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Three essays on the institutions of public procurement

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Abstract

This dissertation includes three essays analyzing different aspects of public procurement. The first essay reviews the economic literature starting from an institutional framework that blends the contractual issues and the political and institutional environment. Particular attention is devoted to surveying the empirical evidence related to transaction costs and the role of discretion in the choice of private counterparts, governance issues related to corrupt exchanges, political capture of public procurement, and its mechanisms with particular regard to control of the bureaucracy. It is stressed that the same institutional setting jointly determines the transaction costs faced by the public-to-private transaction and the hidden corrupt exchange. The role of discretionary powers related to the selection mechanism of the suppliers in public procurement is then discussed in light of the evidence.

The second and third essays are twin studies of the institutional determinants of the choice between auctions and negotiations or, framed differently, whether to exercise discretion or not if given. Both share the same background focusing on two interrelated trade-offs: auctions versus negotiations, and discretion versus rules. On the one hand, auctions provide cost incentives but are ill-suited for *ex-post* adaptations, whereas negotiations provide more flexibility and allow for better screening of possible suppliers. On the other hand, auctions are believed to be less susceptible to corruption and favoritism than negotiations, precisely because of the lower discretion in the initial screening. Both chapters exploit empirical designs apt at estimating causal relationships using data from contracts issued by Italian municipalities.

In detail, the second chapter examines the role of civil justice effectiveness – the ability of civil courts to provide timely dispute resolution – on the choice between auctions and negotiations. Indeed, negotiations allow for the introduction of relational elements in a dynamic supply strategy, whereas auctions do not. However, the peculiar regulation of public procurement equips contracting authorities with tools to self-enforce contracts, among which is imposing penalties for delays. The empirical strategy is based on a spatial-discontinuity design, refined by coarsened-exact-matching. The estimations showcase a 3% to 7% reduction in the likelihood of choosing private negotiations for an increase of one year in judicial delay. It is argued that regulation flips the sign of the expected relationship: ineffective courts act as a further contractual defense for public administrations.

Finally, the third chapter investigates the role of political competition in the choice between auctions and negotiations. Indeed, political competition is theoretically supposed to either (a) reduce corruption, and (b) increase defensive behaviors to preempt possible probity challenges. Either way, the expected relationship is a reduced likelihood of using negotiated procedures in favor of more auctions. The analysis is split into two parts. The first part shows no significant correlation between the

outcome of interest and political competition, measured through indexes broadly used in literature. The second part exploits the entry of a political party with anti-establishment and probity-based political positions, thus raising the level of political competition. The staggered timeframe of local elections allows the estimation of the average treatment effect on the treated. Estimation is done with nearest-neighbor and coarsened-exact matching, showcasing a reduced likelihood of using negotiated procedures ranging from 4% to 9%. The sign therefore confirms the initial hypothesis, although it is not possible to discern which of the two theoretical interpretations lies behind the results.

Contents

1 The institutional structure of public procurement: a framework and review

Abstract

This chapter provides a review of the economic literature concerning public procurement from an institutional economics perspective. It firstly provides a framework sketching the main elements of public procurement, by framing it as an intersection between private and public ordering issues. Then, it reviews the evidence on those issues, starting from the internal – i.e. contractual – to the external – i.e. institutional – layers. The first part of the review covers academic papers related to (i) contractual issues, (ii) their relationship with the degree of discretion set by regulation, (iii) additional transaction costs coming from external parties, and (iv) governance issues related to corrupt exchanges. The second part examines the institutional context, and in particular related to the political sphere, distinguishing papers that investigate the effects of political competition on corruption/favoritism, from those examining the transmission mechanisms, with particular attention to bureaucracy. Lastly, a discussion of the interrelationships among the various elements concludes. It (a) emphasizes that the institutional context both explains the diversity of empirical results and the efficacy of discretion regulation, and (b) highlights potentially overlooked areas in the literature.

