47	0	1	0.53	0.50	0	1
Same_Area	4.82	5.41	0	19	4.97	5.31	0	19
Previous_Renewal	0.05	0.22	0	1	0.42	0.67	0	3
Change_of_Mayor	0.21	0.41	0	1	0.10	0.30	0	1
Left_Wing	0.40	0.49	0	1	0.43	0.50	0	1
Year (date of signature)	1990.21	9.85	1965	1999	2001.78	4.33	1985	2007
Population	98,867	124,207	3,481	859,543	52,639	53,364	525	291,504
Construction	0.17	0.38	0	1	0	0	0	0
Contract_Duration	15.23	10.81	5	40	2.42	2.23	0.08	13
Corruption	0.24	0.50	0	2	0.23	0.62	0	3
<i>Instruments</i>								
GDP_Variation	1.30	0.55	0	3.03	0.62	0.57	0	2.21
Population_Variation	0.06	0.19	-0.16	1.72	0.06	0.09	-0.16	0.30

its own succession.⁵ This suggests that the renewal decision is the sole responsibility of the public authority, and we thus dismiss scenario (iii).

Consequently, the choice of the partner's renewal could be dictated by bilateral dependency and/or the absence of other competitors. As was discussed above, because we focus on a sector that is characterized by a standardized service and a high level of

⁵ As was stated above, studies have found that renegotiations often led to more favorable contract terms for the private operators, which suggests that if renegotiations came from opportunistic behaviors, they are coming from the private party (Guasch 2004). That would explain why in our data, the private company always bids for renewals. However, it is also possible that the private company always bids but at a higher price when it considers that it has been a victim of opportunistic behaviors from the public authority in a previous contract : it thereby reduces its probability of being selected again.

competition, we assume that going back to public provision is not very complicated and that the likelihood of better offers is distributed equally among our observations. This makes us confident in our strategy to use contract renewal as a proxy for satisfying contractual surplus at the end of the contract.

4.3 Renegotiation Variables

The first way to characterize renegotiations is to distinguish between contracts that have been renegotiated and those that have not. Accordingly, we use a dummy variable – No_Reneg_i – that takes the value of 1 if the contract i was not renegotiated at all during its run and 0 otherwise.

In our dataset, more than 73% of *Concession* contracts were renegotiated compared to only 33% in the *Service* sample. This difference is because *Service* contracts generally involve simpler unbundled tasks that give rise to shorter contract durations than with *Concession* contracts. This observation is in line with the findings of Guasch et al. (2008), who pointed out that contract uncertainty explains the probability of renegotiation.

However, examining the occurrence of renegotiations is a crude measure because it ignores information on the frequency and types of renegotiations. To circumvent this limitation, we capture the frequency of renegotiations with the variable $Reneg_Ratio_i$: the number of annual renegotiations in each contract i . The use of the ratio between the number of renegotiations and the contract duration seems to be the most relevant measure because renegotiating four times over a two-year contract is not the same as for a 20-year contract.

We also include a squared term of our variable $Reneg_Ratio_i$ in our regression in order to identify the potential nonlinear effect that is expressed in our hypotheses 1 and 2. This inclusion rests on the transaction cost economics argument that contracts are governance mechanisms that should be rigid enough to reflect real commitment from contracting parties and flexible enough to permit adaptation as the environment evolves. We thus look for an “optimal” rate of renegotiations in our data.

Finally, in order to disentangle the effect of the frequency of renegotiations by renegotiation types, we describe the contractual dimensions with which they are concerned. Then, we extract the frequency of renegotiations according to these dimensions. Hence, the variable $Reneg_Tariffs_i$ represents the average number of annual renegotiations on the tariffs that are charged to service users for each contract i . Renegotiations on tariffs can take the form of an increase in tariffs and/or the implementation of specific tariffs for regular users.

The variable $Reneg_Investment_i$ stands for the average number of annual renegotiations on additional investment that is unforeseen in the original contract for each contract i . This additional investment requirement may come from the public authority or from miscalculated spending by the private operator. In the former case, the compliance of the operator might lead to a higher probability of contract renewal. In the latter case, miscalculated spending by the operator might require increasing tariffs or revising the financial provision (thus it is also coded as $Reneg_Tariffs$ and/or

Reneg_Finan_Eq), which can make the public authority reluctant to contract again with the same operator.

The variable *Reneg_Quality_i* represents the average number of annual renegotiations in each contract *i* that improve service quality. This process of improvement might be (but not necessarily) accompanied by additional investment (*RenegInvestment_i* here), such as when a new elevator is constructed in order to facilitate disabled access or when free bike rentals are provided to promote green cities.

The variable *Reneg_Finan_Eq_i* stands for the average number of annual renegotiations in each contract *i* that concern changes to its financial conditions. Such changes might result from an error of anticipation, an *ex post* shock or an additional investment that cannot be offset by a tariff increase. In *Concession* contracts, these renegotiations lead to a decrease in the rent that is paid by private operators to the public authority for the use of the public ground or assets. In *Service* contracts, these renegotiations lead to an increase in the payment to the private operator.

