Political Contestability and Contract Rigidity:
An Analysis of Procurement Contracts[*]

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March 9, 2015

Abstract

We compare procurement contracts where the procurer is either a public agent or a private corporation. Using algorithmic data reading and textual analysis on a rich dataset of contracts for a standardized product and service from a single provider, we find that public contracts feature more rigidity clauses than private-to-private contracts and their renegotiation is formalized more frequently in amendments. We further compare in-sample public contracts and find similar patterns rising in political contestability using several measures. We argue that a significant part of the contractual rigidity difference between purely private and public contracts is a political risk adaptation of the public agent to curtail plausible challenges from political contesters and interest groups.

Keywords: *Contractual Rigidity, Private and Public Procurement, Political Contestability, Renegotiation.*

1   Introduction

In this paper, we build on Spiller [2008] and Moszoro and Spiller [2012, 2014], arguing that public-private contracts are characterized by intrinsic differences stemming from third-party opportunism (i.e., a substantial amount of supervision and control is done by third parties such as political contesters and interest groups). A fundamental difference between private and public contracts is that public contracts are subject to public oversight. Thus, although politics is normally not necessary to understand private contracting, it becomes fundamental to understanding public contracting. This marks a big difference from private contracting: When faced with unforeseen or unexpected circumstances, private parties, as long as the relationship remains worthwhile, adjust their required performance without the need for costly and formal renegotiation; this is called relational contracting (Baker et al. [2002]).

Public contracting, on the other hand, is characterized by formalized, standardized, bureaucratic, rigid procedures, partly because politics must be secured against third-party opportunism (TPO hereafter). This effect is reinforced by the risk of government opportunism leading private parties to push for rigid contracts (Moszoro and Spiller [2014]). Contract rigidity refers to rule-based and bureaucratic implementation, i.e., *ex post* enforcement, penalties, hardness, and intolerance to adaptation in a contract.[1] Therefore, contract rigidity—although generally correlated with—differs from Arrow-Debreu contingent claims contracts [1954] which point to the *ex ante* complexity of the subject and the completeness of the clauses, technical provisions, and processing costs (Laffont and Tirole [1993]).

Building on this, we derived two testable propositions. First, public contracts are more rigid than equivalent transactions governed under private contracting. This is a direct consequence of intrinsic characteristics of public contracting. Second, contracts signed with public authorities that are more likely to be challenged by third parties (i.e., more politically contestable) are characterized by more rigid procedures than other public contracts. This is because public authorities that may be challenged want to secure even more contractual agreements to signal probity. One consequence is that public contracts are more frequently renegotiated because of their initial rigidity and the willingness of public contracting parties to adapt the contract through formal amendments (i.e., no relational adaptation).

To test these two propositions we collected unique data and used a cutting-edge methodology. Our data concern car park contracts signed between 1963 and 2009 in France. In our dataset, we analyzed 436 contracts and 857 amendments signed between one private operator and 26 private procurers or between the same private operator and 152 public authorities. In addition, we also collected data on local elections and we propose several measures of political contestability. Because there is only one contractor and car parks arguably entail a standardized product and service, a large part of the heterogeneity comes from the procur-

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[1]In this regard, contract rigidity is the opposite of a "best efforts" clause.

ers' characteristics and time-varying political contestability. Our setup and results are not French- or civil-law specific; it is our contempt that they are extendable to different jurisdictions and types of law. In all countries politicians face similar risks, which refer not only to the legal challenges at court, but foremost to politically motivated challenges that affects the public agent's *ex ante* reputation. Moreover, our sample comes from one country under a unitary government model, thus the law regime is a common treat to all contracts and is not affecting the marginal response of public agents to political hazards.

Analogously to Schwartz and Watson [2012], we characterize this rich sample of contracts using algorithmic data reading and textual analysis. We find that public-private contracts feature more rigidity clauses and their renegotiation is formalized in amendments. We further compare in-sample public contracts and we find similar patterns rising in political contestability using several measures. We argue that a significant part of the contractual rigidity difference between purely private and public contracts is a signaling device and political risk adaptation of the public agent to keep at bay plausible challenges from political contesters and interest groups. Complementarily, where firms anticipate a politically unstable environment that may lead to (incremental) expropriation, they will require rigid terms to minimize governmental opportunism.[2] We also find, as expected, that public contracts are more frequently renegotiated than private contracts.

Our study contributes to contract theory by advancing a novel set of propositions based on third-party hazards faced by public, but not by private, procurers. Our results suggest that previous empirical studies pointing to the inefficiencies of public-private contracts related to high renegotiation rates (Guasch [2004]; Guasch et al. [2008]) might be somewhat misleading. Frequent renegotiations observed in public-private contracts (Guasch [2004]; Beuve et al. [2014]) can be understood as a consequence of the specific nature of public contracts instead of a manifestation of opportunism: "*In a sense, it is possible to say that the frequency of contract renegotiation may provide concessions a 'relational' quality*" (Spiller [2008], p. 22). One important corollary is that the perceived inefficiency of public contracting is largely the result of contractual adaptation to different inherent hazards and thus is not directly remediable.

The paper is organized as follows. In section 2, we return to the specificities of public contracting and what Moszoro and Spiller [2012] call third-party opportunism; we derive propositions concerning rigidity and political contestability of public contracts. In section 3, we present our data and our empirical strategy to put our propositions to the test. Section 4 is dedicated to the results. In section 4.3, we discuss our results and propose several robustness checks. Section 5 concludes.

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[2]See Spiller [2008] and Moszoro and Spiller [2014] for an explanation of the interplay between third-party and governmental opportunism in public contracting. The disentangling of the two channels of rigidity, however, is empirically hard.

2 Third-Party Opportunism and the Rigidity of Public Contracts

2.1 The Inefficiency of Public Contracts

2.1.1 Contractual Issues

Following Oliver Williamson's [1976] canonical paper on franchise bidding pointing out contractual failures at different stages (i.e., selection, execution, and renewal stage), many recent papers investigated public-private contracting issues, including the question of competition versus negotiation in the selection stage (Bajari et al. [2011, 2009]; Lalive and Schmutzler [2011]; Vellez [2011]; Chever and Moore [2012]; Amaral et al. [2013]), collusion and corruption (Compte et al. [2005]; Martimort and Straub [2006]), contract enforcement and renegotiations at the execution stage (Engel et al. [2009]; Gagnepain et al. [2013]; Guasch et al. [2007, 2008]; Chong et al. [2014]), as well as contract renewals (Beuve et al. [2014]). These studies built on several theoretical frameworks that emphasize problems with asymmetric information, incomplete contracting, and transaction costs.

On one hand, agency theory focuses on incentives to overcome asymmetric information. However, as Malin and Martimort [2000] stated and following Sappington and Stiglitz's [1987] irrelevance theorem, agency theory *"has nothing to say about such things as the distribution of authority within an organization, the limits of the firm, the separation between the public and the private spheres of the economy, and more generally nothing to say about organizational forms and designs"* (Malin and Martimort [2000, pp. 127-128]). For agency theory to add something to these issues, incentive models must take into account various forms of easily describable transaction costs that lead to contract incompletenesses. This can be accomplished by adding *ad hoc* assumptions such as limited commitment of the government. An example is given by Guasch et al. [2008], who stressed government's failure to commit not to renegotiate.

On the other hand, incomplete contract theory (Hart et al. [1997]) postulates that contracts are incomplete and always renegotiated, leading to inefficiencies (i.e., renegotiation is efficient but because it concerns the surplus net of initial investments, it leads to hold-up).

Transaction-cost theory proposes a middle position, stating that contracts are incomplete and viewing renegotiation as a costly but necessary process, suggesting that an optimal level of contract completeness and thus an optimal level of renegotiation exist (Crocker and Reynolds [1993]; Masten and Saussier [2000]; Saussier [2000]). Whatever the theoretical frameworks considered, very few address the specific nature, if any, of public versus private contracting.

Exceptions are Spiller [2008] and Moszoro and Spiller [2012, 2014], who insisted on the specific nature of public-private contracts and provided a more nuanced interpretation of the renegotiation rates observed in public contracts.

2.1.2 Public-Private Contracts and Renegotiations

Because they deal with services of general interest, researchers have scrutinized public-private contracts especially closely. One striking piece of evidence is that very often public contracts are renegotiated. Guasch [2004] has provided many examples of renegotiations in public-private agreements; by studying more than 1,000 concession contracts signed in Latin American countries between the mid-1980s and 2000, he found that 78% of transportation contracts and 92% of water and sanitation contracts were renegotiated. The authors findings also confirmed that renegotiations occur shortly after the award (on average, after 2.2 years) and often, at first glance, favor the private party. Guasch [2004] suggested that renegotiations are a consequence of aggressive bids in the context of an *ex ante* lack of commitment from the government. Because the government cannot commit not to renegotiate and because firms only learn their types after bidding, if a firm wins a call for tender and discovers it is inefficient (i.e., it would lead to losses), it would be tempted to renegotiate (Laffont [2003]; Guasch and Straub [2006]; Guasch et al. [2008]).

Other scholars have explored alternative explanations, including government-led renegotiations (Guasch et al. [2007]) and renegotiations without hold-up that enable incumbent governments to circumvent budgetary rules before elections (Engel et al. [2009]). As Guasch et al. [2008, p. 421] stated, "*such high rates of contract renegotiation have raised serious questions about the viability of the concession model in developing countries.*"

It is fair, however, to recognize that high rates of renegotiation are not specific to developing countries. Other studies have reported very high renegotiation rates in the United Kingdom (NAO [2003]), United States (Engel et al. [2011]), and France (Athias and Saussier [2007]; Beuve et al. [2014]). Whatever the theoretical framework mobilized to analyze contractual issues at stake in public-private contracts, the high rate of renegotiation always comes as bad news.

2.1.3 The Specific Nature of Public-Private Contracts

As Moszoro and Spiller [2012] stated, a fundamental difference between private and public contracts is that public contracts are subject to public scrutiny and oversight. Politics, which is normally not involved in understanding private contracting, becomes fundamental to understanding public contracting. A consequence of this is that (opportunistic) third parties prevent the use of relational contracts for public-private arrangements.

Third-party opportunism refers to the fact that public contracts are subject to public scrutiny so as to avoid corruption and graft. This scrutiny is undertaken by designated agencies in charge of contract supervision. Furthermore, supervision is also carried out by interested third parties that may behave opportunistically and challenge the *"probity"* of a public agent. This is not specific to public contracting. However, even in the face of

third-party opportunism, companies normally rely on inter-firm relationships to support contracting (Macaulay [1963]) through informal and continuous adaptations.[3]

The exposure to third-party opportunism increases the risk to both the public agent and the private party. In response, both will have incentives to increase the rigidity of these contracts as compared to equivalent contracts between private parties. That is why, because of their nature, public contracts are born with less flexibility than purely private contracts (Spiller [2008, p. 21]).