1.1 Introduction

Public procurement (PP) constitutes a significant and growing portion of countries' GDP. For OECD countries, the share increased from 11.8% in 2008 to 12.6% in 2019, before the pandemic. The efficient procurement of goods, services, and infrastructure by central and local governments worldwide is critical for the well-being of citizens and represents a major component of public spending. Additionally, its role becomes even more critical during emergencies, such as pandemics or recovery from natural disasters. Notably, public procurement is subject to regulation across the globe, primarily aimed at ensuring impartiality and competition.[1] Such regulation however introduces contractual constraints that are at odds with the private way of doing business, as firms are free to choose their suppliers as well as the mechanism of selection itself. Many observers have discussed the implications of such "red tape" on the efficiency of the procurement process, arguing for a systematic loosening of the rules (Kelman, 1990). A growing literature in economics has been investigating the trade-off between discretion and rules, with mixed empirical results. A recent contribution that made waves is Bosio et al. (2022), which will be discussed in detail below. The paper emphasizes the pivotal role of public sector capacity in influencing outcomes, whether positive or negative. This contribution is significant as it urges observers to consider the overarching context surrounding procurement, rather than fixating on individual rules. Nevertheless, it only tangentially touches the institutional setting. The argument presented here asserts that although the institutional context has received attention in academic discourse, numerous specific institutional mechanisms still lack thorough exploration. Taking a broader perspective, this discussion proposes viewing PP as a unique intersection where private and public orderings converge.[2] An intriguing theoretical approach combining the two is offered by Spiller (2008) and Moszoro and Spiller (2012), which examine how political mechanisms influence the design of regulatory regimes and governance choices in public-to-private exchanges, notably stiffening them.

This approach will be further analyzed in a dedicated paragraph below. However, it is discussed here, in alignment with a growing body of literature, that the implications of the institutional setting go beyond this, providing insights into the empirical results concerning the discretion/rules trade-off. Consequently, the primary objective of this work is to create a framework for the in-depth analysis of these mechanisms and to offer a comprehensive review of the existing literature from this perspective. The review starts with an exploration of internal layers, closer to the transaction, extending toward external institutional elements. Ultimately, it suggests that while the economic analysis of individual procurement rules remains crucial, a better understanding of the political-judicial-bureaucratic context is indispensable

Few literature reviews in the field exist, with two notable contributions from Fazekas and Blum (2021) and Fazekas et al. (2016a). Fazekas and Blum (2021) is a comprehensive review published by

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[1]For the European case, e.g., the Directive 2014/24/EU, on PP recalls the principles of "*equal treatment, non-discrimination, mutual recognition, proportionality and transparency*", ideas that are mirrored in the literature of *open access orders* (North et al., 2009), *universalistic governance regimes* (Mungiu-Pippidi, 2015), see Fazekas and Blum (2021). In addition, the concept relates to the literature on crony capitalism. See Klein et al. (2022) for a recent discussion, where the authors support minimal government as a cure. However, the extent of PP - or in other words, which infrastructures or services should the government be entitled to procure - is not investigated here.

[2]The distinction draws from Williamson (2005), where public ordering loosely refers to public choice (Buchanan, 1987) and private ordering to transaction costs economics (Williamson, 1985).

the World Bank of academic and policy papers in the field of PP and leans on empirical evidence with the main aim of evaluating policy improvements. The reviewed papers are organized following the focus of policy interventions and the phases of the procurement stage. However, they also include two paragraphs on the role of the political setting and civil society. Fazekas et al. (2016a) is a review of PP research that has the goal of detecting corruption from data. However, it also develops a useful framework for identifying the phases and actors for spotting corruption, dividing risk indicators into the broad categories of (i) tender; (ii) contracting bodies; (ii) suppliers; and (iii) political connections. Although there are inevitable overlaps in the reviewed papers, this contribution bears a fundamental novelty given by its approach based on transaction costs and new institutional economics analysis.

Furthermore, this contribution does not extensively explore the political economy of public investments – the underlying reasons behind PP exchanges. For an illustrative example, refer to Glaeser and Ponzetto (2018), which specifically examines transportation infrastructures. It is noteworthy that almost all the literature reviewed below tends to bypass this aspect, delving directly into contractual data. Fortunately, scholars acknowledge this limitation in their analyses of efficiency or corruption, as Decarolis puts forward:

> "*despite the best efforts to monitor both the awarding and execution stages, we might be missing the elephant in the room: corruption in the early stages of the administrative (or political) decision to purchase a certain type of good/service/infrastructure. Even if both awarding and execution stages are impeccable, the very existence of a public contract might be the result of initial corruption involving the choice of using public funds for this contract instead of something else*" (Tátrai and Decarolis, 2020, p. 125).