Finally, the variable *Reneg_Duration_i* represents the average number of annual renegotiations in each contract *i* that relate to an extension to the contract duration. Most of the renegotiations on contract duration that we observed were concerned with short extensions (less than one year) – typically because the public authority needed more time to organize a new call for tenders.

Even if we do not have specific testable propositions here, we expect more conflicting renegotiated dimensions – such as tariff or financial condition renegotiations – to decrease the probability of renewing a contract. By contrast, quality-related renegotiations are less conflicting: They usually involve the public authority's accepting or refusing the implementation of higher quality levels. Hence, they are expected to be less contentious and therefore more likely to increase the probability of renewal.

4.3.1 Control Variables

Previous experience As emphasized previously, the discretionary power of the public authorities allows them to take into account previous experience in the case of *Concession* contracts.

We include the variable *Past_Experiences_i*: the number of other expired contracts that the private operator had with the municipality in the past. On average, the private operator had more than two previous contracts with each municipality. Nevertheless, more than 30% of the expired contracts were first contracts.

We also take into account the fact that the studied contracts can be the subsequent versions of already renewed contracts through the variable *Previous_Renewal*: the number of prior renewals. Because *Concession* contracts have longer durations, *Previous_Renewal* is infrequent for *Concession* contracts in our sample: five cases among 94. On the contrary, the situation is much more frequent for *Service* contract: 53 cases among 158.

Future business and reputational concerns Future business perspectives allow contracting parties to deter opportunism and encourage cooperative behavior (e.g.

Poppo and Zenger 2002; Ryall and Sampson 2009). Thus, we also take the influence of future business and reputational concerns into account by including two variables:

The first is *Multi_Contract_i*: the number of other ongoing car parking contracts that the co-contractors share at the expiration date of each contract *i*. This variable enables us to capture ongoing businesses in which the parties are already engaged and measures the severity of the punishment that can be applied by the local authority to an opportunistic partner through the threat of not renewing several contracts instead of only one (Desrieux et al. 2013). In our data, the private operator and municipalities share on average 1.6 contracts in addition to the studied contract. We also observe that they share only one contract in 43% of cases.

The second variable is *Same_Area_i*: the number of other contracts that the operator has with other public authorities in the same region when contract *i* is re-awarded. This geographical reputation effect can be effective in a wider area than only the city concerned and is relatively more likely to benefit the operator. Indeed, the private operator tends to refine its reputation and to act in a way that satisfies the authority in order to stand a greater chance of contracting with the same authority or with other regional partners. In general, both for *Concession* and *Service* contracts, the private operator has almost five other ongoing contracts in the same region. We therefore expect these two variables to have a positive influence on the probability of renewing a contract.

Political and ideological dimensions A number of authors have highlighted the role of political and ideological dimensions in the decision to privatize public services (e.g., Bel and Fageda 2007; Picazo-Tadeo et al. 2012; Beuve and Le Squeren 2016).

By using data in the same sector and in the same country, Le Squeren and Moore (2015) show that municipal elections differently affect on public-private and private-private contracts: Their results indicate that public-private contracts are statistically more renegotiated in pre-election periods – which suggests the existence of a political bias.

Given this potential influence of political issues on contract renewal, we also include *Change_Of_Mayor_i*: a dummy variable that accounts for a change of mayor in the two years that precede the end of the contract. More than a change of ideology, it allows capturing the impact of a potential breach in the dialogue between the operator and municipality that may be negatively correlated with the likelihood of contract renewal.

In our data, a change of mayor in the two years that precede the re-auctioning of the contract occurred 20 times for *Concession* contracts (21.8%) and 17 times for *Service* contracts (10.7%).

The previous literature has showed that public services outsourcing is less likely to occur in left-wing municipalities. We also take this effect into account by introducing the variable *Left_Wing_i*, which is equal to one when the mayor belongs to a left-wing party (socialists, ecologists, and extreme left) as of the date of the contract expiration.

Size and competition The level of competitive pressure might influence the probability of contract renewal. However, the dearth of centralized data on the

number of candidates and their respective bids in each call-for-tenders means that we must approximate the degree of potential competition.

We address this problem by controlling for *Population_i*: the number of inhabitants as of the the expiration date. As was illustrated by Coletto-Labatte (2008) in his study of competition in the car parking sector in France, the number of present operators is an increasing function of city size. Large cities attract private operators because of the greater potential in terms of the increased number of car parks. Thus, the possibility that the incumbent faces greater competition can be assumed to be higher in larger municipalities than in smaller ones. Consequently, even though an imperfect measure, *Population_i* can capture the level of competitive pressure.

Other variables Since we are interested in the influence of the frequency of renegotiation, we need to control for contract duration in years (*Duration_i*). In this way, we can interpret the marginal effect of *Reneg_Ratio_i*. The coefficient of this latter variable captures the influence of the frequency of renegotiations and cannot be imputed to contract duration.

