Judicial delay and relational discretion in public procurement: evidence from Italian data

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Abstract

Public procurement regulations often limit public officials' discretion concerning the choice of contractors, with the aim of ensuring impartiality and curbing corruption. Although formally denied relational contracting, public contractors can use more discretionary award procedures to partially replicate the mechanism and ensure contractual fulfillment. This paper empirically investigates the effect of judicial effectiveness - in its timing dimension - on the use of discretionary adjudication procedures in public procurement using data from Italian municipalities for the period 2009-2012. It exploits a spatial discontinuity design using contracts issued by municipalities at the borders (following Mattera, Menon, and Decarolis (2023)), finding a negative causal relationship between judicial delay and the use of discretionary procedures. It is conjectured that the negative effect is a consequence of the legal tools, such as penalties, that regulation allows public contractors to self-enforce a contract. In this case, an ineffective judiciary acts as a further defense from suppliers' legal challenges.

1 Introduction

Relational contracting[1] ensures contractual execution when third-party enforcers (e.g. courts or arbiters) are unavailable, such as when quality is nonverifiable or, notably here, when courts are ineffective.[2] Spot contracts based on auctions and relational contracts can, therefore, be seen as

1. Types of transactions sustained by the value of future exchanges, where the threat of termination incentivizes contractual fulfillment. These types of relationships are also called *self-enforcing* (Klein (1996)) while the term 'relational' comes from Macneil (1977).

2. See, e.g. Brown, Falk, and Fehr (2004) and Johnson, McMillan, and Woodruff (2002). A similar argument in institutional analysis distinguishes between personal and impersonal markets, see e.g. North (1991). Note that the absence of effective judicial enforcement exacerbates the enforcement costs for contracts where quality is verifiable, too.

opposite poles in the selection of suppliers (Taylor and Wiggins (1997)). In public procurement, however, the choice of suppliers is regulated in many countries, leaving limited space for reputation, let alone for relational contracting (Spagnolo (2012)). The aim of such regulation is to curb corruption and ensure impartiality.[3] While open tendering is often the standard award procedure, there often are exceptions where public contractors can restrict the number of bidders or even adopt (regulated) private negotiations. In these circumstances, public officials can partially replicate the relational/reputational trait that characterizes much of private contracting, for instance by restricting bids to firms that performed well in the past (see Calzolari and Spagnolo (2017)) or selecting them for private negotiations (e.g. Bafundi et al. (2023)). However, legitimate contractual relationships can turn into favoritism and corruption (Lambsdorff and Teksoz (2004)) and there is evidence that discretionary awarding procedures often emerge among the red flags for corruption (see e.g., Fazekas and Kocsis (2020); Decarolis and Giorgiantonio (2022)).

This paper studies whether the effectiveness of the judiciary affects public contractors' choices to select suppliers through auctions or private negotiations.[4] A key dimension of effectiveness, in particular, is the time employed to solve disputes, reducing uncertainties and therefore opportunistic behaviors (Marciano, Melcarne, and Ramello (2019)). As such, a straightforward prediction is a positive relationship between courts' effectiveness and relational contracts, and therefore private negotiations, as it happens in private contracting. However, as will be further discussed in paragraph 6, regulations often introduce special incentives that can flip the relationship. Indeed, as for the Italian case (see paragraph 3), public authorities might be granted "self-protection" tools to enforce a contract or push toward execution. Two such tools are the retainment of the cautionary guarantees and the imposition of penalties (Mattera, Menon, and Decarolis (2023)). Armed with these legal tools, public contractors rarely turn to the courts, regardless of their effectiveness. In turn, suppliers can challenge the applications of penalties before the judge, and the resolution speed will affect their propensity to dispute (Mattera, Menon, and Decarolis (2023)). Consequently, an ineffective judiciary may act as a further defense for public authorities, making relational contracts less useful.

To test this hypothesis, this paper uses data on public contracts issued by Italian municipalities between 2009 and 2012, for a range of contracts where public officials are given discretion in choosing between formal auctions and private negotiations. The identification strategy builds on a spatial discontinuity design, exploiting a sharp and exogenous change in courts' effectiveness, and comparing contracts issued by municipalities at the border of different jurisdictions. This strategy has been applied in general for the study of Italian firms' size by Giacomelli and Menon (2017) and for public procurement outcomes, such as delays and cost overruns, by Mattera, Menon, and Decarolis (2023). Results confirm the hypothesis of a negative relationship between judicial delay and the likelihood of choosing a negotiated procedure, with a magnitude of about 3-4 p.p.