2.2 Public Contract Rigidity: Propositions

On the one hand, contracting costs rise exponentially with contract rigidity and determine the trade-off between interpretation accuracy and cost of contract writing, as Schwartz and Watson [2012] demonstrated. On the other hand, Moszoro and Spiller [2012] found that the lack of flexibility in public procurement design and implementation reflects public agents' political risk adaptation to limit hazards from opportunistic third parties—political opponents, competitors, interest groups—while externalizing the associated adaptation costs to the public at large. Thus, public agents minimize both contracting and political costs, expressed as:

$$\underset{R}{\text{minimize}} \ \Phi = T_0 \ \rho(R)\tau(R) + K(R) \tag{1}$$

where $K(R)$ is adaptation costs rising exponentially in contract rigidity R, ρ is the likelihood of a challenge by an opportunistic third party and τ is the likelihood of success of an opportunistic challenge decreasing in contract rigidity, and T_0 is the public agent's (political) cost if a challenge by third parties succeeds.

Third parties observe benefits from opportunistic challenges, but the public agent does not know *ex ante* the particular value of these benefits to third parties. Third parties' overall benefits from an opportunistic challenge correspond to a random normally distributed variable $\widetilde{T_0}$. Equation (2) shows that in equilibrium third parties challenge a contract only if expected gains $\widetilde{T_0}\zeta\tau$ are bigger than litigation costs $c(R)$:

$$\rho \equiv \Pr[\widetilde{T_0}\zeta\tau(R) > c(R)], \tag{2}$$

where $\zeta \in [0,1]$ is a political concentration parameter. If $\zeta = 1$, the TPO challenger's benefits are symmetrical to the incumbent public agent's TPO costs (e.g., a bipartisan political market); if $\zeta < 1$, the political market is fragmented and the challenger does not internalize all benefits from a successful contract protest.

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[3]Relational contracts are defined as informal commitments governing non-contractible actions and sustained by the value of future transactions (Bull [1987]; Baker et al. [2002]). When the discounted payoff stream from commitment to this informal agreement is higher than the discounted payoff stream from deviation, a relational contract is sustainable and allows for avoiding *ex post* opportunism.

Litigation costs $c(R)$ rise in R. Reduced flexibility limits the likelihood of an opportunistic challenge lowering third parties' expected gains and increasing litigation costs. Any deviation from equilibrium rigidity R^* makes the public agent worse off:

1. If $R < R^*$, then $\tau(R) > \tau(R^*), c(R) < c(R^*)$, therefore $\rho > \rho^*$ and $T_0 \ \rho(R)\tau(R) - T_0 \ \rho(R^*)\tau(R^*) > K(R^*) - K(R)$ (increase in political cost offsets gains in decreased contracting cost)

2. If $R > R^*$, then $T_0 \ \rho(R^*)\tau(R^*) - T_0 \ \rho(R)\tau(R) < K(R) - K(R^*)$ (contracting cost increase outmatches gains in political cost decrease)

Moszoro and Spiller's [2012] model yields two testable predictions on the contractual features, depending on the characteristics of the contracting parties:

Proposition 1. *In the absence of political costs, equilibrium contract rigidity is lower than when political costs are high; therefore contracts subject to public scrutiny have more rigidity clauses than purely private relational contracts.*

Proposition 2. *In contestable political markets (high ζ), contracts have more rigidity clauses than in monopolized or atomized political markets (low ζ).*

Figure 1 depicts the comparative statics of a contractual rigidity increase following an increase in public oversight and political contestability. Public agents will pursue concessions only in projects where the expected gains from contract flexibility and better private management (downward shift of the K curve) offset the increase of the costs of compliancy with *ex ante* contract design and *ex post* rigid performance Moszoro and Spiller [2014].

Furthermore, rule-based contracts imply that they are less adaptable to unforeseen contingencies. Due to public oversight, public contract adaptations will need to be introduced through formal amendments. Therefore, we can draw a third prediction regarding public versus private contracts:

Proposition 3. *Public contracts are more likely to be renegotiated through formal amendments than private contracts.*

We test this propositions using a nobel dataset comprised of public-private and purely private contracts for car parks in France. Our focus in on contract characteristics and third-party scrutiny.

Corruption is of minor concern to our setting. First, TPO refers to signaling probity *ex ante*, that is, endogenizing anti-corruption rules by increased rigidity. Corruption, thus, would lead to less, not more rigidity of public contracts. Second, we analyze actual signed contracts, not bid specifications. While very detailed bid specifications could point to a particular contractor and preclude competition (Lambert-Mogiliansky and Kosenok [2009]),
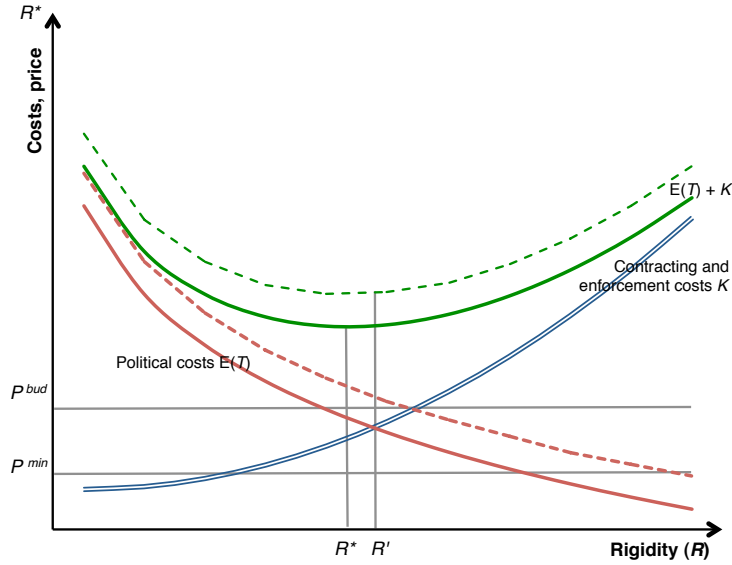
Figure 1: This figure plots expected political costs $\mathbb{E}(T)$ (red solid line) that are falling in rigidity R and adaptation costs K (blue double-solid line) rising in rigidity R, and the U-shaped sum of $\mathbb{E}(T) + K$ (green solid line) as the objective function that the public agent minimizes. The contracting sets of price and rigidity are given by the area above the costs borne by the contractor K and below the public agent's reservation price P^{bud}. P^{min} is the equilibrium price for public contracts in a competitive bidding market. An increase in perceived political costs $\mathbb{E}(T)$ (upper red dashed line) increases contractual rigidity from R^* to R'.

there is no use for the corrupted public agent to restrict the favored bidder at the contracting stage. Thus, corruption (if any) would bias our estimates towards less rigidity in public contracting. Third, we analyze contracts with a single contractor with public administrations and private companies. This contractor is the largest car park company in France: unless the whole sector is captured by this operator, the reputational spillovers of corruption charges can easily be assumed to overweight the plausible gains from unlawful practices.

We are also confident of the limited ability of corporations to buy favors through donations to political candidates or parties. According to French law, no legal entity is allowed to participate in financing a political candidate, party, or group unless the legal entity is a political party or a political group. 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.[4]

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[4]See: Library of Congress, *Campaign Finance, France,* http://www.loc.gov/law/help/campaign-finance/france.php (accessed February 24, 2015).

3 Empirical Analysis

3.1 Sector and Contract Characteristics

In many European countries, cities are responsible for providing on-street and off-street car parks. The positive externalities and social benefits (e.g., environmental concerns, intermodality, urban development) derived from a high-quality construction and efficient management of car parks justify their remit to local authorities. However, although the public authorities must retain ownership and control of car parks, they can outsource the provision of such infrastructure and services through public-private arrangements.

In France, as in many other countries, outsourcing car park construction and/or management to private operators has been widespread.[5] As a consequence, the sector is characterized by strong competition between national and international companies[6] as well as local firms (Baffray and Gattet [2009]). Moreover, the competitive pressure also comes from the possibility of municipalities returning to in-house provision when contracts end. The sector is characterized by the existence of three main contractual arrangements: "concession", "operating" and "provision of services" contracts.

Concession Contracts. When a park must be built or when important investments are necessary to renovate infrastructure, municipalities use concession contracts. These are long-term contracts (30 years on average in our dataset) which provide sufficient time for private operators to invest and to pay off the debt. In such contracts, the operator bears the demand risk and is remunerated with user fees. The direct consequence is that long-term contracts are subject to the political, economic, social, and technical changes that may occur during the execution of the contract. Such changes may be exogenous to the contract (technological developments, economic shocks, changes in legislation or legal interpretation) or may directly result from internal drivers (evolving business requirements) or contract maladaptations (inappropriate initial contractual design). Such changes may then involve adaptations to the service.

Operating Contracts. When the car park is already built and requires a major or significant level of investment to renovate and maintain, operating contracts are used. These contracts are shorter than concession contracts (18.2 years on average in our dataset). As with concession contracts, the operator bears the demand risk and is remunerated with user fees. Likewise, operating contracts are subject to the political, economic, social, and technical changes that may occur during execution of the contract.

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[5]According to the French Ministry of Sustainable Development, in 2009 73% of car parks was organized *via* outsourced management and 27% was provided in-house through public provision.

[6]Vinci Park, Q-Park, Epolia, Efia, Interparking, Parking de France, UrbisPark, AutoCité and SAGS are the most frequent bidders in France.

Provision of Services Contracts. When the car park is already built and requires no investments to renovate and for on-street car parks, provision of services contracts are used. These are shorter contracts (3.2 years on average in our dataset).

Figure 3 exhibits the number of public and private car park contracts in our sample, broken down by duration in years and year of signature.

3.2 Contractual and Political Data

In the French car parking sector, data are not centralized because of the lack of a regulatory authority. Therefore, to generate the dataset used in this study, we gathered all contracts signed by the leading company in the French market (42% market share among private operators; 30.6% total market share) between 1963 and 2009. Overall, we assessed 436 contracts and 857 amendments to contracts with 152 municipalities dispersed in 59 departments (out of 96) in metropolitan France and with 26 private partners.[7] Figure 2 shows a graphic representation of our data and propositions.

Concerning political data, we gathered the outcome of all municipal elections from 1983 through 2008.[8] Elections are organized (in principle) every six years to elect the mayor and the members of the city council by a majority vote spread over two rounds (direct universal suffrage). Each mayoral candidate presents a list of potential deputies (as many deputies as number of seats on the city council). The list which obtains the higher result obtains 50% of the seats on the city council. The remaining seats are distributed among all lists of potential deputies (including the majority list) who received at least 5% of the votes cast.

The city council, chaired by the mayor, collectively has the legislative authority over municipal territory. More precisely, the council has jurisdiction to manage the affairs of the municipality through its decisions. Hence, the city council approves the budget prepared by the mayor and her deputies, determines local tax rates, creates or cancels communal jobs, allows acquisitions and disposals of communal property, approves loans, grants subsidies, and sets tariffs for communal services and on-street car parks.