We control for the operator's tasks by including the variable *Build*: a dummy variable that takes the value of 1 if the private operator also built the car park and 0 otherwise. Because no construction element is included in *Service* contracts, this variable influences only the outcomes for *Concession* contracts. In our data, the operator had to build as well as operate the car park in 16 of the 94 expired contracts studied herein.

Since the estimation results may be driven by unobserved characteristics of the sector and/or the operator, which may evolve over such a long period (45 years), we control for potential biases by introducing a trend variable *Year_i*: the year in which the contract was signed.⁶

Finally, we take into account the fact that contract renewal might be influenced by unlawful practices: Corruption might explain decisions to maintain the incumbent. We address this possibility through the variable *Corruption*: the number of corruption cases that implicate the mayor or a member of the city council between 1980 and 2010.⁷

4.4 Estimations

Our goal is to explore how frequency and types of renegotiations may influence cooperative adaptations over the contractual relationship and thus the likelihood of contract renewal. Hence, our problem reduces to a probit estimation of the following model:

$$Renewed_{it} = 1[Renewed_{it}^* = a.RENEG_{it} + b.CONTROLS_{it} + e_i > 0]$$

⁶ The sample size prevents us from using year fixed effects. However, as a robustness check, we replace our trend variable with decade fixed effects. The results are almost identical and are available on request.

⁷ Data are obtained through Transparency International France, <http://www.visualiserlacorruption.fr>.

where $Renewed_{it}$ is the binary variable that indicates whether contract i is renewed at time t ; $Renewed_{it}^*$ is our latent variable we do not observe: the satisfaction of the public authority at contract renewal times; $RENEG_{it}$ is a vector of variables that groups the different characteristics of renegotiations (No_Reneg , $Reneg_Ratio$, and the variables that associated with the different renegotiated dimensions); $CONTROLS_{it}$ is a vector with our control variables that may also influence contract renewal; and e_i is the error term. Therefore, our main interest is in the coefficient a that captures the influence of the different renegotiation characteristics.

5 Results

5.1 The Influence of Renegotiations

Table 2 provides the marginal effects of our probit estimates for *Concession* contracts. Models 1 to 4 successively incorporate each of the characteristics of renegotiations. Estimations of Model 1 suggest that the absence of renegotiation of a contract during its term is negatively and significantly correlated with the decision to renew it, which provides support for our first hypothesis.

This first result contrasts with previous studies that describe renegotiations as a negative event in the lifetime of a contract. It also provides a strong argument in favor of using the subsequent estimations that distinguish renegotiations by their frequency and types.

Model 2 shows that the frequency of renegotiations – $Reneg_Ratio$ – is significantly and positively correlated with the probability of renewing the contract with the same operator. Moreover, the squared term of this variable $Reneg_Ratio^2$ is significantly and negatively correlated with the dependent variable (See Model 3). This nonlinear effect of $Reneg_Ratio$ suggests the existence of an optimal frequency of renegotiations, which provides support to our hypothesis 2.

Again, this result is at odds with the findings of a large number of works presented in the contract economics literature, which consider renegotiations to be detrimental to the ongoing relationship between parties. This finding reinforces the insight that contracts are governance mechanisms that should be rigid enough to reflect real commitment from contracting parties but flexible enough to permit adaptation as the environment evolves.

Figure 1 gives an illustration of the optimal level of renegotiation frequency we obtain for *Concession* contracts through Model 3: 0.7 renegotiations per year (or one renegotiation every one year and a half), which is twice the mean of our variable $Reneg_Ratio$. It suggests that many contracts in our sample are not sufficiently renegotiated to allow a higher likelihood of renewal (we can also recall that 27% of *Concession* contracts are not renegotiated at all).

Table 2 also highlights that switching from $NoReneg$ (Model 1) to $Reneg_Ratio$ (Model 2) and then to adding $Reneg_Ratio^2$ (Model 3) increases the quality of the estimations. Indeed, pseudo R^2 increases slightly from one model to another.

As expected, the type of renegotiation also plays a role (Model 4): First, the coefficient that is associated with the variable $Reneg_Quality$ is positive and