3. See Bosio et al. (2022) for a cross-country analysis of the rules and practices across the world concerning the degree of discretion allowed to public officials

4. For judicial effectiveness it is meant here the "*ability of a judicial system to match the demands of justice*", a concept that should be distinguished from judicial efficiency (although much of the literature uses the terms interchangeably) which instead points to the usual concept of efficient allocation of scarce means (Marciano, Melcarne, and Ramello (2019)).

2 Literature review

This paper contributes to three streams of literature, namely - from broad to narrow - to (i) the economic choice between auctions and negotiations, (ii) the choice of contractual governance mechanisms in the presence of weak enforcement, and (iii) the impact of judicial effectiveness on economic behavior in a public procurement context.

The economics of contracts supplies the background for the study. In particular, a wide literature has examined both the choice between auctions and negotiation and the types of supply strategies in dynamic contexts. Here are reported the main results. The main prediction in a single transaction context is that complex objects should be purchased through negotiations, which ensure a better *ex-ante* exchange of information[5] and better-fit cost-plus contracts[6], whereas low-complexity, whereas open auctions are apt for low-complexity goods where *ex-post* adaptation costs are less likely to emerge (Bajari and Tadelis (2001)).[7] This preposition gained support in several empirical applications, notably in public procurement contexts (Baldi et al. (2016); Guccio, Pignataro, and Rizzo (2012)).

In a dynamic context, relational contracting becomes relevant. Taylor and Wiggins (1997) see spot contracts based on auctions and relational long-term contracts as opposite poles in the selection of suppliers. Tunca and Zenios (2006) model shows that indeed price-based auctions are used for low-quality objects and relational long-term contracts for high-quality objects. Public procurement differs from private contracting because relational contracts are formally denied. However, the possibility of banning underperforming suppliers from future bids can be seen as a punishment belonging to the relational contracting sphere (Calzolari and Spagnolo (2017)).[8] Indeed, there is empirical evidence that public authorities (in Italy) subject to contractual incompleteness make use of negotiations or restricted auctions to repetitively select trusted firms, incentivizing the execution of the obligations. Bafundi et al. (2023) empirically studies how Italian municipalities respond to severe weather events (a source of contractual incompleteness) through relational contracting employing discretional awarding procedures. In addition, Bajari, McMillan, and Tadelis (2009) empirically verify that public buyers in the U.S. using negotiations are more likely to select more experienced buyers, as for complex projects reputation might make up for restricting competition.

Conceptually, non-contractibility is unrelated to judicial effectiveness. The first concept relates to the fact that some provisions are not verifiable ex-post by any external enforcer, while the latter relates to the "*ability of a judicial system to match the demands of justice*" (Marciano, Melcarne, and Ramello (2019)). In an economic sense, however, they might pose similar threats to an exchange, as the parties should find self-enforcing solutions. Relational contracts can provide such a solution in both cases. Indeed, literature has consistently associated relational contracts with economies characterized by dysfunctional justice, both theoretically and empirically. For instance, Johnson,

5. an issue underlined by Goldberg (1977)

6. Allowing adaptation to transaction costs, Bajari and Tadelis (2001)

7. Other important contributions are Spulber (1990) highlighting the importance of contract enforcement on bidding behavior, where imperfect enforcement leads to adverse selection; Manelli and Vincent (1995), who showed that negotiations (which they model as sequential bidding mechanisms) are better suited for situations where quality is prominent.

8. Albano, Cesi, and Iozzi (2017) reach similar conclusions with a slightly different punishment mechanism, namely the possibility to discriminate underperforming firms in future bids.

McMillan, and Woodruff (2002) evidences the role of effective courts in post-communist countries as enablers of new relationships; Brown, Falk, and Fehr (2004) formally shows that long-term trade relationships emerge in the absence of third-parties enforcement mechanisms, while spot transactions emerge where enforcement is available. Notably, Popa (2019) tests the idea in the public procurement field. He finds evidence that different European countries show different patterns of relational contracting, in terms of repeated interaction and geographical distance between the firm and the public contractor, and that this difference maps directly into the quality of governance index. He concludes that relational contracting in public procurement is related to general enforcement quality.