3.3 Empirical Strategy

Our sample presents the ideal characteristics to test our propositions: there is only one contractor and car parks represent a highly standardized product. Therefore, a large part of the heterogeneity in our sample comes from the procurer's characteristics (public versus

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[7]Our contracts are primary arrangements: i.e., they are not "restarted contracts" that would disguise the amendment category.

[8]I.e., 1983, 1989, 1995, 2001, and 2008.

Figure 2: This figure presents a graphic representation of our data and propositions. In our sample, we have 436 contracts and 857 amendments from a single contractor, signed with 26 private contractees and 152 municipalities. Propositions 1 and 3 build on the heteronegeity of the public versus private samples, while Proposition 2 builds on the in-sample heterogeneity of time-varying and cross-section political contestability in municipalities.
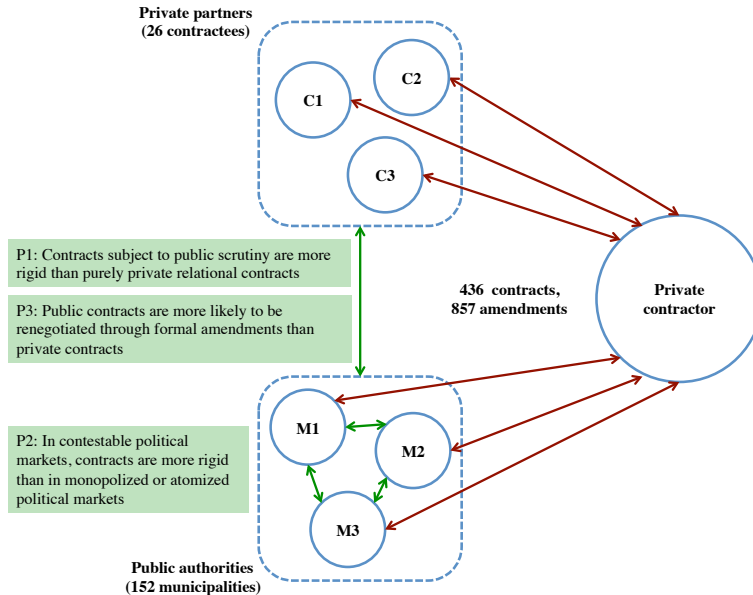
private) as well as the cross-section and time-varying political contestability in the public administrations.

3.3.1 Dependent Variable

To assess the rigidity level of our contracts we follow Schwartz and Watson [2012], and introduce rigidity categories—arbitration, certification, evaluation, litigation, penalties, contingencies, design, and termination—and construct "dictionaries" by which we machine-read contractual dimensions.[9] These rigidity categories capture relevant contractual clauses that lower the likelihood of a challenge by opportunistic third parties and are orthogonal to designative specifications that would preclude a competitive market. Our rationale for (and

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[9]See, for example, Parkhe [1993] for an application of categories for the analysis of contracts in the management literature and Loughran and McDonald [2011, 2014] for an analysis of corporate filings in the finance and accounting literature. Parkhe used dummy variables for periodic written reports of relevant transactions, prompt written notice of departures from the agreement, the right to examine and audit relevant records a firm of certified public accountants, designation of certain information as proprietary and subject to confidentiality provisions of the contract non-use of proprietary information even after termination of agreement, termination of agreement, arbitration clauses, and lawsuit provisions in a small contract sample. Loughran and McDonald used word count of negative words, positive words, uncertainty words, litigious words, strong modal words, and weak modal words in a large number of SEC filings.

contribution to) the use of rigidity categories instead of the simple aggregate is to open the black box on contractual rigidity and assess its magnitude and significance at a granular level. Table (1) presents the list of words we search for. We counted 34,681 keywords overall: *Arbitration*, 10,241; *Certification*, 3,263; *Evaluation*, 8,090; *Litigation*, 2,479; *Penalties*, 5,431; *Contingencies*, 4,488; *Design*, 109, and *Termination*, 580. We created as many variables as rigidity dimensions. Table 1 presents keywords clustered in eight rigidity categories[10] and Figure 4 presents the mean score obtained by private and public contracts on each rigidity dimension. One can clearly see that, on average, public contracts are more rigid than private contracts, whatever the dimension considered with the exception of *Design*.[11]

In a multidimensional setting where each category is a dimension, the degree of difference between contracts can be measured by (a) the cartesian distance between the points given by the vectors of word categories, (b) the difference in the angle of the vectors of word categories, and/or (c) the difference in frequencies of word categories. In the present study, we used the normalized frequencies of word categories (i.e., z-values). For instance, we transformed the word count result of *Arbitration* by calculating:

$$zArbitration = \frac{Arbitration - \mu}{\sigma} \tag{3}$$

where μ is the mean and σ is the standard deviation of the count of *Arbitration* words across all contracts. This gives us a global rigidity measure, *zRigidity*:

$$zRigidity = zArbitration + zCertification + zEvaluation + zLitigation$$
$$+zPenalties + zTermination + zContingencies + zDesign \tag{4}$$

This algorithmic data reading procedure is a rudimentary form of textual analysis. According to law scholars, however, it is unlikely that these words would appear in a context unrelated to the categories they indicate.[12] Therefore, we are confident that our algorithm proxies and estimates the frequency of relevant contractual clauses in each contract.

3.3.2 Public versus Private Contracts

We created a dummy variable *Public* that equals 1 when the contract is signed between the operator and a municipality and 0 when the contract is signed with a private partner (e.g., a private company or shopping center).

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[10]Plurals (e.g., penalties) and variations (e.g., penalized) are also counted.

[11]The fact that *Design* is not relevant reinforces our argument: Too specific a design can indicate "designative specifications," i.e., point to a specific contractor and be the source of favoritism (Lambert-Mogiliansky and Kosenok [2009]).

[12]For example, the word "arbitrator" is most likely to be embedded in an arbitration clause.

Table 1: Keywords searched and grouped into contract rigidity categories

Arbitration	appeal, arbitration, conciliation, guarantee, intervention, mediation, settlement, warranty, whereas
Certification	certification, permit, regulation
Evaluation	accountability, control, covenant, obligation, quality, specification, scrutiny
Litigation	court, dispute, indictment, jury, lawsuit, litigation, pleading, prosecution, trial
Penalties	damage, fine, indemnification, penalty, sanction
Termination	breach, cancel, dissolution, separation, termination, unilateral
Contingencies	contingent, if, provided that, providing that, subject to, whenever, whether
Design	anticipation, event, scenario, plan

3.3.3 Political Contestability

The first variable we define, $HHI_{m,t}$, is the Herfindahl-Hirschman index of the first round of elections preceding the date of signature:

$$HHI_{m,t} = A_{m,t}^2 + B_{m,t}^2 + C_{m,t}^2 + D_{m,t}^2 + \dots \tag{5}$$

where $A_{m,t}$ is the winning party's vote share in municipality m at time t, $B_{m,t}$ is the runner-up party's vote share, $C_{m,t}$ is the vote share of the party that came in third place, etc. In a multi-partisan environment like France, this variable normalized the concentration of the political scene, where its inverse gives the number of equivalent parties would all have the same number of votes. According to our Proposition 2, we expect that a politically concentrated municipality will lead to less rigid contracts.

The second variable we propose allows for capturing the opposition force to the winning party. Thus, we take into account the number of different lists (*Number_Of_Lists$_{m,t}$*) that applied to the first round of elections and the concentration of all non-winning parties (*Residual_HHI$_{m,t}$*) in municipality m at time t, which measures the strength of political opposition:

$$Residual\_HHI_{m,t} = \frac{\left(B_{m,t}^2 + C_{m,t}^2 + D_{m,t}^2 + \dots \right)}{\left(1 - A_{m,t} \right)^2} \tag{6}$$

We expect here that the stronger the political opposition, the more rigid the contract. These two variables thus might have a positive impact on contractual rigidity.

The third variable is the simple margin of victory (*Win_Margin$_{m,t}$*) between the winning

and the runner-up party.

$$Win\_Margin_{m,t} = A_{m,t} - B_{m,t} \tag{7}$$

As for the variable $Win\_Margin_{m,t}$, we expect that the larger the win margin, the less rigid the contract. We also introduce a square term of the variable $(Win\_Margin_{m,t}^2)$ to identify a possible non-linear effect:[13]

$$Win\_Margin_{m,t}^2 = (A_{m,t} - B_{m,t})^2 \tag{8}$$

The fourth variable, $Distance_{m,t}$, corresponds to the distance between the date of signature of the contract and the date of the future election. This variable simultaneously captures the closeness of the next elections and the mayor's tenure in office in the political cycle. The intuition here is that we may find more rigid contracts closer to upcoming election years. This would be evidence of opportunistic behavior from the public agents. These set of variables are complementary. Political scientists ofter refer to political competition and its implication in general terms. The rationale for using several measures is to measure the qualitatively graspable, but quantifiably tricky notion of political contestability.

3.3.4 Control Variables

Aside from the nature of the contract (public versus private) and the level of political contestability, other factors can be mobilized to explain contractual rigidity. As a consequence, we include a set of control variables. First, we take into account the three different types of contracts described in section 3.1 through three dummy variables: $Concession_{i,t}$, $Operating_{i,t}$, and $Provision\_of\_Services_{i,t}$. In the estimations, concession and provision of services contracts are compared to operating contracts. As these contractual arrangements correspond to different levels of investment and complexity, we should observe that concession contracts are more rigid than operating contracts, and operating contracts are more rigid than provision of services contracts.

We also introduce variables controlling for the size of the city concerned with the contract (measured through the number of inhabitants, $Inhabitants$), the political color of the mayor ($Left\_Wing$ versus $Right\_Wing$), as well whether the considered contract is a renewed contract ($Renewed$). Finally, as the estimation results may be driven by unobserved characteristics, we control for potential biases by introducing the variable $Trend$, which stands for the year of signature of the contract, and by adding year dummies to capture fixed effects linked to when contracts are signed. Finally, we also cluster all our estimations at the geographical level (59 departments). Descriptive statistics and pairwise correlations of all the variables used in the empirical strategy are provided in Tables 2 and 14.

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[13]E.g., the winning party may be concern if margins are narrow or support is large, but less for intermediate states.

3.3.5 Identification Strategy

Our goal is to explore how public and private contracts differ concerning their level of rigidity. To do so, we estimate the following model:

$$zRigidity_{i,t} = Public_{i,t}\gamma + Y_{i,t}\alpha + \epsilon_{i,t} \tag{9}$$

where $zRigidity_{i,t}$ is the rigidity level of contract i at date of contract signature t, $Public_{i,t}$ is the dummy variable indicating whether contract i signed at date t is a public contract, Y is a vector of control variables, and $\epsilon_{i,t}$ is the error term (we assume that $\epsilon_{i,t} \rightsquigarrow (0, \Sigma)$).