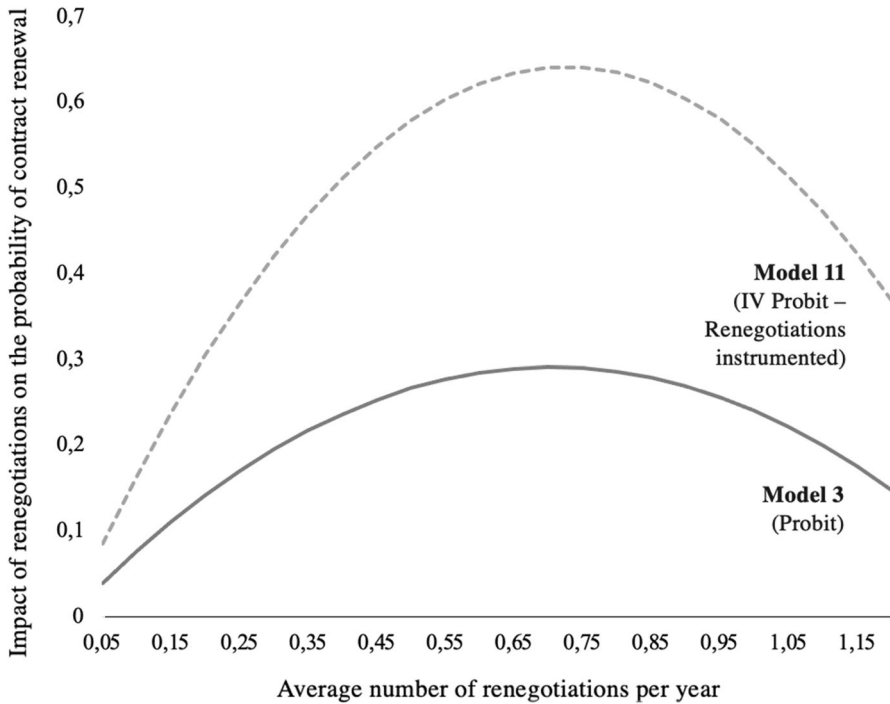


Fig. 1 Optimal level of renegotiations

significant. If renegotiations improve the service quality that is offered to users, the public authorities are more prone to contract again with the same operator. In contrast, the coefficients associated with the two variables *Reneg_Finan_Eq* and *Reneg_Tariffs* are negative and significant.

As was previously emphasized, renegotiations that are related to financial equilibrium typically occur from an error of anticipation, an *ex post* shock or the requirement for an additional investment that cannot be funded by a tariff increase. Those renegotiations lead to a decrease in the rent that private operators pay to the public authority for using the public ground or asset in order to maintain the financial conditions of the contractual arrangements. For this reason, they seem to make the public authorities less prone to contract again with the same operator. Similarly, miscalculated spending by the operator that requires a tariff increase or a funding revision might mean that the public authority would be reluctant to contract again with the same operator.

Other interesting results come from our control variables. Our variables that involve future business and reputational concerns are consistent with expectations: *Multi_Contract* and *Same_Area* have a positive and significant influence on the probability of contract renewal.

As was previously stated, this finding can be analyzed through the lens of relational contracting: It is legitimate to assume that a higher number of other ongoing contracts with the same as well as with neighboring municipalities makes the threat

Table 2 Probit analysis of contract renewal - *Concession* and *Service* samples - Marginal Effects

Dependent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Renewed							
	Sample : <i>Concession</i> contracts				Sample : <i>Services</i> contracts			
<i>Renegotiations</i>								
No_Reneg	-0.163*				-0.024			
	(0.083)				(0.103)			
Reneg_Ratio		0.275*				0.107		
		(0.138)				(0.127)		
Reneg_Ratio			0.827***				0.004	
			(0.229)				(0.094)	
Reneg_Ratio ²			-0.586**				0.018	
			(0.187)				(0.028)	
Reneg_Tariffs				-1.818**				0.356
				(0.655)				(0.200)
Reneg_Investment				-0.583				-0.540**
				(0.369)				(0.186)
Reneg_Quality				4.847***				-0.180
				(1.358)				(0.156)
Reneg_Financial_Eq				-5.041***				-0.919***
				(1.500)				(0.169)
Reneg_Duration				0.152				-0.011
				(0.136)				(0.021)
<i>Controls</i>								
Past_Experiences	-0.040	-0.044+	-0.045+	-0.014	-0.006	-0.013	-0.006	-0.011
	(0.025)	(0.026)	(0.025)	(0.032)	(0.010)	(0.011)	(0.009)	(0.010)
Multi_Contract	0.271***	0.305***	0.244**	0.298***	-0.068	-0.034	-0.080	-0.066
	(0.072)	(0.070)	(0.093)	(0.062)	(0.061)	(0.066)	(0.063)	(0.087)
Same_Area	0.036***	0.038***	0.036***	0.047***	0.007	0.005	0.008	0.010+
	(0.010)	(0.008)	(0.010)	(0.014)	(0.005)	(0.005)	(0.005)	(0.005)
Previous_Renewal	0.388**	0.591**	0.338**	0.404**	-0.013	-0.028	-0.016	-0.013
	(0.121)	(0.196)	(0.116)	(0.151)	(0.060)	(0.050)	(0.054)	(0.066)
Change_of_Mayor	-0.265***	-0.260**	-0.233*	-0.242**	-0.168	-0.171	-0.195	-0.177
	(0.076)	(0.082)	(0.101)	(0.093)	(0.120)	(0.118)	(0.122)	(0.126)
Left_Wing	0.080	0.076	0.051	-0.058	0.027	0.003	0.028	0.015
	(0.179)	(0.167)	(0.184)	(0.174)	(0.051)	(0.049)	(0.054)	(0.056)
Population (log)	0.078	0.093	0.068	0.021	-0.903	-0.732	-0.826	-0.991
	(0.084)	(0.087)	(0.089)	(0.086)	(0.817)	(0.885)	(0.805)	(0.883)
Year	0.005	0.003	0.003	0.003	-0.058	-0.047	-0.057	-0.057
	(0.008)	(0.008)	(0.008)	(0.009)	(0.045)	(0.047)	(0.047)	(0.055)
Contract_Duration (log)	0.129	0.113	0.126	0.151	0.013	-0.012	0.035	0.006
	(0.091)	(0.106)	(0.084)	(0.085)	(0.042)	(0.049)	(0.036)	(0.042)