Only three papers instead directly test hypotheses of the effects of judicial effectiveness[9] on public procurement, although focusing on outcomes such as costs and time overruns. All three focus on the Italian case. The first contribution came from D'Alpaos et al. (2013), who developed a theoretical model linking execution delay to the volatility of production costs and the speed of courts in resolving disputes. In detail, they find that firms opt to delay the execution the higher the volatility of production costs and, notably, the lower the "efficiency" of the judicial system, confirming these results with panel data. Similar results are obtained by Coviello et al. (2018), again with panel data in Italy. The results obtained by Coviello et al. (2018) add some refinements: first, they find a positive effect on judicial delay on contractual delay (as D'Alpaos et al. (2013), results); second, they find this effect to be non-linear and decreasing with courts' delay; third, such effect is exacerbated by project complexity; fourth, they find joint-stock companies more likely to be awarded contracts in less effective courts; fifth, there is a positive association between trial delay and final payment, suggesting that contractual authorities attempt to deter delay with larger payments as external enforcement gets weaker. Finally, Mattera, Menon, and Decarolis (2023) implementing the spatial discontinuity design this paper borrows, find a non-linear relationship between contractual and court delay using quantile regressions. More in detail, they find slower courts reducing delay in the lowest two deciles, while increasing them in the top three deciles. They explain the different effects through the different incentives that private firms have in challenging contractual penalties in court. Indeed, since penalties are often proportional to delays, timing execution is relatively preferable to low levels of delay (and penalties), while delay and challenge become attractive for high levels of delay (and penalties). This paper contributes to this last strand of literature directly by examining the same effect (judicial delay), with a similar technique (spatial discontinuity) but on a different outcome, namely the use of discretionary award procedures. The side effect is to connect the empirical literature on courts' effectiveness in public procurement to the broader analysis of institutional effects on the organization of exchange, although with important caveats coming from the public nature of one of the contractors.

9. Though they refer to it as judicial *efficiency*

3 The institutional framework

The Italian law regulating public works in place for the period 2009-2012[10] considered open and restricted sealed-bid auctions as the standard procedures for the choice of the contractor. The public administration carries out a technical estimate of the value of the project, which is the maximum price it is willing to pay for its realization, and asks private operators to rebate it (then a trimming procedure is in place to eliminate unusually low offers). In open-sealed-bid auctions, every firm qualified for the object at stake can submit an offer, while in restricted auctions the public administration fixes a maximum number of accepted offers, following a pre-qualification stage.

However, the law allows for the use of more flexible and cheaper procedures within some monetary thresholds or provided that certain extraordinary circumstances are verified. Notably, projects whose value ranges between 100 and 500 thousand Euros can be assigned through private negotiation (negotiated procedure) after a comparison of at least five offers. Such a procedure entails a restriction of the firms invited to negotiations and a private negotiation on contractual terms. A 2011 reform[11] extended the range of values for which the use of a negotiated procedure is available to 1 million, though raising the number of offers to be compared from 5 to 10 for the 500 thousand-1 million euros range. We keep only contracts in the 100-500 thousand euros range in order to keep the sample as coherent as possible in terms of incentives.

Concerning the organization of justice, in the period under consideration (2009-2012) the Italian peninsula was divided into 165 first-instance districts with territorial jurisdictions that mostly resemble, but do not entirely match, the provincial-level geography.[12] Since my sample only includes regions without special autonomy, the number of judicial districts is reduced to 133 Notably, the geographical conformation of the Italian justice merely reflects "historical legacy and institutional inertia", while the centralization of the resource allocation coupled with geographical differences in litigation rates make the distribution of the ability of courts substantially random (Mattera, Menon, and Decarolis (2023)). However, a macro geographical distinction can be made between the center-north and the south of the country, where proceeding takes longer (on average 60%), although intra-regional differences are significant (Giacomelli and Menon (2017)).

Notably, contractual disputes are allocated based on the geographical location of the defendant, unless parties agree otherwise. However, as argued by Mattera, Menon, and Decarolis (2023), it is highly unlikely that both public contractors opt for a different tribunal, and, most notably, that they start a dispute. In fact, they almost always act as a defendant since the regulation of public contracts gives public authorities three legal tools to stimulate the contractor to the fulfillment of the obligation. These are (i) the retainment of the cautionary guarantees that contractors are obliged to deposit; (ii) the possibility of delaying installments' payment; (iii) the imposition of penalties on the last installment linked to delays in the execution (Mattera, Menon, and Decarolis (2023)). At the same time, such tools act as a form of self-enforcement, making courts much less appealing to public authorities. Since private firms may have incentives to challenge the penalties in court,

10. Legislative Decree 163/2006, modified in 2008 (legislative decree 152/2008) and 2011 (law decree 70/2011)
11. Law decree 70/2011
12. A 2011 reform (Law 148/2011) has reduced the number of judicial districts to 140, although its application started in 2013, thus not affecting the 2009-2012 period (see also Melcarne and Ramello (2020))

therefore, public authorities will usually act as defendants, therefore the competent court at the territorial level will almost always be the one to which the municipality belongs (Mattera, Menon, and Decarolis (2023)).