Then, we reduce the analysis scope on the subsample of public contracts in order to explore the impact of political contestability on the contractual rigidity. Hence, we estimate the following model:

$$zRigidity_{i,t} = X_{i,t}\alpha + Y_{i,t}\beta + \epsilon_{i,t} \tag{10}$$

where $zRigidity_{i,t}$ is the rigidity level of contract i signed at date t, X is a vector of variables measuring political contestability, Y is the same vector of control variables as in equation (9), and $\epsilon_{i,t}$ is the error term ($\epsilon_{it} \rightsquigarrow (0, \Sigma)$).

4 Results

4.1 Public versus Private Contract Rigidity

We first estimate the contract rigidity of public versus private contracts. Results are given in Table **??**. For six of the eight dimensions of contractual rigidity we identified, we observe that public contracts are more rigid than private contracts. Overall, considering our *zRigidity* measure, a public contract is more rigid than a private contract, especially concerning *zTermination*, *zArbitrage*, *zPenalties*, *zEvaluation*, *zLitigation*, and defining contingencies in contracts (*zContingencies*). These results corroborate our Proposition 1.

Control variables also provide interesting results. Indeed, the results highlight that renewed contracts are less rigid than original contracts in two dimensions: termination and contingencies. As expected, provision of services contracts are much less rigid than operating contracts. In contrast, we do not find significant differences between operating and concession contracts. Finally, our variable *Trend* also indicates that contracts tend to become more rigid over time for five of the eight dimensions. This may be indicative of a learning process and/or "red tape" inertia by public administrations, where subsequent arrangements replicate the rigidities of previous contracts and add new ones.

4.2 Public Contract Rigidity and Political Contestability

We now turn to investigate how political contestability affects the rigidity of public contracts. Table 3 provides the results of estimations run in our public contracts sub-sample to explore the impact of the set of alternative political contestability measures defined in section 3.3.3. Three of five of our model specifications using political contestability variables suggest that political contestability might affect public contract rigidity. According to Proposition 2, the more concentrated the political power in the municipality, the less rigid the contract signed by the winning party, as illustrated by the positive and significant impact of our variable *HHI* in model 1. Nevertheless, the Herfindahl-Hirschman index is limited, notably because if fails to take into account the number and concentration of non-winning lists. For that reason, we tested an alternative measure of political contestability. In model 2, we took into account the total number of lists that were running in the election and the concentration of all non-winning lists. The significance of *Number_Of_Lists* and *Residual_HHI* indicates that contracts are more rigid when the political opposition is stronger.[14]

Similarly, we found a significant relationship between the rigidity of public contracts and a more or less comfortable margin of victory (model 3). Indeed, our variable *Win_Margin* and *Win_Margin*^{2} suggest that contracts are more flexible when the political contestability is weak and become more rigid when the political contestability is high. Models 1 through 3 lead to results consistent with Proposition 2; however, one specification did not yield results concerning the political contestability effect we are investigating: the distance from the contract date of signature to the next election (model 4) does not affect the level of contract rigidity.

There are many indicators of political contestability and the choice of one indicator over another is not easy. Nevertheless, our first three measures which correspond to the most frequently used in the political economy literature[15] suggest that some of these dimensions play a role in public car park contracts' rigidity in France.

4.3 Robustness Checks

So far, we have provided correlations between the nature of contracts and their rigidity levels and between political contestability measures and public contract rigidity. If we control for sources of heterogeneity between our contracts, notably by using geographic and year dummies, one might wonder whether unobserved heterogeneity may be driving the obtained results, more especially, contract duration, which differs between public and private contracts.

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[14]Theoretically, the number of lists has an ambiguous effect on contract rigidity. On one hand, the higher the number of lists, the higher the scrutiny of public decisions; on the other, the higher the number of lists, the more fractioned the political benefits from a successful contract protest. Our results suggest that the first effect is prevalent.

[15]See, e.g. Le Maux et al. [2011] for the use of Herfindal-Hirschman Index and Solé-Ollé [2006] for the use of win margin as measures of political competition/fragmentation.

Despite narrowing the scope to one sector, our data show that public contracts are, on average, older and of longer term than private contracts (see Figure 3). Indeed, if investments differ between public and private contracts, leading to longer term public contracts, this can explain the more frequent use of words trying to define the transaction and the way to govern it, which in our definition leads to more rigid contracts. Consequently, contracts' publicness is not the issue. To address this, we replicated our regressions including contract duration in our estimates. Table 5 provides the results concerning the rigidity of public versus private contracts. Our main results are not affected. If contract duration appears to be correlated to some of our rigidity dimensions, the main impact is still driven by the public versus private nature of contracts.

As an additional robustness check, we also excluded concession contracts from our data. Since we count only two private concession contracts (2% of the concession contracts sample), our results may be driven by the over-representation of public concession contracts. Thus, only focusing on operating and provision of services contracts allows for a fairer comparison among different levels of contract rigidity. Results provided in Table 6 are highly similar. For four of the eight dimensions of contract rigidity we identified, public contracts are more rigid than private contracts. The major change in results concerns the dependent variable *zContingencies*, which is not surprising because concession contracts are the longest ones and entail more detail about future contingencies.

Finally, Tables 6 and 7 successively include contract duration and exclude concession contracts in our estimations of contract rigidity on contract characteristics and political contestability variables for the subsample of public contracts. Here again, our main results remain unaffected.

As a last robustness checks, we run all our regressions by using an alternative measure of global rigidity and rigidity by categories. This alternative measure consists in taking the contracts' size into account, i.e., the total number of words of contracts. We now have a double transformation since we divide the word count by the total number of words, then we use the normalized frequencies of word categories (i.e., *y*-values). For instance, we transformed the word count result of *Arbitration* by calculating:

$$xArbitration = \frac{Arbitration}{ln(totalnumberorwords)} yArbitration = \frac{Arbitration - \mu}{\sigma} \qquad (11)$$

where μ is the mean and σ is the standard deviation of the count of *xArbitration* words across all contracts. This gives us an alternative global rigidity measure, *yRigidity*:

$$yRigidity = yArbitration + yCertification + yEvaluation + yLitigation$$
$$+ yPenalties + yTermination + yContingencies + yDesign \qquad (12)$$

Tables 8 to 12 presents the same regressions than tables 3 to 7 by using this alternative

measure. Our main results are not affected. Moreover, the results from panel OLS regressions of global rigidity ($yRigidity$) on contract characteristics, political contestability variables, and controls described for the subsample of public contracts are even more significant.

4.4 Renegotiations of Public Contracts

Our set of results makes us confident about the specific nature of public contracts leading them to a higher level of rigidity than private contracts. Due to third-party opportunism that pushes for rigid contracts at their initial stage, the same political hazards should also make public contracts more prone to formal renegotiation: Since relational contracting is not an option in public contracts, each renegotiation should be traduced into a formal amendment. To put this intuition to the test, we estimate the simple following model:

$$AverageAmendments_{i,t} = Public_{i,t}\alpha + Y_{i,t}\beta + \epsilon_{i,t} \tag{13}$$

where $AverageAmendments_{i,t}$ is the number of amendments divided by the duration of the contract i, $Public_{i,t}$ is the dummy variable indicating whether contract i signed at date t is a public contract, Y is a vector of control variables and $\epsilon_{i,t}$ is the error term (we assume that $\epsilon_{i,t} \rightsquigarrow (0, \Sigma)$). Results are provided in Table 13.

As per Proposition 3, public contracts are more often formally renegotiated in amendments than private contracts. A possible explanation is that public renegotiations must be translated in formal amendments, in contrast to private contracts that can rely on informal procedures.

5 Conclusions

In this paper, we investigated the specific nature of public versus private contracts. We compared procurement contracts where the procurer was either a public agent or a private corporation and used algorithmic data reading and textual analysis on a dataset of car park contracts to determine the level of contractual rigidity. We found that public contracts feature more rigidity clauses and that this rigidity rises in political contestability. We argue that a significant part of differences in contractual rigidity between purely private and public contracts is a political risk adaptation of the public agent to curb plausible challenges from political contesters and interest groups.

A natural consequence of public contract specificity is that such contracts are characterized by more frequent renegotiation and formal amendment. We found empirical evidences that public contracts are more frequently renegotiated than private contracts and a negative correlation exists between rigidity levels and renegotiation rates, suggesting that contracting parties looking for rigid contracts to avoid future renegotiation partly succeed.

The depth of our research is limited in several ways. First, algorithmic textual analysis is still in its early stage and is not yet close to human interpretation, especially when it comes to legal nuances. The strong results we obtained even with imperfect methods, however, are indicative that our propositions are not spurious. We expect that the construction of better algorithms and "dictionaries" in the future will corroborate these findings. Second, corruption could be an important confounding factor. As pointed in section 2.2, corruption does not play a major roll in our setting and, if present, would weaken (not strengthen) our results. Third, there might be omitted factors that correlate with both the characteristics of the contractor and of the municipality that determine the probability of winning a procurement contract, and which, therefore, determines the probability of being in our sample. In our opinion, a one-contractor sample provides the ideal experiment to test public-private contractual hetero-geneity. Moreover, the reputation of the contractor[16] silences much of the potential sample conditionality. Fourth, there are other factors that we are not able to control for that could influence our results, the most important of which are different demand stochasticity (risk) in municipalities that could drive contract characteristics and pricing strategies that would correspond to demand risk. Unfortunately, we do not have data nor good variables to proxy demand stochasticity, neither car park prices at the municipal level across time. We assume that year and geographic fixed effects take care of part of this heterogeneity.

Adaptations of the presented model and empirical tests are extendable to quasi-political corporate governance settings. Whereas managers' discretion is subject to minority share-holders' or external stakeholders' scrutiny, they may take *ex ante* otherwise dispensable legal precautions to avoid *ex post* penalties and costs of litigation.

To our knowledge, this paper is one of the first (along with Moszoro et al. [2013]) to investigate the intrinsic properties of public contracts versus private contracts using data with measures of contract rigidity, frequency of amendment, and political contestability. It opens novel research avenues for exploration. One of these promising avenues involves investigating how the frequency of amendments in public contracts affects the quality of the contractual relationship and the willingness of the parties to continue and renew their relationship. What can be interpreted, at first glance, as a sign of weakness (i.e., frequent amendments) might well be good news indicating that the contracting parties can make the contract adaptable through time.

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[16]The contractor is the largest car park provider in France.