Table 2 (continued)

Dependent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Renewed							
	Sample : <i>Concession</i> contracts				Sample : <i>Services</i> contracts			
Corruption	-0.083 (0.110)	-0.080 (0.104)	-0.085 (0.112)	-0.116 (0.149)	0.059 (0.071)	0.051 (0.075)	0.064 (0.071)	0.075 (0.085)
Construction	-0.156 (0.236)	-0.158 (0.248)	-0.150 (0.232)	-0.183 (0.218)	- -	- -	- -	- -
Pseudo r^2	0.14	0.15	0.16	0.25	0.05	0.05	0.05	0.09
N	94	94	94	94	158	158	158	158

Heteroskedasticity-robust standard errors are clustered at the department level and reported in parenthesis.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

of ending relationships more detrimental and leads to a greater chance of cooperation and compliance with the public authorities.

We also observe that the variable *Previous_Renewal* is positive and significant for *Concession* contracts: but this result might be driven by the small number of observations (among the five previously renewed *Concession* contracts, four were renewed a second time).

In a political approach, we find that a change of mayor during the last two years of the contract reduces the probability of its renewal, as is indicated by the negative and significant coefficient associated with the variable *Change_Of_Mayor*. A potential interpretation is that the new mayor strategically uses nonrenewal as a way to appear differentiated from the incumbent and/or make his/her reposition visible. However, we do not observe any effect of our ideological variable *Left_Wing*. This absence of a significant result is consistent with previous literature that shows that the impact of ideology is particularly visible at the original make-or-buy decision but less relevant during subsequent renewals (Beuve and Le Squeren 2016).

Finally, we can also observe that the variable *Corruption* is never significant. Notwithstanding the limitations of this measure – which is conditional on cases being detected and prosecuted, which does not necessarily reflect endemic corruption – it clearly indicates that corruption is of minor concern in our setting. This is particularly because we analyze contracts between different public authorities and one of the biggest car park company in France and, unless the whole sector is largely captured by this operator, the reputation spillovers of corruption charges can easily be assumed to overweight the plausible gains from unlawful practices. Moreover, the ability of corporations to buy favors through donations to political candidates or parties is forbidden in France.⁸

⁸ Financing is not allowed in any form, whether direct – e.g., by donating money or properties – or indirect – e.g., by rendering services, providing products below regular market fees or prices, or granting favors or advantages to political candidates, parties, groups, their financial representatives, or associations. Parties are funded exclusively through the central budget.

5.2 Renegotiations and Discretion

As was previously discussed, the fact that the level of discretionary power at the awarding stage of the procedure is relatively high in the case of *Concession* contracts permits us to study how renegotiations influence the willingness of public authorities to renew their contracts.

While there is room for negotiation and the consideration of previous experience in *Concession* procedures, *Service* procedures are much more rigid. As a consequence, and according to our hypothesis 3, our results for *Concession* contracts should not stand in the case of *Services* contracts where the level of discretionary power is much lower.

As can be seen in Models 5 to 8 in Table 2, the results on the frequency and types of renegotiation found for *Concession* contracts largely disappear for *Service* contracts. Only the variables *Reneg_Investment* and *Reneg_Finan_Eq* are significant and negatively correlated with the probability of renewal in Model 8. Such a finding might be explained by the fact that *Service* contracts are simpler and shorter than *Concession* contracts and, in such case, renegotiations are viewed as unjustified and are not forgotten.

Indeed, as the tasks for the private operator are less complex and generally well defined, bidders are predominantly selected based on the payment that they ask for managing the service. Consequently, proposing a low price can be an operational strategy for winning the contract, based on its confidence in renegotiating the contract terms *ex post*. However, it is easy for the public authority to detect such an aggressive bidding strategy, which may explain its unwillingness to contract with the same partner when the financial equilibrium of the contract had to be renegotiated during the contract lifetime. This result thus indicates that discretionary power and relational dimension are not completely absent from *Service* procedures. Even if public authorities in France are not allowed to use their discretionary power, at the risk of being pursued, our results suggest that they occasionally do so.

In accordance with our third hypothesis, compared to *Concession* contracts, such elements are clearly pushed to the background.

5.3 Endogeneity Issues

So far, we have argued that certain features of renegotiations influence the probability that the municipality renews the contract with the same operator. Despite the fact that renewal comes after what happens during contract execution (renegotiations), it is impossible to ignore the existence of potential reverse causality. Indeed, it is not necessarily renewal *per se* that affects what happens before (including renegotiations) but rather the expectations of both parties with regard to the likelihood of renewal. As a consequence, one could easily argue that anticipation of the municipality's decision to renew the operator's contract actually drives renegotiations.