4 Data

The dataset includes public procurements of works issued between 2009 and 2012 by Italian municipalities, coupled with data on the activity of Italian courts spanning from 2006 to 2012. Public procurement data comes from the ANAC dataset (the Italian anti-corruption authority) and includes, for each project, some variables related to pre-assignment features and some to contract outcomes. Municipalities belonging to regions with special autonomy[13] are excluded, to avoid any possible differences in fine-grained regulation.

This paper focuses on contracts ranging from 100 to 500 thousand euros since they are subject to the same regulation (see section 3) and they are relatively comparable. Among the variables provided by ANAC, the following variables have been used as controls: the total value of the project, the municipality that is issuing it, the publication date, the type of procedure used for the choice of the contractor, and the criteria of assignment (lower price or most economically advantageous offer), and the type of work (CPV code). The choice of the period and range can limit the external validity of the study since low-complexity projects can be overrepresented. However, the reform of the territorial jurisdictions (in force since 2013) and the public contracts regulation allowing discretion since 2009 and only for the range included here, restrict the possible choice. A 2011 reform extended the range over which discretion is possible to 1 million, however, the short period of time (May 2011-end of 2012) limits the number of contracts in the range 500 thousand – 1 million euros to 1291, of which only 153 are suitable for the spatial discontinuity design explained below, so they are not retained for the analysis.

Moreover, public procurement data have been coupled with data supplied by the Ministry of Justice on civil justice cases, computing the delay at the tribunal level with the judicial delay, a frequently used index in the literature studying the effectiveness of the courts (CEPEJ, 2014; see Marciano, Melcarne, and Ramello (2019) for a discussion). Judicial delay is computed as:

$$JD_{i,t} = \frac{pending\ cases_{i,t-1} + pending\ cases_{i,t}}{incoming\ cases_{i,t} + solved\ cases_{i,t}} \tag{1}$$

Since there is little theoretical guidance on the timeframe for the application at stake, three versions of JD were computed for the analysis: (i) the average over the entire period of study (2009-2012); (ii) the mobile mean computed over the three years before the year of the publication of the tender (or negotiation); (iii) the publication year.

13. Trentino-Alto-Adige, Friuli-Venezia-Giulia, Val d'Aosta, Sicilia, Sardegna.

Table 1: Data summary

Variable	Obs	Mean	Std. dev.	Min	Max
Discretion	16,735	0.687	0.464	0	1
Judicial delay (mean 2009-2012)	16,735	2.860	0.828	1.050	5.659
Judicial delay (mean 3 years before publication)	16,735	2.669	0.747	1.055	5.455
Judicial delay (publication year)	16,735	2.849	0.873	0.830	8.455
Most eco. adv.	8,587	0.098	0.297	0	1
Population (municipality)	16,735	286512.700	755139.800	30	2617175
Altitude	16,735	252.099	265.957	0	2035
Local Capital	16,735	0.229	0.420	0	1
Voter turnout	16,735	0.752	0.078	0.216	1
Corruption	16,735	0.832	0.207	0	1
Project value	16,735	238661.400	110339.400	100000.1	499999.8