Figure 3: This figure presents the count breakdown of contract duration in years and signature year for public and private car park contracts.
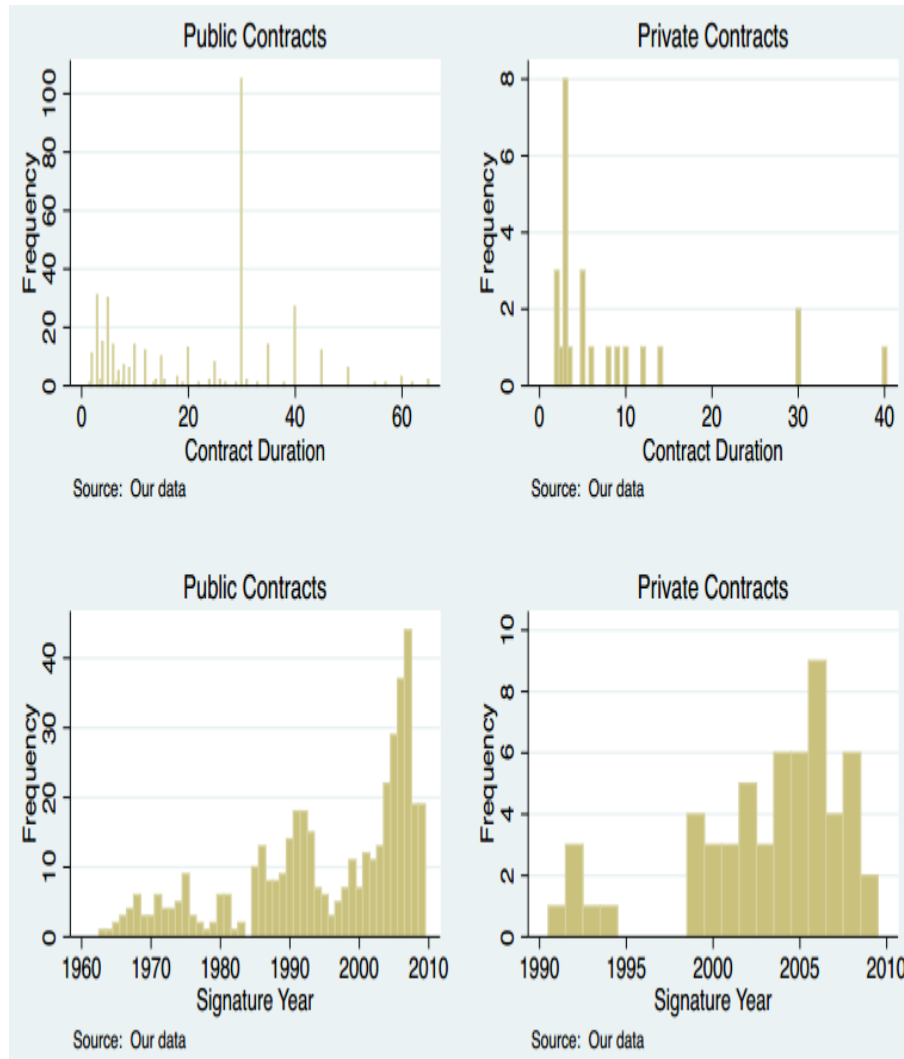
Figure 4: This figure presents the mean score of word frequency obtained by public (blue) and private (red) contracts on each rigidity category.
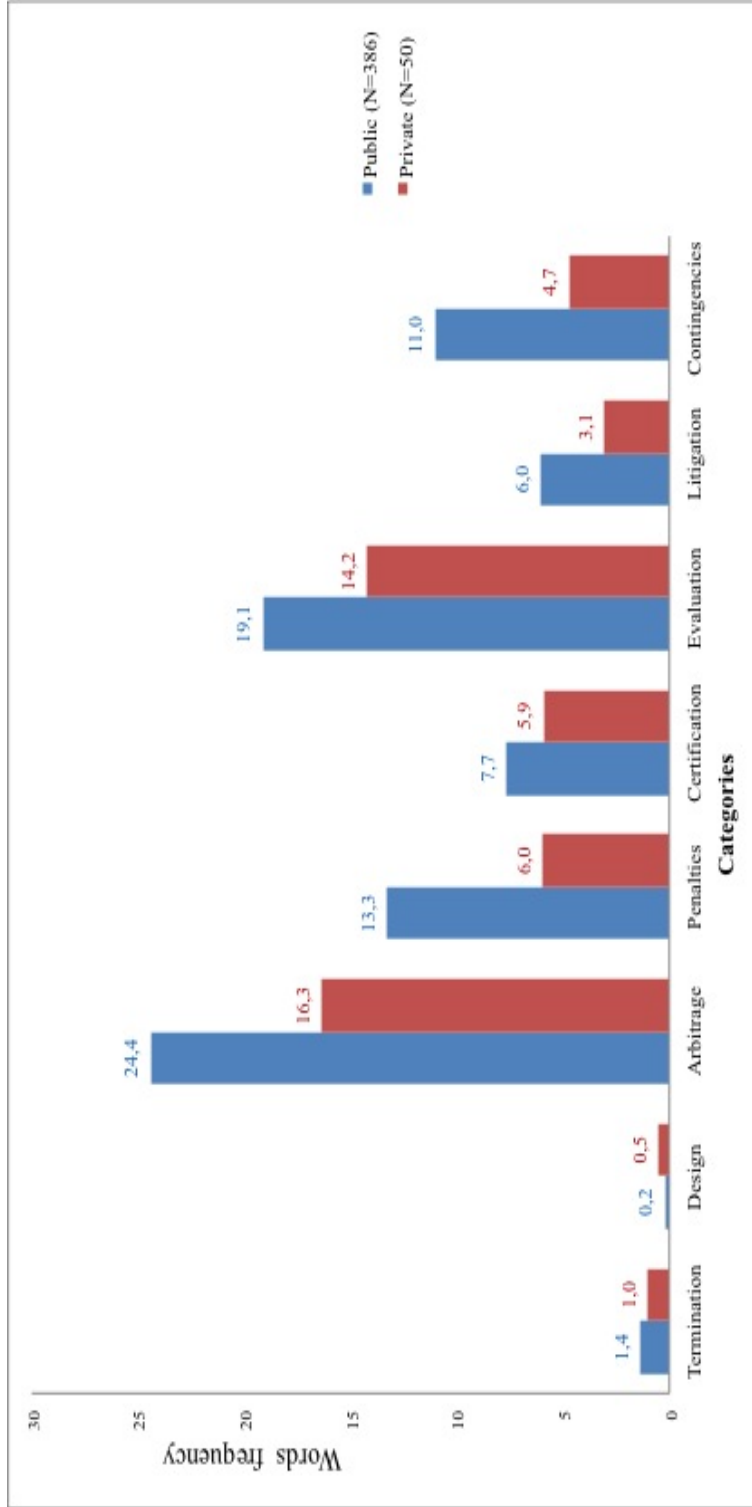
Table 2: This table presents descriptive statistics of our independent variables and controls for the whole sample and broken down by types of contract: operating, provision of services, and concession contracts. z-values are normalized frequencies of word categories calculated as, e.g., $zArbitration = (Arbitration − μ)/σ$, where where $μ$ is the mean and $σ$ is the standard deviation of the count of Arbitration words across all contracts. zRigidity is the global measure of rigidity calculated as the sum of all rigidity categories. Concessions are long-term contracts under which the operator builds or renovates the infrastructure, bears the demand risk, and is remunerated with user fees. Operating_Contracts are long-term contracts, but shorter than concessions, under which the operator renovates the infrastructure, bears the demand risk, and is remunerated with user fees. Provision_of_Services are short-term contracts for the operation of car parks with no investment involved. Public is a dummy variable equal to 1 when the contract was signed by a municipality and equal to 0 when it was signed with a private company. Renewed is a dummy variable equal to 0 if the contract is the original one and equal to 1 if it is a renewed contract. Inhabitants is the number of inhabitants at the municipality where the contract was signed. AverageAmendments is the number of amendments divided by the duration of the contract. Left_Wing and Right_Wing are dummy variables equal to 1 if mayor in power is, correspondingly, of left or right wing affiliation. Trend is the year of signature of the contract. HHI is the Herfindahl-Hirschman index of the first round of elections preceding the date of signature and measures the concentration of the political scene. Residual_HHI is the Herfindahl-Hirschman index of non-winning parties and measures the strength of the political opposition. Number_of_Lists is the number of applied to the first round of elections. Win_Margin margin of victory is the difference between the winning and the runner-up party vote share in percentage points and Win_Margin^2 is its square. Distance is the time distance between the date of signature of the contract and the date of the future election.

	All sample					Operating Contracts				
	N	μ	σ	min	max	N	μ	σ	min	max
Public	436	0.89	0.32	0	1	173	0.83	0.38	0	1
zRigidity	436	2.30	17.71	-28.01	88.25	173	7.50	20.00	-24.11	88.25
zDesign	436	0.06	1.52	-0.49	14.09	173	0.37	2.06	-0.49	14.09
zTermination	436	0.17	3.69	-2.39	24.21	173	1.07	4.25	-2.39	14.87
zArbitration	436	0.46	3.61	-4.62	21.90	173	0.94	4.18	-4.62	21.90
zPenalties	436	0.39	3.64	-4.69	22.02	173	1.37	3.79	-4.69	22.02
zCertification	436	0.22	3.16	-2.96	17.74	173	0.65	3.43	-2.96	17.21
zEvaluation	436	0.59	4.42	-5.48	26.18	173	1.62	4.95	-5.30	26.18
zLitigation	436	0.35	3.66	-4.59	20.16	173	0.92	3.50	-4.59	12.98
zContingencies	436	0.01	2.71	-2.39	16.70	173	0.21	3.30	-2.39	16.70
Renewed	436	0.15	0.36	0	1	173	0.11	0.31	0	1
Inhabitants	436	10.86	1.58	8.09	14.08	173	10.78	1.39	8.25	14.08
AverageAmendments	436	0.19	0.33	0	2	173	0.18	0.28	0	1.71
Left_Wing	436	0.14	0.34	0	1	173	0.15	0.36	0	1
Right_Wing	436	0.29	0.45	0	1	173	0.34	0.47	0	1
Trend	436	2000.64	7.28	1985	2009	173	1999.90	7.24	1985	2009
HHI	331	0.46	0.18	0.21	0.67	129	0.39	0.11	0.21	0.67
Residual_HHI	331	0.39	0.09	0	1	129	0.47	0.08	0.34	0.66
Number_Of_Lists	331	4.21	1.57	1	9	129	4.27	1.54	2	8
Win_Margin	331	21.73	16.56	0.15	100	129	21.45	14.99	0.31	63.44
Win_Margin2	331	745.47	1182.03	0.02	10000	129	682.86	816.31	0.10	4024.49
Distance	331	2.59	1.75	0	6	129	2.74	1.75	0	6