To address those issues, we implement an instrumental variable (IV) estimation procedure in the previous Models 1, 2 and 3 with respect to *Concession* contracts. To instrument our renegotiations variables, we need variables that may initially

motivate renegotiations during the contract lifetime but not the renewal decision of the public authority. As emphasized by previous literature, renegotiations are more likely to occur if the needs evolve during the contract lifetime and also during economic booms and busts (e.g. Guasch 2004).

We thus create two variables that aim to capture such determinants: *Population_Variation* and *GDP_Variation*. The first corresponds to the percentage of variation of inhabitants during the contract lifetime and can be related to the number of renegotiations if the contract needs to be adapted to an evolving environment (the increasing size of car parks, adapting tariffs to the car parks' occupancy, etc.). The second stands for the percentage of variation in Regional GDP during the contract lifetime and is expected to be positively correlated with the frequency of renegotiations.

The results provided in Table 3 indicate that our instruments are exogenous (see Hansen-J-Statistics) and relevant (see F-Statistics) to explain the occurrence and the frequency of contractual renegotiations. In other words, contracts are more likely to be renegotiated when they face a changing economic environment.

With respect to the results of the second-stage regression, the results of Models 9, 10 and 11 are perfectly consistent with our previous finding about the existence of an optimal level of renegotiation frequency, and we obtain the same estimation of one renegotiation every one year and a half (see Model 11 in Fig. 1). Such stability of results after using a two-stage least square estimations make us confident as to the robustness of our findings.

6 Conclusion

Using an original dataset of 252 expired contracts in the French car parking sector, we examined how renegotiations influence the continuation of contractual relationships. We estimate the effect of the frequency and type of renegotiations on the probability of contract renewals. The econometric results provide evidence that there exist – for each specific contract and relationship – an optimal level of renegotiations.

Our paper provides new insights into the issue of renegotiations, which have generally previously been analyzed through the lens of opportunism. We provide evidence that, on the one hand, a high frequency of renegotiations may indeed lead to higher transaction costs (and to potential opportunism) and thus negatively influence contract renewal. But, on the other hand, if renegotiations are aimed at adapting contractual terms to their environments and thereby increasing efficiency, the net effect could be positive.

We see ample room for further research. One interesting path would be to investigate more precisely the impact of the level of discretionary power in association with contract design. In this paper, we capture the discretionary level by the different types of award systems that are associated with our *Concession* and *Service* contracts but we cannot completely control for the other differences that exist between contracts. Different risk-sharing systems, rewards and contractual obligations might

Table 3 *Concession contract renewal - Renegotiation variables instrumented - Marginal Effects*

Dependent variable	Model 9		Model 10		Model 11		
	No_Reneg	Renewed	Reneg_Ratio	Renewed	Reneg_Ratio	Reneg_Ratio ²	Renewed
	1 st stage	2 nd stage	1 st stage	2 nd stage	1 st stage		2 nd stage
<i>Instruments</i>							
<i>GDP_Variation</i>	-0.246*		2.302**		2.036**	16.552*	
	(0.112)		(0.694)		(0.549)	(6.216)	
<i>Population_Variation</i>	-0.135		-0.388		-0.547	-12.805	
	(0.109)		(1.554)		(1.505)	(17.860)	
<i>Renegotiations</i>							
<i>No_Reneg</i>		-0.853*					
		(0.369)					
<i>Reneg_Ratio</i>				0.092**			
				(0.034)			
<i>Reneg_Ratio</i>							1.765***
							(0.533)
<i>Reneg_Ratio²</i>							-1.214***
							(0.324)
<i>Controls</i>							
<i>Past_Experiences</i>	0.018	-0.019	-0.184	-0.016	-0.187	-3.639	-0.033
	(0.021)	(0.030)	(0.243)	(0.035)	(0.249)	(2.905)	(0.026)
<i>Multi_Contract</i>	-0.179**	0.135	0.833	0.195**	0.813	13.004	0.085
	(0.060)	(0.112)	(0.867)	(0.065)	(0.861)	(9.821)	(0.135)
<i>Same_Area</i>	0.013+	0.044***	-0.142+	0.041***	-0.147*	-1.226	0.042***
	(0.007)	(0.010)	(0.072)	(0.008)	(0.067)	(0.866)	(0.011)
<i>Previous_Renewal</i>	0.334	0.593**	-0.899	0.577**	-0.980	-3.844	0.659**
	(0.090)	(0.203)	(1.116)	(0.216)	(1.004)	(12.266)	(0.219)
<i>Change_of_Mayor</i>	-0.017	-0.313***	-0.909+	-0.220**	-0.868+	-10.095+	-0.039
	(0.078)	(0.067)	(0.437)	(0.077)	(0.462)	(5.188)	(0.187)
<i>Left_Wing</i>	0.221**	0.201	-1.365+	0.133	-1.328+	-7.985	0.048
	(0.073)	(0.175)	(0.674)	(0.130)	(0.658)	(7.771)	(0.180)
<i>Population (log)</i>	0.077	0.117	-0.260	0.073	-0.260	0.048	0.116
	(0.080)	(0.083)	(0.512)	(0.091)	(0.512)	(6.361)	(0.146)
<i>Year</i>	-0.026	0.021	0.059	0.040	0.027	5.637	0.025
	(0.018)	(0.031)	(0.126)	(0.025)	(0.072)	(7.356)	(0.034)
<i>Construction</i>	-0.036	-0.216	-0.235	-0.167	-0.225	-4.158	-0.106
	(0.198)	(0.238)	(1.134)	(0.187)	(1.151)	(9.483)	(0.218)
<i>Contract_Duration (log)</i>	0.056	0.069	0.527	-0.016	0.527	4.035	0.137
	(0.066)	(0.101)	(0.413)	(0.058)	(0.413)	(4.289)	(0.159)
<i>Corruption</i>	-0.006	-0.159	0.315	-0.177	0.386	6.419	-0.101
	(0.081)	(0.114)	(0.536)	(0.121)	(0.549)	(7.366)	(0.099)