A final note to pinpoint a methodological distinction in PP analyses. Some scholars directly study PP and its specific aspects, concentrating on efficiency (often narrowly defined as cost and time overruns), governance, and/or the risks of favoritism and corruption. In contrast, another group of scholars views PP not as the final destination, as in the first strand, but as a pathway to studying corruption more broadly. Metaphorically, PP serves them as the road taken rather than the ultimate destination. In any case, both strands end up in this review as long as they directly focus on PP and/or illuminate some institutional aspects needed to better understand PP. When needed, the distinction will be pinpointed along the way.

The paper is structured as follows: in paragraph 1.2, the fundamental components of public-to-private transactions are presented, and organized from internal to external layers. Moving on to paragraph 1.3, the focus shifts to the internal layers, specifically examining transaction costs related to the purely economic aspects of public-to-private exchanges (1.3.1), the regulatory trade-off concerning the role of discretion (1.3.2), transaction costs exerted by third parties (1.3.3), and the governance issues associated with corrupt exchanges (1.3.4). Paragraph 4 then takes a broader perspective, delving into the effects of the political and bureaucratic on PP, starting from the main relationships (1.4.1) to the specific mechanisms (1.4.2). Paragraph 1.5 discusses the evidence presented by the literature and links the main elements. Specifically, it emphasizes how institutional factors influence the discretion/rules trade-off and examines how their effects feed back into the internal layers.

1.2 Dissecting the public-to-private transaction: an institutional framework

This paragraph delineates the main elements of the public-to-private contract by outlining key relationships and emphasizing feedback loops. For each element, the primary citations from the literature are presented here, while a comprehensive literature review is offered in the following sections.

1. Similar to private-to-private transactions, public-to-private transactions are susceptible to both *ex-ante* incentive alignment issues and *ex-post* adaptation challenges. This is the realm of private ordering, influenced by considerations such as the potential for hold-up, non-verifiability, and adverse selection/moral hazard, while institutional elements largely operate in the background. Regarding governance mechanisms, the pivotal decision between auctions and private negotiations for selecting private contractors is highlighted (Bajari and Tadelis, 2001). However, the freedom to choose depends on the regulatory frameworks, as discussed in the following point (Kelman, 1990). Among the institutional elements, the effectiveness of civil courts[3] holds potential significance, influencing governance mechanisms (Popa, 2019) and outcomes through strategic behaviors, such as execution delays (Mattera et al., 2023).

2. Public-to-private transactions are typically subject to varying degrees of regulation in all of their phases, although there might be discrepancies between law and practice (Bosio et al., 2022). Regulatory frameworks are designed to prevent embezzlement, favoritism, and corruption, aiming to uphold values such as impartiality and competition, often constitutionally protected. However, a tension arises between these values and the ability to address contractual issues through private governance, as sketched out in point 1. The primary trade-off revolves around the discretion granted to public officials, particularly concerning the selection of contractors (Kelman, 1990). For instance, while relational contracting could address non-verifiability issues, regulatory constraints often limit its application, and establishing effective reputation mechanisms proves challenging through regulation alone. One potential solution involves restricting the pool of potential contractors through mechanisms like restricted auctions or private negotiations (Calzolari and Spagnolo, 2017). Regulatory choices often involve limiting the use of these award procedures to specific circumstances (e.g., particular services) or contracts below a defined monetary value. The two selection mechanisms differ in terms of incentives and susceptibility to manipulation. Finally, the transparency of decision-making processes and contractual outcomes is a crucial factor that can influence the discussed trade-off.

3. It may serve as the 'collateral contract' of a covert agreement, or even an appendix to a broader hidden master agreement, namely a corrupt exchange that is unenforceable by official third parties (Vannucci and della Porta, 1999). Such arrangements often emerge from ostensibly legal relationships or within a social context characterized by shared social norms (Lambsdorff and Teksoz, 2004). When such dealings become regular occurrences, stable governance mechanisms become imperative due to the lack of external enforceability of the underlying

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[3]The ability of judicial systems to meet the demand of the citizens, on this see Marciano et al. (2019)

agreements. The presence of powerful entities – such as stable and unchecked political parties – or criminal organizations can contribute to a stable environment conducive to the execution of corrupt exchanges (Vannucci, 2015). The transparency of politicians' income and relationships becomes particularly relevant in this context, as bribes frequently manifest in the form of private consultancy services or supplies through affiliated firms, which involve legal relationships.