5 Empirical analysis

5.1 Spatial discontinuity design

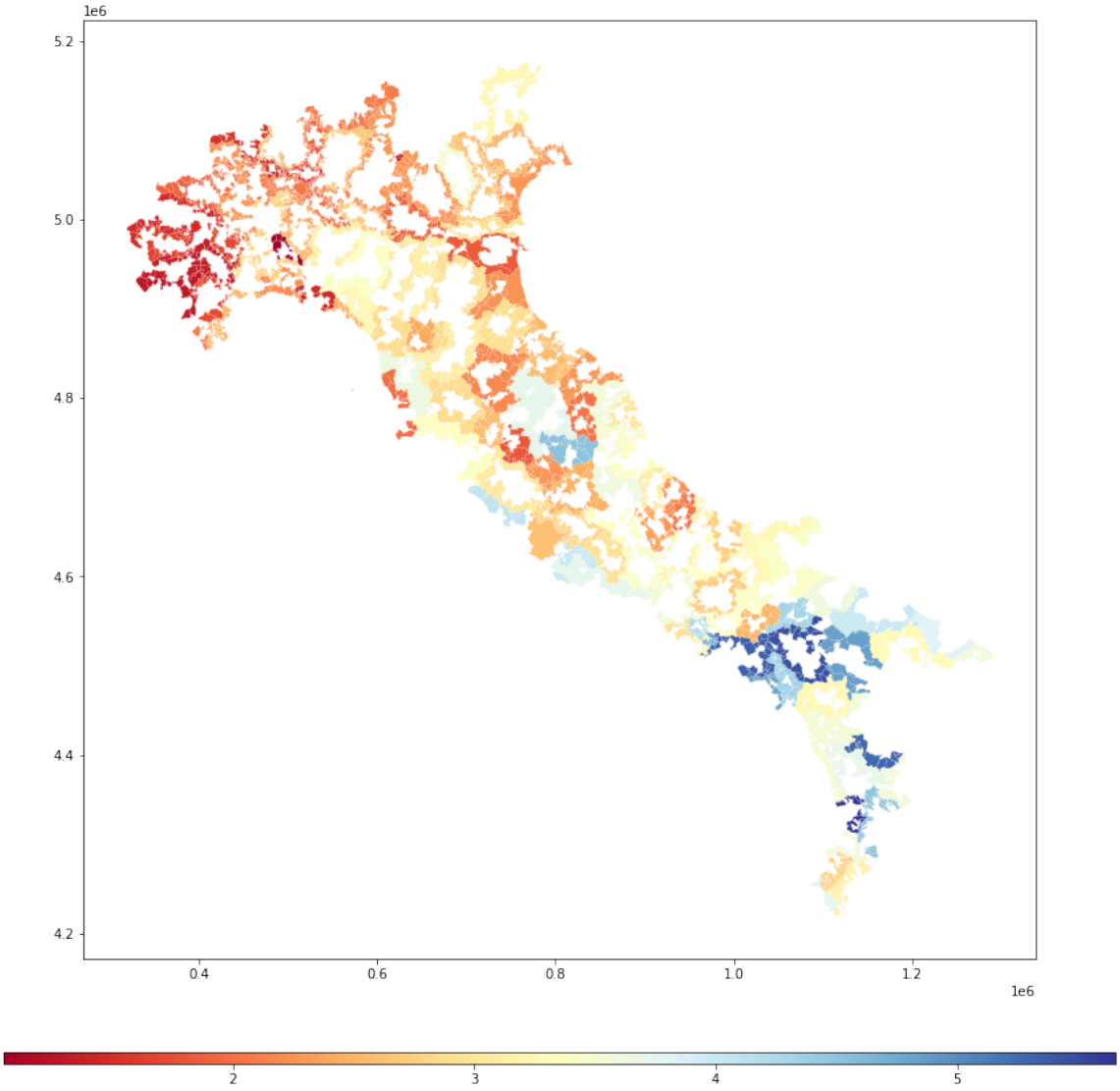
The analysis here employs a spatial discontinuity design (Duranton, Gobillon, and Overman (2011)) as introduced for the analysis of justice in Italy byGiacomelli and Menon (2017) and applied in the context of public procurement by Mattera, Menon, and Decarolis (2023). In more detail, this embodies the use of contracts issued by municipalities that lie on jurisdictional borders only and augmenting the econometric models with borders' dummies to mean-differentiating the variables. This methodology relies on two assumptions to provide unbiased estimates. These assumptions ensure that potential outcomes are the same at both ends of the spatial cutoff and are: (1) that judicial delay changes discretely at the border; (2) the other variables change smoothly (Mattera, Menon, and Decarolis (2023)). The first assumption is satisfied by the institutional framework described above; while Giacomelli and Menon (2017) provide an empirical demonstration that the second assumption is satisfied for the Italian case. A third, implicit, assumption common to all RDDs is that sorting is not possible, in this case meaning that relocating on the most favorable side of the border is not feasible, an assumption that is satisfied by the fact that we are using municipalities.

Municipalities at the border are identified following Giacomelli and Menon (2017), although with a slight variation in the results reported in Table 2. Indeed, Giacomelli and Menon (2017), as well as Mattera, Menon, and Decarolis (2023) assign municipalities to the borders they lie on while minimizing the distance between the centroids of the municipality and of the jurisdictions when multiple borders are available. Moreover, their sample comprises inter-regional borders, an inclusion that could however contradict the second assumption of the spatial discontinuity design. Indeed, although the Italian law provides a unique regulation for public contracts, and although disincen-

tivizing local modifications, regions could - and have in the past (see Decarolis and Giorgiantonio (2015)) - implement local regulations adapting to local circumstances. Furthermore, other regional differences external to public procurement can interact with individual behavior. Mattera, Menon, and Decarolis (2023) adjust for these differences including regional and contracting firms (they focus on contractual outcomes such as delays and cost overruns) dummies to control for unobserved heterogeneity.[14] This paper adjusts for possible heterogeneity by, instead, only making use of intra-regional borders – i.e. contracts issued by municipalities that lie on jurisdictional borders inside the same region. Therefore, whenever a municipality lies on multiple borders, the intra-regional border has been preferred to the inter-regional one, if possible (still minimizing the distance between centroids), discarding them otherwise. Results are reported in Table 2. These adjustments should ensure a stronger reliability on the credibility of spatial discontinuity design. Results with the whole sample (including inter-regional borders with regional dummies) are however reported in Table 3, too. The map below shows the average JD for the period considered in the whole sample. Fig. 1.A. shows the map with the average discretion in the period considered.