Table 3 (continued)

Dependent variable	Model 9		Model 10		Model 11		
	No_Reneg	Renewed	Reneg_ Ratio	Renewed	Reneg_ Ratio	Reneg_ Ratio ²	Renewed
	1 st stage	2 nd stage	1 st stage	2 nd stage	1 st stage		2 nd stage
<i>First Stage Statistics</i>							
F-Stat	12.140		12.950		3.26		
p-value	0.042		0.011		0.040		
Kleinbergen-Paap-Stat	15.108		15.412		6.180		
p-value	0.062		0.048		0.069		
Hansen-J-Stat	0.774		0.356		0.179		
p-value	0.710		0.810		0.975		
Pseudo r ²	0.17	0.17	0.21	0.29	0.21	0.19	0.31
N	94	94	94	94	94	94	94

Heteroskedasticity-robust standard errors are clustered at the department level and reported in parenthesis.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

also be correlated with the likelihood of renegotiation and with the likelihood of renewal. Future studies may investigate this more in details.

Ultimately, public policy implications can also be derived from our findings. Our findings are perfectly in line with the recent changes that were introduced by the European Union in its legal framework (Directives 2014/23/UE and 2014/24/UE) for public contracts that give public authorities greater flexibility to negotiate with companies at both the selection stage and the execution stage; the latter implies renegotiations.

As has been emphasized by Saussier and Tirole (2015) and Coviello et al. (2018), such greater freedom could potentially be beneficial – provided that this freedom is part of a broader move toward greater transparency, effective competition and the development of specific expertise. Consistent with their vision, our results are a positive indication of the potential benefits of the relevant use of discretionary power by public authorities.

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References

- Albalade, D., & Bel, G. (2009). Regulating concessions of toll motorways: An empirical study on fixed vs. variable term contracts. *Transportation Research Part A*, 43, 219–229.
- Amaral, M., Saussier, S., & Yvrande-Billon, A. (2009). Auction procedures and competition in public services: The case of urban public transport in France and London. *Utilities Policy*, 17(2), 166–175.
- ANFA (2019). *Les parcs de stationnement*. Technical Report number 76, Association Nationale pour la Formation Automobile.
- Bajari, P., Houghton, S., & Tadelis, S. (2014). Bidding for incomplete contracts: An empirical analysis of adaptation costs. *American Economic Review*, 104(4), 1288–1319.
- Bel, G., & Fageda, X. (2007). What have we learned from the last three decades of empirical studies on factors driving local privatisation? *Local Government Studies*, 43(4), 503–511.
- Beuve, J., Le Lannier, A., & Le Squeren, Z. (2018). Renegotiating PPP contracts: Opportunities and pitfalls. In S. Saussier & J. De Brux (Eds.), *The economics of public private partnerships*. Berlin: Springer International Publishing.
- Beuve, J. & Le Squeren, Z. (2016). When does ideology matter? an empirical analysis of French municipalities' make-or-buy choices. *Chair EPPP working paper- 2016-A*.
- Beuve, J., Moszoro, M. W., & Saussier, S. (2019). Political contestability and public contract rigidity: An analysis of procurement contracts. *Journal of Economics and Management Strategy*, 28(2), 316–335.
- Beuve, J., Moszoro, M., Spiller, P. (2021). Contractual Rigidity and Political Contestability: Revisiting Public Contract Renegotiations, NBER Working Paper 28591, National Bureau of Economic Research.
- Brown, T. L., & Potoski, M. (2003). Transaction costs and institutional explanations for government service production decisions. *Journal of Public Administration Research and Theory*, 13(4), 441–468.
- Coletto-Labatte, F. (2008). *Le Stationnement Urbain*. Opérateurs, Marchés et Concurrence: Edilivre Collection Universitaire, Paris.
- Coviello, D., Guglielmo, A., & Spagnolo, G. (2018). The effect of discretion on procurement performance. *Management Science*, 64(2), 715–738.
- Crocker, K. J., & Reynolds, K. J. (1993). The efficiency of incomplete contracts: An empirical analysis of air force engine procurement. *RAND Journal of Economics*, 24(1), 126–146.
- Dalen, D. M., Moen, E. R., & Riis, C. (2006). Contract renewal and incentives in public procurement. *International Journal of Industrial Organization*, 24(2), 269–285.
- Desrieux, C., Chong, E., & Saussier, S. (2013). Putting all one's eggs in one basket: Relational contracts and the management of local public services. *Journal of Economic Behavior and Organization*, 89, 167–186.
- Engel Goetz, E., Fischer Barkan, R., Galetovic Postch, A. (2019). Soft budgets and endogenous renegotiations in transport PPPs: An equilibrium analysis. *Economics of Transportation* 1740–50. <https://doi.org/10.1016/j.ecotra.2018.12.003>
- Fehr, E., Hart, O., & Zehnder, C. (2011). Contracts as reference points-experimental evidence. *American Economic Review*, 101(2), 493–525.
- Frydlinger, D., Hart, O., & Vitasek, K. (2019). A new approach to contracts. *Harvard Business Review*.
- Gagnepain, P., Ivaldi, M., & Martimort, D. (2013). The cost of contract renegotiation: Evidence from the local public sector. *American Economic Review*, 103(6), 2352–2383.
- Grossman, S. J., & Hart, O. (1986). The cost and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy*, 94(4), 691–719.
- Guasch, J.-L. (2004). *Granting and renegotiating infrastructure concession: Doing it right*. Washington DC: The World Bank.
- Guasch, J. L., Benitez, D., Portabales, I., & Flor, L. (2017). The renegotiation of public-private partnership contracts: An overview of the recent evolution in Latin America. In *Public Private Partnerships for Transport Infrastructure*, pp. 57–77. OECD. Series Title: ITF Roundtable Reports.
- Guasch, J.-L., Laffont, J.-J., & Straub, S. (2008). Renegotiation of concession contracts in Latin America. Evidence from the water and transport sector. *International Journal of Industrial Organization*, 26, 421–442.
- Guasch, J.-L., & Straub, S. (2006). Renegotiation of infrastructures concessions: An overview. *Annals of Public and Cooperative Economics*, 4(77), 479–493.