4. On one hand, external checks, including citizens, political opponents, justices, market competitors, and the media, play a role in shaping the likelihood of rent extraction. On the other hand, they may instill fear of probity challenges, leading to higher transaction costs (Spiller, 2008), increased contractual rigidity (Moszoro and Spiller, 2012), and the adoption of defensive behaviors (Beuve et al., 2019). In extreme cases, external checks can also influence the quality of politicians and bureaucrats, impacting the overall efficiency of the procurement process (Estache and Foucart, 2018). The underlying reason for these mechanisms lies in the challenge of distinguishing between corrupt and non-corrupt outcomes. For example, if a buyer exercises discretion in the selection of a reputable supplier, the occurrence of negative contingencies could give rise to misinterpretations, exacerbated by the opportunism of third parties (Spiller, 2008). Both the institutions regulating the political sphere, namely constitutional rules, and the particular way in which the "political game" is played – such as the degree of competition and tolerance among political parties – importantly shape the effectiveness and efficiency of these external checks.

5. Finally, PP is carried out by public officials, who operate under varying degrees of control or influence from political actors. In this context, three institutional factors play a crucial role: the mechanism for selecting public officials, the overall competence of public administration (Hjort et al., 2023; Rasul and Rogger, 2018; Decarolis et al., 2020b), and, relatedly, the degree of centralization in procurement decisions. Regarding the first aspect, the key concern is whether the appointment of public officials responsible for executing PP allows for spoiling systems or other possibly merit-based mechanisms. Concerning the second aspect, the selection and training mechanisms for public employees in general become significant.

1.3 The main trade-off: rules vs discretion

The regulatory framework in public procurement (PP) is designed to prevent embezzlement, favoritism, and corruption, safeguarding constitutionally protected values such as impartiality and competition. The predominant economic paradigm for studying corruption recognizes the pivotal role of discretionary powers within a principal-agent framework. In the words of Banfield (1975): "*in acting on behalf of his principal the agent must exercise some discretion, the wider the range (measured in terms of effects on the principal's interest) among which he may choose, the broader his discretion*" (Banfield, 1975, p. 587). The literature on the trade-off between rules and discretion

in PP dates back at least to the nineties, with the notable contribution by Kelman (1990), who high-lighted how red tape regulation was limiting efficiency in the US. The field of contract economics provides insights into why discretion can be advantageous for enhancing public procurement (PP), particularly in the absence of effective external enforcement. Section 1.3.1 deals with contractual issues in PP, sketching the main theoretical results and providing a comprehensive empirical review. Section 1.3.2 goes into the empirical evidence of the trade-off, showing both the negative and the positive sides and broadly linking the results to the institutional context. Section 1.3.3 analyses a peculiar transaction cost that comes from the public nature of PP, caused by external actors, still in a comprehensive manner. Section 1.3.4 introduces a transaction cost argument related not to PP, but to corrupt exchanges, notably because (a) they are possibly related to PP transactions, and (b) because they take place and are influenced by the same institutional factors as PP transactions.

1.3.1 Private ordering: why discretion might be beneficial

Discretion might be related to various aspects of procurement, such as the direct choice of the supplier, the choice of the mechanisms to select suppliers, and detailed choices on the contractual clauses. This section mostly deals with the choice of the mechanism of selection, as it appears to be prominent in literature and the policy debate. Extensive literature, rooted in auction theory, incentive design, incomplete contracts, transaction cost economics, and relational contracting, has indeed explored the decision-making between auctions and negotiations, as well as the various supply strategies in dynamic contexts. The following highlights the principal theoretical and empirical findings concerning public procurement and the associated trade-offs. In a single transaction context, the main prediction is that complex objects better suit negotiations, which ensure a better *ex-ante* exchange of information (Goldberg, 1977) and better fits cost-plus contracts[4], whereas open auctions are apt for low-complexity goods where *ex-post* adaptation costs are less likely to emerge (Bajari and Tadelis, 2001). Other important contributions are: Spulber (1990), highlighting the importance of contract enforcement on bidding behavior, whereas 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. In a dynamic context, relational contracting and reputational effects also become relevant, as argued by Spagnolo (2012) and Picci (2006). Useful here is the distinction made by Taylor and Wiggins (1997), which sees spot contracts based on auctions and relational long-term contracts as opposite poles in the selection of suppliers. Corts (2012) extends the arguments of Bajari and Tadelis (2001) to the case of repeated interaction accommodating relational elements. Motivated by empirical observations that repeated interactions feature more cost-plus contracts than fixed-price ones, they model the interaction between an implicit relational contract and repeated explicit contracts. They show that repeated cost-plus contracts better balance the incentives between deviation opportunities and the future value of the relationship. Tunca and Zenios (2006) model shows that indeed price-based auctions are used for low-quality objects, while relational long-term contracts are preferred for