14. Jurisdictional borders can overlap with provincial borders, too. However, as explained by Mattera, Menon, and Decarolis (2023), provinces have little impact on public procurement.

Figure 1: Average judicial delay (JD) over the considered period for municipalities in the sample.



5.2 Econometric implementation and results

For the econometric implementation, different specifications of the following Linear Probability Model are used,[15] controlling for unobserved heterogeneity at the border, regional, and time levels:

$$Negotiated_{i,m,j,t} = \alpha + \beta JD_{j,t} + \gamma X_i + \lambda M_{m,t} + \delta_b + v_r + y_t + u_{i,m,j,t} \quad (2)$$

Here, contract i is awarded by municipal administration m in jurisdiction j at time t. The

15. Baldi et al. (2016) also use OLS to estimate the binary choice between the use of negotiated procedure and open auctions since they mostly have binary variables as covariates and a small share of predicted values fall outside [0-1].

dependent variable equals 1 if the municipality has used a negotiated procedure instead of a formal auction (open or restricted). Judicial delay (JD) is the variable of interest, computed as detailed above. The inclusion of border dummies δ_b implements the spatial discontinuity identification; v_r/p are regional fixed effects; y_t are year (of publication) dummies. $X_{i,t}$ includes control variables at the contract level, including a second-degree polynomial in project value, a set of dummies for the 4 digits CPVs denoting project sector,[16]and in some specifications the criteria used in the adjudication procedure (most economically advantageous or lower price). M_m, t includes controls for municipalities' characteristics: population, altitude, and whether the municipality is a local capital. Furthermore, it includes a variable accounting for corruption[17] and voter turnout in the election before publication at the municipal level to account for social capital through general political participation.

In both Table 2 and 3 specifications 1-3 do not control for the use of the most advantageous criteria for the choice of the winning offer, while specifications 4-6 do account for that. The award criteria are indeed chosen together with the selection method (auction/negotiation) and bear high explanatory power. However, it may be argued that it is itself a consequence of judicial delay, as for sure it is not its cause. Moreover, its inclusion as a control reduces the sample by about 50%, as not all municipalities report all the data, possibly introducing selection biases in the analysis.

Table 2 makes use of contracts issued by municipalities at intraregional borders only, meaning that borders whose sides are in different regions are discarded, as well as borders that do not have at least 5 contracts on both sides. Judicial delay appears negatively correlated with the use of discretion and is significant in four specifications out of six, namely when it is measured as the mean through the all period in consideration (2009-2012) and as a mobile mean of the three years preceding the publication year. However, when the award criteria are not controlled for (1-3), JD is significant at the 5 and 10 (respectively measured as mean and mobile mean) percent level.

In Table 3 all borders with at least 5 contracts per side are used, including those that also serve as regional borders. As illustrated above, there might be regional distinctions in the use of discretion, given by regulations or simply by habits, so the first assumption of the spatial discontinuity identification might not be entirely satisfied. However, as argued above, the bias is not expected to be as high to entirely endanger the analysis. In this case, the results are similar to those reported in Table 2, but significant levels are higher in all specifications, including when JD is measured at the publication year level (however, only at the 10% level in these).

Overall, there appears to be a negative correlation between judicial delay and the use of discretion, as the likelihood of a negotiated procedure instead of a formal auction is reduced by about 3-6 p.p., depending on whether we control for the award criteria or not.

16. Common Procurement Vocabulary following the classification of the European Union.
17. at the base year 2009

Table 2: Results of LPM regressions on the use of discretion in the award of public procurement works in 2009-2012. Columns 4-6 also control for the use of the most economically advantageous criteria in the award procedure. All specifications control for the jurisdiction border, the region, the publication year, and the 4-digit work type. Only intra-regional borders are used. Borders having less than 5 contracts on either side are discarded (8 borders in total). Errors are clustered at the municipality level.