- Guérin-Schneider, L., & Lorrain, D. (2003). Note de recherche sur une question sensible: les relations puissance publique - firmes dans le secteur de l'eau et de l'assainissement. *Flux*, 2-3(52), 35-54.
- Iossa, E., & Rey, P. (2014). Building reputation for contract renewal: Implications for performance dynamics and contract duration. *Journal of the European Economic Association*, 12(3), 549-574.
- Le Squeren, Z. & Moore, J. (2015). The permeability of public contracts: Empirical evidences from renegotiations in the French car park sector. Sorbonne Business School - Chaire EPPP working paper.
- Levin, J., & Tadelis, S. (2010). Contracting for government services: Theory and evidence from us cities. *The Journal of Industrial Economics*, 58(3), 507-541.
- OCDE (2019), *Government at a Glance 2019*, Éditions OCDE, Paris. <https://doi.org/10.1787/8cccf5c38-en>
- Oxley, J., & Silverman, B. (2008). Inter-firm alliances; a new institutional economics approach. In E. Brousseau & J.-M. Glachant (Eds.), *New institutional economics: A guidebook* (pp. 209-234). Cambridge: Cambridge University Press.
- Picazo-Tadeo, A. J., González-Gómez, F., Wanden-Berghe, J. G., & Ruiz-Villaverde, A. (2012). Do ideological and political motives really matter in the public choice of local services management? Evidence from urban water services in Spain. *Public Choice*, 151(1-2), 215-228.
- Poppo, L., & Zenger, T. (2002). Do formal contracts and relational governance function as substitutes or complements? *Strategic Management Journal*, 23(8), 707-725.
- Ryall, M. D., & Sampson, R. C. (2009). Formal contracts in the presence of relational enforcement mechanisms: Evidence from technology development projects. *Management Science*, 55(6), 906-925.
- Ryan, N. (2020). Contract enforcement and productive efficiency: Evidence from the bidding and renegotiation of power contracts in India. *Econometrica*, 88(2), 383-424.
- Sarmiento, J. M., & Cruz, C. O. (2018). Renegotiations of water concessions: Empirical analysis of main determinants. *Journal of Water Resources and Planning Management*, 144(11), 04018073.
- Saussier, S. (2000). Transaction costs and contractual incompleteness: The case of Électricité de France. *Journal of Economic Behavior and Organization*, 42(2), 189-206.
- Saussier, S. & Tirole, J. (2015). Strengthening the efficiency of public procurement. Les notes du conseil d'analyse économique 22, French Council of Economic Analysis <https://www.cae-eco.fr/staticfiles/pdf/cae-note022-env2.pdf>
- Spiller, P. T. (2008). An institutional theory of public contracts: Regulatory implications. Working Paper 14152, National Bureau of Economic Research.
- Williamson, O. E. (1985). *The economic institutions of capitalism*. New York: The Free Press.

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