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[4]Allowing adaptation to transaction costs, Bajari and Tadelis (2001)

high-quality objects. Notably, PP differs from private contracting because relational contracts are formally denied. However, the possibility of restricting bids based on past performances can be seen as a punishment belonging to the relational contracting sphere (Calzolari and Spagnolo, 2017). In a similar spirit, Albano et al. (2017) reaches similar conclusions with a slightly different punishment mechanism, namely the possibility of discriminating against underperforming firms in future bids.

The empirical evidence on private ordering issues is abundant. First-price auctions have been shown to suffer from the "winner's curse" leading to frequent renegotiations. Decarolis (2014) exploits the different timing of introduction of first-price auctions in Italy to investigate the effects on award price and contractual performances. In detail, he finds that first-price auctions lead to lower awarding prices, on the one hand, but also to an increased probability of renegotiations, on the other hand, leading to the loss of half of the cost savings. Guccio et al. (2012) investigate the drivers of adaptation costs in the Italian context, finding complexity as a significant driver, as well as the awarding procedure (open auctions are more renegotiated) and underbidding (measured as the ratio of the bid to project value), suggesting the presence of opportunistic behaviors in the bidding stage. However, renegotiations are not entirely unforeseen: Bajari et al. (2014) analyzes the effect of expected adaptation costs on the bids of highway constructors in the Californian public sector, with structural modeling estimation. They find that bidders strategically react to foreseen adaptation costs by increasing their bids. The role of complexity as a determinant of the choice between auctions and negotiations is also confirmed by Baldi et al. (2016), who find that Italian municipalities use more discretionary award procedures, such as negotiated procedures, to purchase more complex objects. However, negotiations (which are usually associated with cost-plus contracts, following Bajari and Tadelis (2001)) do not seem alone to entirely solve the contractual issues: Brunjes (2018) analyze how US federal contractors make use of different incentives contractual structures, namely cost-reimbursement, fixed-price, and time-and-materials. Their results are compatible with the predictions of the theoretical transaction costs literature. Notably, however, in their findings cost-reimbursement contracts, which are correlated with high transaction costs, are more likely to be terminated early, meaning that they place a high risk on the public side. The quality and governance of the initial project are also obvious candidates for *ex-post* renegotiations. Decarolis and Palumbo (2015) investigates the determinants of cost and time renegotiations in Italian PP, finding that (a) they are uncorrelated, and (b) assigning both design and execution in combination leads to shorter time delays, but greater cost renegotiations. Cavalieri et al. (2019) find that the presence of external designers negatively influences the magnitude of cost and time renegotiations, again with Italian data.

Most importantly, there is evidence that discretion is used to infuse transactions with relational/reputational elements. Bajari et al. (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. Bafundi et al. (2023) finds that Italian municipalities affected by severe weather events are more likely to subsequently adopt discretionary award procedures. In addition, they find that when such procedures end up awarding firms that have already worked with the municipality in the past, time overruns are less likely. They interpret this result with a model in which municipalities use discretionary procedures to reward firms for past perfor-