Dep: discretion (1 = negotiated procedure, 0 = auctions)	(1)	(2)	(3)	(4)	(5)	(6)
Judicial delay (mean 2009-2012)	-0.038**			-0.064***		
	(0.017)			(0.021)		
*Judicial delay (mean 3 years before publication)		-0.034*			-0.056***	
		(0.018)			(0.021)	
Judicial delay (publication year)			-0.018			-0.023
			(0.013)			(0.017)
Population (municipality)	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Population (jurisdiction)	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Altitude	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Provincial capital	-0.007	-0.006	-0.005	-0.036	-0.034	-0.032
	(0.034)	(0.034)	(0.033)	(0.039)	(0.039)	(0.039)
Turnout	0.133	0.130	0.118	0.253*	0.248*	0.234*
	(0.108)	(0.108)	(0.107)	(0.138)	(0.138)	(0.138)
Corruption	0.175	0.168	0.148	0.274	0.248	0.209
	(0.145)	(0.145)	(0.143)	(0.171)	(0.171)	(0.172)
Monetary value	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Monetary value_sq	0.000***	0.000***	0.000***	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Most Economically Advantageous				-0.134***	-0.134***	-0.133***
				(0.035)	(0.034)	(0.034)
Border	x	x	x	x	x	x
Region	x	x	x	x	x	x
Year	x	x	x	x	x	x
Work type	x	x	x	x	x	x
Constant	0.563***	0.547***	0.536***	0.550***	0.548***	0.500**
	(0.152)	(0.152)	(0.152)	(0.192)	(0.196)	(0.196)
Observations	14,040	14,040	14,040	7,351	7,351	7,351
R-squared	0.302	0.302	0.302	0.324	0.324	0.323
N_clust (municipalities)	2052	2052	2052	1520	1520	1520
N_border	180	180	180	180	180	180

Robust standard errors in parentheses

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

Table 3: Results of LPM regressions on the use of discretion in the award of public procurement works in 2009-2012. Columns 4-6 also control for the use of the most economically advantageous criteria in the award procedure. All specifications control for the jurisdiction border, the region, the publication year, and the 4-digit work type. Borders are computed following Giacomelli and Menon, 2016. Borders having less than 5 contracts on either side are discarded (21 borders in total). Errors are clustered at the municipality level.

Dep: discretion (1 = negotiated procedure, 0 = auctions)	(1)	(2)	(3)	(4)	(5)	(6)
Judicial delay (mean 2009-2012)	-0.036**			-0.064***		
	(0.016)			(0.020)		
2*Judicial delay (mean 3 years before publication)		-0.034**			-0.054***	
		(0.016)			(0.019)	
Judicial delay (publication year)			-0.021*			-0.027*
			(0.012)			(0.016)
Population (municipality)	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Population (jurisdiction)	0.000	0.000*	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Altitude	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Provincial capital	-0.021	-0.020	-0.020	-0.059	-0.057	-0.056
	(0.031)	(0.031)	(0.031)	(0.037)	(0.037)	(0.037)
Turnout	0.088	0.087	0.079	0.171	0.163	0.158
	(0.093)	(0.093)	(0.093)	(0.124)	(0.123)	(0.124)
Corruption	0.209	0.206	0.188	0.269	0.245	0.210
	(0.140)	(0.141)	(0.139)	(0.168)	(0.169)	(0.168)
Monetary value	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Monetary value_sq	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Most Economically Advantageous				-0.136***	-0.135***	-0.135***
				(0.032)	(0.031)	(0.032)
Border	x	x	x	x	x	x
Region	x	x	x	x	x	x
Year	x	x	x	x	x	x
Work type	x	x	x	x	x	x
Constant	0.833***	0.815***	0.805***	0.922***	0.909***	0.855***
	(0.171)	(0.171)	(0.171)	(0.223)	(0.227)	(0.226)
Observations	16,735	16,735	16,735	8,587	8,587	8,587
R-squared	0.294	0.294	0.294	0.327	0.326	0.325
N_clust (municipalities)	2598	2598	2598	1904	1904	1904
N_border	258	258	258	258	258	258

Robust standard errors in parentheses

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

6 Discussion

The analysis above, based on spatial discontinuity design, shows a negative relationship between judicial delay and the likelihood that Italian municipalities use discretionary adjudication procedures to award contracts. The magnitude of such relationship ranges from about 3 to 4 p.p. in the preferred specifications.

In part, the sign of this estimation is somewhat surprising considering the theoretical previsions. On the one hand, institutional economists stressed the importance of court enforcement for the creation of impersonal markets, while linking relational contracting to the context of weak external enforcement, with findings in public procurement supporting it (Popa (2019). On the other hand, the literature has shown that discretionary procedures can be used as punishment strategies by forbidding underperforming suppliers from future bids, installing relational contracts strategies, both theoretically (e.g. Calzolari and Spagnolo (2017) and empirically (Bafundi et al. (2023)). As such, a straightforward hypothesis would be that public contractors make use of discretional procedures more when courts are ineffective, whereas the speed of dispute resolution is a fundamental element of effectiveness (see Marciano, Melcarne, and Ramello (2019)).