	Provision of Services Contracts					Concession Contracts				
	N	μ	σ	min	max	N	μ	σ	min	max
Public	166	0.89	0.31	0	1	97	0.98	0.14	0	1
zRigidity	166	-4.30	15.08	-28.01	46.94	97	4.34	13.62	-27.84	43.83
zDesign	166	-0.18	0.89	-0.49	5.48	97	-0.07	1.14	-0.49	4.96
zTermination	166	-0.75	2.75	-2.39	13.62	97	0.15	3.66	-2.39	24.21
zArbitration	166	-0.06	3.45	-4.62	17.25	97	0.51	2.57	-4.38	11.03
zPenalties	166	-1.58	2.63	-4.69	6.85	97	2.03	3.38	-4.69	8.27
zCertification	166	-0.39	3.24	-2.96	17.74	97	0.49	2.22	-2.96	6.58
zEvaluation	166	-0.05	4.13	-5.48	23.92	97	-0.15	3.49	-5.48	12.45
zLitigation	166	-0.58	3.87	-4.59	20.16	97	0.92	3.23	-4.59	16.97
zContingencies	166	-0.62	1.96	-2.39	11.09	97	0.75	2.41	-2.39	10.93
Renewed	166	0.27	0.45	0	1	97	0.03	0.17	0	1
Inhabitants	166	10.26	1.27	8.09	14.00	97	12.05	1.73	9.12	14.08
AverageAmendments	166	0.25	0.43	0	2	97	0.12	0.2	0	1.4
Left_Wing	166	0.04	0.19	0	1	97	0.29	0.46	0	1
Right_Wing	166	0.36	0.48	0	1	97	0.08	0.28	0	1
Trend	166	2005.37	3.09	1986	2009	97	1993.90	6.64	1985	2009
HHI	146	0.39	0.14	0.22	1	95	0.40	0.81	0.22	0.62
Residual_HHI	146	0.45	0.11	0	0.666	95	0.49	0.07	0.35	0.62
Number_Of_Lists	146	4.21	1.72	1	9	95	4.09	1.23	2	8
Win_Margin	146	22.85	19.14	0.15	100	95	19.45	12.13	0.31	49.80
Win_Margin2	146	886.16	1559.13	0.02	10000	95	522.88	558.11	0.10	2480.51
Distance	146	2.45	1.88	0	6	95	2.57	1.36	0	5

Table 3: This table presents results from panel OLS regressions of global rigidity ($zRigidity$) and rigidity by categories (z-category) on contract characteristics and controls described in Table 2. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: $^{+}$ 15%, * 10%, ** 5% and *** 1%.

Dependent variables:	zRigidity	zDesign	zTermination	zArbitrage	zPenalties	zCertification	zEvaluation	zLitigation	zContingencies
Public	12.045***	-0.625	1.246*	2.189**	3.306***	0.309	1.849+	2.596***	0.921**
	(4.364)	(0.553)	(0.701)	(0.829)	(0.505)	(0.659)	(1.235)	(0.548)	(0.439)
Renewed	-4.990*	-0.336	-0.727	-0.697+	-0.279	0.235	-1.099*	-1.099*	-0.830**
	(2.632)	(0.244)	(0.506)	(0.477)	(0.417)	(0.494)	(0.607)	(0.606)	(0.400)
Provision_of_Services	-15.204***	-0.701**	-2.207***	-1.721***	-3.034***	-1.522**	-2.768***	-1.621***	-0.886***
	(2.972)	(0.329)	(0.542)	(0.506)	(0.375)	(0.597)	(0.750)	(0.476)	(0.362)
Concession	-0.969	0.014	-0.431	0.046	0.229	0.377	-0.819+	-0.500	0.327
	(1.719)	(0.216)	(0.478)	(0.350)	(0.497)	(0.395)	(0.524)	(0.499)	(0.436)
Inhabitants	-0.038	-0.099+	-0.008	0.015	-0.109	-0.010	0.123	0.118	0.003
	(0.640)	(0.063)	(0.106)	(0.141)	(0.095)	(0.127)	(0.214)	(0.173)	(0.125)
Left_Wing	-1.511	0.020	-0.765	-0.582	0.738	-0.241	-0.714	-0.342	0.416
	(2.832)	(0.173)	(0.811)	(0.585)	(0.596)	(0.587)	(0.719)	(0.724)	(0.488)
Right_Wing	3.506	0.376	1.101+	0.094	0.412	1.175***	0.189	0.344	-0.463*
	(2.587)	(0.328)	(0.664)	(0.439)	(0.446)	(0.380)	(0.804)	(0.535)	(0.272)
Trend	1.256***	0.031	0.173***	0.244***	0.051	0.199***	0.280***	0.142**	0.094*
	(0.419)	(0.068)	(0.046)	(0.069)	(0.094)	(0.062)	(0.102)	(0.066)	(0.054)
Year Dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-2,515.520***	-58.567	-345.601***	-490.111***	-103.749	-398.061***	-560.806***	-287.003**	-187.776*
	(831.354)	(134.959)	(92.086)	(136.395)	(188.939)	(122.400)	(201.751)	(131.371)	(108.003)
N	436	436	436	436	436	436	436	436	436
r^2	0.222	0.136	0.138	0.156	0.313	0.114	0.168	0.142	0.111

Table 4: This table presents results from panel OLS regressions of global rigidity ($zRigidity$) on contract characteristics, political contestability variables, and controls described in Table 2 for the subsample of public contracts. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: $^+$ 15%, * 10%, ** 5% and *** 1%.

Dependent variable:	Model 1	Model 2	Model 3	Model 4
		zRigidity		
Renewed	-3.908	-4.406+	-4.235	-3.879
	(2.968)	(2.911)	(2.966)	(2.994)
Provision_of_Services	-17.455***	-17.298***	-17.158***	-17.537***
	(2.434)	(2.391)	(2.464)	(2.434)
Concession	-0.540	-0.275	-0.865	-0.803
	(2.693)	(2.590)	(2.724)	(2.635)
Inhabitants	0.660	-0.396	1.317	1.566+
	(1.168)	(1.291)	(1.161)	(1.062)
Left_Wing	1.227	0.236	1.699	1.116
	(3.787)	(3.935)	(3.900)	(3.807)
Right_Wing	2.136	2.081	1.069	1.587
	(2.756)	(2.693)	(2.789)	(2.852)
Trend	0.682*	0.606+	0.746*	0.707*
	(0.387)	(0.380)	(0.381)	(0.363)
Political Contestability Variables				
HHI	-14.390+	.	.	.
	(9.075)	.	.	.
Residual_HHI	.	19.953+	.	.
	.	(12.348)	.	.
Number_of_Lists	.	2.208***	.	.
	.	(0.684)	.	.
Win_Margin	.	.	0.215*	.
	.	.	(0.126)	.
Win_Margin^2	.	.	-0.003***	.
	.	.	(0.001)	.
Distance	.	.	.	-1.478
	.	.	.	(1.913)
Year Dummies	yes	yes	yes	yes
Constant	-1,356.617*	-1,218.703+	-1,501.107*	-1,412.583*
	(779.453)	(763.015)	(767.244)	(719.988)
N	331	331	331	331
r^2	0.251	0.262	0.254	0.245

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Table 5: This table presents results from panel OLS regressions of global rigidity (*zRigidity*) and rigidity by categories (*z*-category) on contract characteristics and controls as in Table **??**, with the addition of contract duration. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: + 15%, * 10%, ** 5% and *** 1%.

Dependent variables:	zRigidity	zDesign	zTermination	zArbitrage	zPenalties	zCertification	zEvaluation	zLitigation	zContingencies
Public	11.500**	-0.656	1.017+	2.262***	3.122***	0.129	1.852+	2.514***	0.981**
	(4.346)	(0.537)	(0.697)	(0.791)	(0.551)	(0.661)	(1.198)	(0.527)	(0.413)
Renewed	-4.924*	-0.333	-0.699	-0.706+	-0.257	0.257	-1.099*	-1.089*	-0.837**
	(2.630)	(0.244)	(0.505)	(0.480)	(0.405)	(0.501)	(0.609)	(0.604)	(0.398)
Duration	0.095	0.005	0.040+	-0.013	0.032+	0.031+	-0.000	0.014	-0.010
	(0.071)	(0.010)	(0.026)	(0.016)	(0.021)	(0.020)	(0.024)	(0.024)	(0.022)
Provision_of_Services	-14.602***	-0.667*	-1.954***	-1.802***	-2.831***	-1.323**	-2.771***	-1.531***	-0.952**
	(3.123)	(0.354)	(0.587)	(0.544)	(0.369)	(0.620)	(0.827)	(0.479)	(0.421)
Concession	-1.590	-0.021	-0.692	0.130	0.020	0.171	-0.816	-0.593	0.395
	(1.750)	(0.214)	(0.526)	(0.363)	(0.533)	(0.451)	(0.589)	(0.551)	(0.447)
Inhabitants	-0.047	-0.099+	-0.012	0.016	-0.112	-0.014	0.123	0.116	0.004
	(0.641)	(0.064)	(0.110)	(0.140)	(0.091)	(0.128)	(0.214)	(0.172)	(0.125)
Left_Wing	-1.674	0.010	-0.834	-0.560	0.683	-0.295	-0.713	-0.366	0.434
	(2.798)	(0.169)	(0.792)	(0.578)	(0.570)	(0.569)	(0.733)	(0.702)	(0.481)
Right_Wing	3.330	0.366	1.028+	0.118	0.353	1.117***	0.189	0.318	-0.444+
	(2.615)	(0.331)	(0.670)	(0.436)	(0.447)	(0.377)	(0.800)	(0.536)	(0.265)
Trend	1.338***	0.035	0.207***	0.233***	0.079	0.226***	0.279***	0.154**	0.085*
	(0.415)	(0.063)	(0.053)	(0.067)	(0.098)	(0.064)	(0.101)	(0.068)	(0.047)
Year Dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-2,679.608***	-67.837	-414.516***	-468.004***	-158.978	-452.424***	-560.077***	-311.557**	-169.864*
	(823.796)	(125.877)	(105.330)	(132.106)	(197.597)	(126.735)	(201.333)	(135.584)	(94.015)
N	436	436	436	436	436	436	436	436	436
r^2	0.224	0.137	0.145	0.156	0.318	0.121	0.168	0.143	0.112

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Table 6: This table presents results from panel OLS regressions of global rigidity (*zRigidity*) and rigidity by categories (*z-category*) on contract characteristics, political contestability variables, and controls as in Table 3, with the addition of contract duration and excluding concession contracts. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: + 15%, * 10%, ** 5% and *** 1%.