mances by allowing them to bid, somewhat in line with Calzolari and Spagnolo (2017). Corts (2012) empirically analyzes the trade-off between fixed price and cost-plus contracts in repeated interaction settings, in particular in the offshore drilling industry. They find that procurers increasingly choose cost-plus contracts as same-supplier relationships develop. Domingos et al. (2023) analyzes the effect of the combination of award mechanism and contract complexity on contract renegotiation issues – namely sentiment (with sentiment analysis on renegotiation texts scraped from notices), time to renegotiation, and change in contract outcomes – with EU data. Results show that the use of discretion in contract award (combining both the open/restricted procedure type and the award criteria -lower price or most economically advantageous offer) is associated with (a) more positive sentiments toward renegotiation, but is softened by contract complexity; (b) higher time to renegotiation, again soften by contract complexity; (c) higher percentage change in contract value. These results are interpreted with theoretical arguments highlighting the positive side of renegotiations as adaptation (Beuve and Saussier, 2021b,a), and the benefits of discretion in allowing relational contracting. Finally, they made the point that, although complexity seems to impose difficulties on relational contracting – the opposite of what is expected in literature, although in line with Brunjes (2018) – that could reflect the rigidities and formalities of the renegotiation procedures. Unfortunately, none of the papers examined above takes *ex-ante* administrative costs into due consideration, although of course running auctions and negotiating greatly differ under this aspect. Chever et al. (2017) analyzes a paradox often observed in the auction versus negotiation practice: negotiations are often used for small value contracts, although theory suggests their use for complex objects. They use data from a French public social house provider, finding that negotiations are used to save *ex-ante* transaction costs in combination with the restriction of bids to high-reputation suppliers. They interpret their results by analogy to hybrid organizations in the TCE tradition. In their view, open auctions can be seen as the opposite pole to single-firm negotiations: on the one hand, auctions provide competitive incentives but face high *ex-ante* administrative costs that are not justified by economic reasons, as the marginal benefit of receiving one more bid is decreasing. On the other hand, single-firm negotiations feature lower *ex-ante* costs (in particular for low-complexity contracts) but at the detriment of competitive incentives on the price. Note that the latter also theoretically allows better *ex-post* adaptation, but the authors here are analyzing small contracts that likely encompass low complexity. In this framework, restricted auctions or negotiations with more than one firm represent intermediate situations, allowing cost-savings in the *ex-ante* evaluation phase and some adaptation *ex-post*.

Much of the literature above focused on the case of non-verifiable quality, an intrinsic contractual feature that has been associated with contract complexity and whose consequence is the unavailability of third-party enforcement. Notably, weak institutional environments characterized by ineffective judiciaries pose similar threats, possibly extended to the case of simple contracts, and that call for similar remedies based on personal relationships and reputation. As for the theory, institutional economists have long since noted the importance of impartial judiciaries[5] for the historical development of impersonal and competitive markets, as opposed to relational market interactions (North, 1991; Brown et al., 2004), and the historical role of group reputation in overcoming institutional

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[5]And abstinence of the government from business intervention

shortages of enforcement (Greif et al., 1994; Greif, 2002). The role of courts as effective enforcers is not however relegated to historical analyses, as it is still relevant for market development, as evidenced for instance in post-communist countries (Johnson et al., 2002) and developed democracies as well (see Marciano et al. (2019) for a discussion). Most importantly, there is emerging evidence that PP might follow the same logic as private business: relational contracts make up for weak external enforcement.

Popa (2019) tests the idea in the PP field with ML tools. 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 PP is related to general enforcement quality. Balaeva et al. (2022) discusses the results of an online survey of procurers and contractors in Russia, highlighting that a commonly used strategy, based on choosing the contractors before running an auction – most of them ending in single-bidding outcomes– is determined by the necessity to ensure timely and adequate-quality performances. Grodeland (2005) shows with the support of interviews and case studies, that cultural habits of doing business through relational contracting – with specific reference to PP – carried on in the then-newly entered countries in the EU Bulgaria, Czech Republic, Romania, and Slovenia, despite the introduction of specific laws and institutional reforms. Keeping the focus on post-communist countries, Emelianova et al. (2022), studies the effect of generalized trust, as a feature of social capital indicating the trust towards new suppliers, through surveys of PP officials in Russia and Slovakia.[6] They find that generalized trust increases the perceived efficiency of PP, but only where the practice of predetermining the supplier is not widespread. Moreover, in Slovakia, the positive effect holds when courts and renegotiations are both perceived to be efficient means of resolving disputes. Therefore, generalized trust acts as a complement to strong institutions. On the contrary, in Russia, the effect is positive where courts are perceived to be inefficient and, therefore, generalized trust might act as a substitute for weak institutions.[7]

There is also evidence that the effectiveness of courts plays a role in the incentives of private contractors to delay the execution of public works, raising *ex-post* costs. Coviello et al. (2018b) investigates the effects of civil courts' effectiveness (in terms of providing timely dispute resolution) on the opportunistic behavior of firms in delaying contract execution with Italian data. In particular, they find that slower courts lead to higher delays because sanctions are costlier for contracting authorities. Moreover, they find that (i) project complexity exacerbates the relationship, (ii) notably, larger companies (joint-stock) are more likely to win contracts where courts are slower, and (iii) final payments are proportionally larger where courts are slower. The latter points in particular may suggest that contracting authorities attempt to ensure contractual performance through the selection of more reputable firms, and payments. Similar results in the same context are obtained by D'Alpaos et al. (2013), which finds that delays are greater where judicial enforcement is slower

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[6]The role of social capital in economic development stems from the work of Banfield Edward (1958). Among other recent works, Guiso et al. (2004) finds that higher social capital and trust results in higher use of financial instruments, and, notably here, the effect is stronger where legal enforcement is weaker.