However, the peculiar regulation that characterizes public procurement primarily shapes the incentives and might end up flipping the relationship. The self-application of legally granted contractual rights, namely the retainment of the cautionary deposits or the imposition of penalties to the last installment payments, acts as an enforcement tool that public contractors can impose on their suppliers in case of missed or delayed execution. In general, public contractors do not ordinarily need courts to enforce contracts (Mattera, Menon, and Decarolis (2023)). As such, this paper conjectures that a possible explanation for the negative relationship is that ineffective courts protect public contractors from potential disputes that may arise from the application of contractual self-enforcement tools. For these reasons, municipalities need less relational contracting whereas courts are slow, not more, and thus make less use of discretional procedures.

Note that this interpretation to some extent contrasts with the model of Coviello et al. (2018), which shows that longer disputes can sway away contracting authorities from enforcing penalties. In their model, contracting authorities cannot credibly commit to defend themselves in court, since they have a higher cost than their private counterparts, so they opt out of enforcing penalties. A crucial point in their model is that the probability of recovering the penalty depends on the probability that suppliers lead the judge to reverse the status quo, thus committing a type 1 error.[18] This probability depends on the complexity of the project, which in their empirical analysis, as well as in mine, is accounted for with the type of work dummies. Mattera, Menon, and Decarolis (2023) offers a possible explanation of these seemingly contrasting views. Notably, Mattera, Menon, and Decarolis (2023) results refine D'Alpaos et al. (2013) and Coviello et al. (2018) suggesting a non-linear relationship between court delay and contractual delay. In more detail, they find a negative relationship for low levels of execution delay and a positive one for high execution delays. The results obtained here point towards the negative relationship (judicial delay dissuading from strategic delay),

18. In their analysis delays are related to strategic decisions of the firms to allocate productive capacity, and not to external contingencies that happened during execution.

disincentivizing disputes by private parties. Admittedly, it might be possible that the analysis here exposed focuses on the first part of the delay distribution since we are using contracts between 100 and 500 thousand euros for the reasons explained above (namely it is the only possible range due to regulation reasons), which might overrepresent low complexity projects. This could limit the external validity of the study, although it supports the non-linear relationship found in Mattera, Menon, and Decarolis (2023).

Interestingly, Coviello et al. (2018) also find that where courts are slow: (a) public authorities pay relatively more, and (b) joint-stock companies are more likely to win. These points are consistent with our results, as firms may require monetary incentives to make up for the higher difficulty of challenging penalties in courts, and joint-stock companies are usually larger and more likely to point towards impersonal markets, rather than relational-based exchanges.

7 Conclusions

Relational contracts are governance mechanisms that emerge in contexts characterized by ineffective third-party contract enforcement. In public procurement, restricting bids to suppliers who performed well in the past is a suitable self-enforcing mechanism that replicates relational contracting (Calzolari and Spagnolo (2017)). This paper empirically investigates the relationship between courts' effectiveness – as the ability to rapidly solve disputes – on the likelihood that public authorities choose private negotiations instead of auctions when given the chance. We use data on contracts from Italian municipalities in the period 2009-2012, exploiting a spatial discontinuity design (following Mattera, Menon, and Decarolis (2023)). The estimations show a 3% reduction in the likelihood of choosing private negotiations instead of auctions for an increase of one year in judicial delay. This result, which seems counterintuitive at first, is interpreted with the nuanced incentives created by regulation. Indeed, public contractors are given legal tools to self-enforce contracts, while private counterparts can challenge their applications in courts. Therefore, the courts' delay in this case acts as a barrier to challenge, making relational contracting less appealing for public authorities, as they do not usually need courts. If this interpretation is accepted, regulation flips the sign of the expected relationship. Concerning the reach of these results, however, two considerations appear necessary. Firstly, the Italian context is particularly apt for testing this causal relationship as jurisdictions show random effectiveness and do not reflect (entirely) other significative administrative borders. Unfortunately, however, Italy is also characterized by relatively high regulation (Bosio et al. (2022)) and relatively low levels of court effectiveness, if compared with countries with the same levels of development. Moreover, the timing of the reforms changing the jurisdictions and the limited range for discretion allowed by the Italian regulation of public contracts might cause low-complexity projects to be overrepresented in the sample. This could limit the external validity of the study. However, this also underlines the importance of refining the analyses and the models. Indeed, the interactions between complexity, court effectiveness, and "relational" discretion are still overlooked.

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APPENDIX

Figure 1.A: Average discretion (negotiated procedure = 1, formal auction = 0) over the period for municipalities in the sample.