Dependent variables:	zRigidity	zDesign	zTermination	zArbitrage	zPenalties	zCertification	zEvaluation	zLitigation	zContingencies
Public	11.672**	-0.619	0.898	2.434***	3.032***	-0.011	2.414*	2.546***	0.735
	(4.653)	(0.581)	(0.771)	(0.893)	(0.545)	(0.740)	(1.306)	(0.572)	(0.519)
Renewed	-4.695+	-0.274	-0.565	-1.025**	-0.186	0.142	-1.176*	-0.952	-0.580
	(2.867)	(0.286)	(0.545)	(0.507)	(0.433)	(0.575)	(0.695)	(0.656)	(0.454)
Duration	0.181*	-0.007	0.078**	-0.011	0.064***	0.026	-0.003	0.022	0.009
	(0.099)	(0.012)	(0.034)	(0.023)	(0.022)	(0.021)	(0.023)	(0.028)	(0.027)
Provision_of_Services	-14.057***	-0.806*	-1.917***	-1.710***	-2.548***	-1.194*	-3.039***	-1.419***	-0.708
	(3.509)	(0.404)	(0.636)	(0.590)	(0.389)	(0.709)	(0.812)	(0.518)	(0.523)
Inhabitants	0.403	-0.152+	0.009	0.145	-0.036	-0.014	0.326	0.148	0.000
	(0.902)	(0.094)	(0.155)	(0.178)	(0.120)	(0.183)	(0.247)	(0.221)	(0.126)
Left_Wing	1.912	0.576**	0.199	-0.794	1.454+	0.028	-0.525	0.543	0.606
	(4.308)	(0.270)	(0.828)	(0.928)	(0.946)	(0.805)	(0.853)	(1.139)	(0.820)
Right_Wing	3.721	0.302	1.067+	0.083	0.350	1.307***	-0.001	0.449	-0.139
	(2.777)	(0.320)	(0.648)	(0.422)	(0.471)	(0.420)	(0.794)	(0.621)	(0.267)
Trend	1.568***	0.101**	0.274***	0.268***	0.071+	0.154*	0.366***	0.179***	0.102**
	(0.308)	(0.047)	(0.052)	(0.064)	(0.047)	(0.086)	(0.072)	(0.057)	(0.040)
Year Dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-3,148.271***	-199.290**	-549.477***	-537.807***	-146.040+	-307.481*	-736.908***	-360.541***	-204.278**
	(608.282)	(92.227)	(105.052)	(127.491)	(94.509)	(170.396)	(141.247)	(114.380)	(79.144)
N	339	339	339	339	339	339	339	339	339
r^2	0.240	0.164	0.212	0.160	0.348	0.118	0.206	0.158	0.103

Table 7: This table presents results from panel OLS regressions of global rigidity (*zRigidity*) on contract characteristics, political contestability variables, and controls described in Table 2 for the subsample of public contracts, with the addition of contract duration. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: + 15%, * 10%, ** 5% and *** 1%.

	Model 1	Model 2	Model 3	Model 4
Dependent variable:		*zRigidity*		
Renewed	-3.841	-4.339+	-4.161	-3.811
	(2.972)	(2.915)	(2.965)	(3.000)
Duration	0.065	0.066	0.076	0.066
	(0.083)	(0.087)	(0.083)	(0.082)
Provision_of_Services	-16.939***	-16.773***	-16.541***	-17.012***
	(2.738)	(2.738)	(2.748)	(2.713)
Concession	-0.960	-0.702	-1.362	-1.230
	(2.670)	(2.574)	(2.690)	(2.618)
Inhabitants	0.632	-0.423	1.285	1.535
	(1.176)	(1.306)	(1.166)	(1.068)
Left_Wing	0.950	-0.047	1.400	0.835
	(3.819)	(4.000)	(3.934)	(3.851)
Right_Wing	2.022	1.965	0.920	1.473
	(2.759)	(2.712)	(2.796)	(2.867)
Trend	0.712*	0.637*	0.783**	0.729*
	(0.385)	(0.376)	(0.382)	(0.365)
Political Contestability Variables				
HHI	-14.352+	.	.	.
	(9.086)	.	.	.
Residual_HHI	.	20.014+	.	.
	.	(12.569)	.	.
Number_of_Lists	.	2.207***	.	.
	.	(0.690)	.	.
Win_Margin	.	.	0.221*	.
	.	.	(0.128)	.
Win_Margin^2	.	.	-0.003***	.
	.	.	(0.001)	.
Distance	.	.	.	-1.300
	.	.	.	(1.927)
Year dummies	yes	yes	yes	yes
Constant	-1,418.602*	-1,281.941*	-1,575.397**	-1,459.085**
	(775.337)	(754.059)	(769.974)	(724.192)
N	331	331	331	331
r^2	0.252	0.263	0.255	0.246

Table 8: This table presents results from panel OLS regressions of global rigidity (*yRigidity*) and rigidity by categories (*y*-category) on contract characteristics and controls described in Table 2. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: + 15%, * 10%, ** 5% and *** 1%.

Dependent variables:	yRigidity	yDesign	yTermination	yArbitrage	yPenalties	yCertification	yEvaluation	yLitigation	yContingencies
Public	11.174***	-0.643	1.143+	2.082**	3.195***	0.252	1.634	2.466***	0.835*
	(4.015)	(0.534)	(0.697)	(0.783)	(0.497)	(0.606)	(1.141)	(0.516)	(0.458)
Renewed	-4.493*	-0.334	-0.696	-0.639	-0.188	0.332	-1.019*	-1.015*	-0.785**
	(2.537)	(0.246)	(0.495)	(0.482)	(0.416)	(0.505)	(0.587)	(0.589)	(0.392)
Provision_of_Services	-14.743***	-0.664**	-2.167***	-1.600***	-2.994***	-1.474**	-2.706***	-1.556***	-0.843**
	(2.770)	(0.321)	(0.536)	(0.479)	(0.361)	(0.585)	(0.711)	(0.459)	(0.352)
Concession	-1.116	0.011	-0.446	0.082	0.206	0.343	-0.844+	-0.542	0.296
	(1.620)	(0.212)	(0.479)	(0.357)	(0.481)	(0.397)	(0.521)	(0.493)	(0.430)
Inhabitants	-0.041	-0.097+	-0.010	-0.002	-0.115	0.002	0.119	0.113	0.016
	(0.611)	(0.062)	(0.104)	(0.134)	(0.094)	(0.122)	(0.218)	(0.170)	(0.124)
Left_Wing	-1.184	0.018	-0.736	-0.525	0.847+	-0.210	-0.682	-0.259	0.409
	(2.719)	(0.173)	(0.808)	(0.583)	(0.578)	(0.593)	(0.725)	(0.731)	(0.476)
Right_Wing	3.598+	0.361	1.116*	0.091	0.426	1.189***	0.197	0.377	-0.449*
	(2.457)	(0.331)	(0.660)	(0.457)	(0.438)	(0.370)	(0.786)	(0.535)	(0.258)
Trend	1.184***	0.026	0.169***	0.240***	0.036	0.188***	0.267***	0.130**	0.087+
	(0.395)	(0.069)	(0.045)	(0.066)	(0.094)	(0.060)	(0.096)	(0.061)	(0.054)
Year Dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-2,371.930***	-48.290	-338.604***	-481.024***	-72.837	-376.070***	-535.479***	-262.695**	-173.845+
	(784.478)	(136.385)	(89.116)	(131.909)	(188.494)	(118.051)	(190.812)	(122.135)	(107.579)
N	436	436	436	436	436	436	436	436	436
r^2	0.223	0.135	0.135	0.154	0.311	0.113	0.170	0.135	0.111

Table 9: This table presents results from panel OLS regressions of global rigidity (*yRigidity*) on contract characteristics, political contestability variables, and controls described in Table 2. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: $^{+}$ 15%, * 10%, ** 5% and *** 1%.

Dependent variable:	Model 1	Model 2	Model 3	Model 4
		yRigidity		
Renewed	-3.498	-3.973	-3.832	-3.468
	(2.835)	(2.787)	(2.839)	(2.874)
Provision_of_Services	-17.008***	-16.863***	-16.709***	-17.092***
	(2.285)	(2.256)	(2.314)	(2.290)
Concession	-0.518	-0.278	-0.849	-0.787
	(2.528)	(2.428)	(2.566)	(2.473)
Inhabitants	0.586	-0.376	1.255	1.515+
	(1.129)	(1.255)	(1.108)	(1.016)
Left_Wing	1.437	0.481	1.902	1.324
	(3.702)	(3.843)	(3.789)	(3.715)
Right_Wing	2.281	2.197	1.197	1.718
	(2.641)	(2.596)	(2.663)	(2.723)
Trend	0.647*	0.576+	0.712*	0.684*
	(0.366)	(0.360)	(0.360)	(0.349)
Political Contestability Variables				
HHI	-14.777*	.	.	.
	(8.796)	.	.	.
Residual_HHI	.	19.093+	.	.
	.	(11.719)	.	.
Number_of_Lists	.	2.125***	.	.
	.	(0.661)	.	.
Win_Margin	.	.	0.216*	.
	.	.	(0.120)	.
Win_Margin^2	.	.	-0.003***	.
	.	.	(0.001)	.
Distance	.	.	.	-1.364
	.	.	.	(1.770)
Year dummies	yes	yes	yes	yes
Constant	-1,285.585*	-1,157.518+	-1,432.899*	-1,367.311*
	(737.897)	(722.095)	(725.947)	(692.498)
N	331	331	331	331
r^2	0.255	0.265	0.258	0.247

Table 10: This table presents results from panel OLS regressions of global rigidity (*yRigidity*) and rigidity by categories (*y*-category) on contract characteristics and controls as in Table **??**, with the addition of contract duration. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: + 15%, * 10%, ** 5% and *** 1%.

Dependent variables:	yRigidity	yDesign	yTermination	yArbitrage	yPenalties	yCertification	yEvaluation	yLitigation	yContingencies
Public	10.652**	-0.673	0.923	2.164***	3.007***	0.072	1.641+	2.387***	0.895**
	(4.017)	(0.520)	(0.693)	(0.746)	(0.542)	(0.610)	(1.109)	(0.496)	(0.430)
Renewed	-4.430*	-0.331	-0.670	-0.649	-0.165	0.354	-1.020*	-1.006*	-0.792**
	(2.532)	(0.246)	(0.494)	(0.485)	(0.402)	(0.511)	(0.589)	(0.587)	(0.389)
Duration	0.091	0.005	0.038+	-0.014	0.033+	0.031+	-0.001	0.014	-0.010
	(0.070)	(0.010)	(0.026)	(0.016)	(0.021)	(0.020)	(0.024)	(0.024)	(0.023)
Provision_of_Services	-14.168***	-0.632*	-1.925***	-1.690***	-2.786***	-1.275**	-2.714***	-1.469***	-0.908**
	(2.905)	(0.345)	(0.580)	(0.516)	(0.357)	(0.607)	(0.787)	(0.458)	(0.411)
Concession	-1.711	-0.023	-0.696	0.175	-0.009	0.138	-0.836	-0.632	0.364
	(1.640)	(0.211)	(0.532)	(0.367)	(0.523)	(0.448)	(0.588)	(0.547)	(0.445)
Inhabitants	-0.051	-0.098+	-0.014	-0.001	-0.118	-0.001	0.120	0.112	0.017
	(0.611)	(0.062)	(0.108)	(0.133)	(0.090)	(0.123)	(0.170)	(0.170)	(0.123)
Left_Wing	-1.340	0.009	-0.802	-0.501	0.790	-0.263	-0.680	-0.283	0.427
	(2.673)	(0.168)	(0.790)	(0.574)	(0.547)	(0.574)	(0.738)	(0.707)	(0.469)
Right_Wing	3.431	0.352	1.046+	0.117	0.366	1.131***	0.199	0.352	-0.429*
	(2.487)	(0.335)	(0.666)	(0.454)	(0.438)	(0.366)	(0.782)	(0.536)	(0.252)
Trend	1.262***	0.030	0.202***	0.228***	0.064	0.215***	0.266***	0.142**	0.078+
	(0.392)	(0.064)	(0.052)	(0.064)	(0.098)	(0.062)	(0.096)	(0.064)	(0.046)
Year Dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-2,528.906***	-57.228	-404.631***	-456.523***	-129.593	-430.251***	-533.396***	-286.498**	-155.896+
	(777.801)	(127.594)	(102.865)	(127.406)	(195.905)	(123.412)	(190.812)	(126.743)	(93.407)
N	436	436	436	436	436	436	436	436	436
r²	0.224	0.136	0.142	0.156	0.317	0.120	0.170	0.136	0.112

Table 11: This table presents results from panel OLS regressions of global rigidity (*yRigidity*) and rigidity by categories (*y-category*) on contract characteristics, political contestability variables, and controls as in Table 3, with the addition of contract duration and excluding concession contracts. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: + 15%, * 10%, ** 5% and *** 1%.

Dependent variables:	yRigidity	yDesign	yTermination	yArbitrage	yPenalties	yCertification	yEvaluation	yLitigation	yContingencies
Public	10.861**	-0.639	0.795	2.352***	2.924***	-0.057	2.221*	2.425***	0.643
	(4.302)	(0.563)	(0.763)	(0.852)	(0.532)	(0.693)	(1.191)	(0.545)	(0.544)
Renewed	-4.349+	-0.278	-0.544	-1.009**	-0.127	0.215	-1.115+	-0.878	-0.538
	(2.761)	(0.288)	(0.535)	(0.492)	(0.419)	(0.589)	(0.675)	(0.639)	(0.451)
Duration	0.176*	-0.007	0.077**	-0.014	0.065***	0.025	-0.003	0.021	0.009
	(0.095)	(0.012)	(0.034)	(0.023)	(0.022)	(0.021)	(0.022)	(0.029)	(0.028)
Provision_of_Services	-13.587***	-0.772*	-1.881***	-1.593***	-2.495***	-1.141+	-2.975***	-1.357***	-0.660
	(3.266)	(0.392)	(0.627)	(0.554)	(0.370)	(0.695)	(0.762)	(0.494)	(0.517)
Inhabitants	0.430	-0.151+	0.009	0.131	-0.038	0.007	0.333	0.145	0.016
	(0.859)	(0.092)	(0.157)	(0.168)	(0.118)	(0.176)	(0.245)	(0.217)	(0.125)
Left_Wing	2.082	0.580**	0.171	-0.732	1.518+	0.049	-0.512	0.603	0.583
	(4.127)	(0.266)	(0.825)	(0.944)	(0.914)	(0.815)	(0.832)	(1.162)	(0.817)
Right_Wing	3.723	0.285	1.077+	0.061	0.345	1.307***	-0.013	0.476	-0.130
	(2.661)	(0.325)	(0.644)	(0.432)	(0.467)	(0.410)	(0.774)	(0.624)	(0.250)
Trend	1.472***	0.100**	0.269***	0.261***	0.048	0.138+	0.350***	0.161***	0.093**
	(0.290)	(0.046)	(0.052)	(0.063)	(0.046)	(0.085)	(0.066)	(0.058)	(0.040)
Year Dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-2,954.879***	-196.259**	-538.807***	-523.603***	-99.069	-276.100+	-703.346***	-325.356***	-187.171**
	(573.265)	(89.450)	(103.999)	(124.333)	(92.341)	(169.021)	(130.170)	(116.246)	(79.894)
N	339	339	339	339	339	339	339	339	339
r^2	0.242	0.163	0.209	0.160	0.349	0.118	0.209	0.153	0.104

Table 12: This table presents results from panel OLS regressions of global rigidity (*yRigidity*) on contract characteristics, political contestability variables, and controls described in Table 2 for the subsample of public contracts, with the addition of contract duration. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: + 15%, * 10%, ** 5% and *** 1%.

Dependent variable:	Model 1	Model 2	Model 3	Model 4
		yRigidity		
Renewed	-3.433	-3.908	-3.760	-3.402
	(2.836)	(2.788)	(2.835)	(2.876)
Duration	0.063	0.065	0.075	0.065
	(0.081)	(0.085)	(0.081)	(0.080)
Provision_of_Services	-16.502***	-16.348***	-16.103***	-16.577***
	(2.569)	(2.581)	(2.576)	(2.545)
Concession	-0.930	-0.698	-1.337	-1.207
	(2.512)	(2.419)	(2.540)	(2.462)
Inhabitants	0.558	-0.403	1.223	1.485
	(1.138)	(1.270)	(1.116)	(1.025)
Left_Wing	1.166	0.203	1.609	1.047
	(3.708)	(3.880)	(3.798)	(3.732)
Right_Wing	2.170	2.082	1.051	1.606
	(2.648)	(2.621)	(2.675)	(2.742)
Trend	0.677*	0.606*	0.749**	0.706**
	(0.364)	(0.355)	(0.361)	(0.350)
Political Contestability Variables				
HHI	-14.740*	.	.	.
	(8.808)	.	.	.
Residual_HHI	.	19.152+	.	.
	.	(11.942)	.	.
Number_of_Lists	.	2.124***	.	.
	.	(0.667)	.	.
Win_Margin	.	.	0.223*	.
	.	.	(0.121)	.
Win_Margin^2	.	.	-0.004***	.
	.	.	(0.001)	.
Distance	.	.	.	-1.189
	.	.	.	(1.783)
Year dummies	yes	yes	yes	yes
Constant	-1,346.365*	-1,219.573*	-1,505.917**	-1,412.949**
	(733.372)	(712.904)	(727.465)	(695.429)
N	331	331	331	331
r^2	0.256	0.266	0.259	0.248

Table 13: This table presents results from panel OLS regressions of average number of amendements (*AverageAmendements*) on contract characteristics and controls described in Table 2. Controls include year fixed effects. Clustered standard errors (at the regional level) are in parentheses. Levels of significance: $^{+}$ 15%, * 10%, ** 5% and *** 1%.

Dependant Variable	Model 1	Model 2
	AverageAmendments	
Public	0.084*	0.090*
	(0.046)	(0.053)
Renewed	-0.116**	-0.122**
	(0.045)	(0.053)
Duration	-0.010***	-0.010***
	(0.002)	(0.002)
Provision_of_Services	0.078**	0.093**
	(0.037)	(0.041)
Concession	-0.046	.
	(0.044)	.
Inhabitants	-0.010	0.010
	(0.013)	(0.014)
Left_Wing	-0.022	-0.047
	(0.049)	(0.071)
Right_Wing	0.035	0.019
	(0.065)	(0.071)
Trend	-0.028***	-0.021***
	(0.008)	(0.003)
Year dummies	yes	Yes
Constant	55.423***	42.531***
	(15.421)	(6.871)
N	436	339
r^2	0.224	0.245

Table 14: This table presents pairwise correlations of our independent variables and controls used in the empirical analysis.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. *Public*										
2. *zTotRigid*	0.132									
3. *zRigidTermination*	0.049	0.523								
4. *zRigidArbitrage*	0.115	0.741	0.227							
5. *zRigidPenalties*	0.244	0.695	0.284	0.442						
6. *zRigidCertification*	0.006	0.688	0.258	0.509	0.339					
7. *zRigidEvaluation*	0.042	0.802	0.284	0.576	0.464	0.506				
8. *zRigidLitigation*	0.159	0.694	0.169	0.434	0.460	0.420	0.507			
9. *zRigidContingencies*	0.090	0.476	0.099	0.294	0.289	0.244	0.267	0.281		
10. *Renewed*	-0.004	-0.064	-0.075	0.009	-0.125	0.050	0.022	-0.085	-0.126	
11. *Inhabitants*	-0.191	0.099	0.039	0.055	0.153	0.045	0.040	0.098	0.132	-0.201
12. *AverageAmendments*	0.032	-0.040	-0.024	-0.057	-0.027	-0.024	-0.052	-0.006	-0.025	-0.170
13. *left_Wing*	-0.059	0.031	-0.017	-0.001	0.208	-0.029	-0.061	0.048	0.089	-0.128
14. *Right_Wing*	-0.030	0.179	0.155	0.162	0.024	0.186	0.196	0.066	-0.069	0.078
15. *Trend*	-0.174	0.106	0.034	0.200	-0.062	0.097	0.254	0.016	-0.147	0.329
16. *HHI*	0.133	-0.134	-0.042	-0.123	-0.130	-0.061	-0.115	-0.132	-0.061	0.109
17. *Residual_HHI*	0.100	0.058	0.048	-0.003	0.088	0.065	-0.048	0.025	0.092	0.040
18. *Number_of_Lists*	-0.253	0.131	0.007	0.148	0.148	0.050	0.156	0.112	0.033	-0.024
19. *Win_Margin*	0.049	0.040	0.036	0.054	-0.026	-0.007	0.078	0.002	0.069	0.029
20. *Win_Margin^2*	0.043	-0.034	0.003	0.005	-0.063	-0.048	0.003	-0.063	0.018	0.009
21. *Distance*	0.026	-0.028	0.051	-0.062	-0.044	0.018	-0.084	-0.023	0.010	-0.147

	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
12. *AverageAmendments*	-0.093									
13. *left_Wing*	0.386	-0.066								
14. *Right_Wing*	-0.114	-0.001	-0.198							
15. *Trend*	-0.324	-0.072	-0.109	0.395						
16. *HHI*	-0.656	0.091	-0.195	0.014	0.101					
17. *Residual_HHI*	-0.212	-0.011	0.115	-0.007	-0.230	0.299				
18. *Number_of_Lists*	0.846	-0.124	0.398	-0.001	0.380	-0.693	-0.566			
19. *Win_Margin*	-0.197	0.011	-0.168	0.134	0.125	0.629	-0.324	-0.311		
20. *Win_Margin^2*	-0.219	0.044	-0.125	0.069	0.123	0.688	-0.414	-0.310	0.900	
21. *Distance*	-0.039	0.081	-0.064	-0.072	-0.203	0.034	0.084	-0.098	-0.059	-0.043

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