[7]For a comprehensive literature review focusing on the role of social capital in PP the interested reader is addressed to EL Bizri et al. (2023), broadly finding that social capital improves both the tendering phase and the execution phase, notably easing both negotiation and adaptation.

(and when production costs are more volatile). A more subtle result is obtained by Mattera et al. (2023). They again investigate the effect of courts' efficiency on delays with Italian data, but exploit a border-discontinuity empirical design along with quantile regressions, finding a non-linear relationship between contractual and court delay. 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 proportional to delays, a timely execution is relatively preferable to low levels of delay (and penalties), while delay and challenge become attractive for high levels of delay (and penalties).

Finally, an alternative to relational contracting in PP could be the introduction of rating systems based on suppliers' past performances, as suggested by Picci (2006) and Spagnolo (2012). There is indeed the first evidence that such a system – that retains the benefits of repeated interaction and possibly combines them with those of impersonal markets – could benefit the public. Notably, this mechanism can work in combination with an objective auction mechanism, therefore limiting discretionary procedures. Andreyanov et al. (2023) analyzes the introduction of a reputation index (computed through quality audits) into scoring rules auctions (which they call vendor rating system) by an Italian utility provider using a descriptive and reduced form model, and through a structural model. They find that private firms increased their reputation in the pre-implementation period and, notably, the vendor rating system has not resulted in higher prices for the public buyer, contrary to what was expected, since bids were supposed to be correlated with quality. They motivate this result through a model showing that such a scoring rule has the possible effect of raising price competition by equalizing low-cost/low-quality firms to the high-cost/high-quality ones. Moreover, comparing the quality of the utility provider with other external non-treated providers (through a diff-in-diff, note though there is anticipation in the treatment) they find that the quality (measured with data from the Italian regulator) of the treated utility raised considerably. They conclude that the vendor rating system raised both the surplus of the consumers and the profits of the utility provider, to the detriment of the private contractors. Indeed, ironically, the system was first dismissed and then relaxed following legal complaints from them. This conclusion highlights the importance of overall public governance for the design of efficient public procurement markets, a point that will be discussed further in the discussion below.

1.3.2 The trade-off: empirical evidence

The preceding paragraph suggested that discretion enhances overall contractual efficiency by enabling better supplier selection. However, empirical evidence on the trade-off between discretion and rules yields mixed results, contingent upon the country under analysis, the measured outcome, and the employed empirical strategy. A significant portion of the literature has concentrated on the award procedure, examining the ability to restrict bidding in auctions or engage in private negotiations with selected suppliers. There is comparatively less emphasis on the award criteria, which involves deciding whether to evaluate bidders or negotiators based solely on price or a combination of price and offered quality, often with a scoring mechanism.

On one hand, the risks associated with discretion are evident, as it opens the door to favoritism or corruption, especially when external checks are weak. The first segment of the empirical literature identified here employs econometric techniques along with firm-level indexes/proxies for gauging lack of transparency, potential corruption, or political connections, often leveraging regulatory thresholds. It's important to note that these studies differ from those examining the risks of discretionary procedures discussed in the subsequent paragraph. Although these two strands of literature are closely related and, in some sense, complementary, the analyses in this section generally attribute outcomes related to favoritism or corruption to discretionary procedures, while the studies in the paragraph below focus on political indicators explaining the use of discretion or certain procurement outcomes.

Baltrunaite et al. (2021) exploits a reform increasing the threshold for the use of discretionary award procedures in Italy with diff-in-diff, finding a deterioration of the selection outcomes, namely an increase in the probability that a politically connected firm is awarded the contract, and a decrease in ex-ante labor productivity. Decarolis et al. (2020a) analyzes confidential data on investigated firms and public officials in Italy, finding that (a) discretionary procedures coupled with low competition (fewer bids than required) are more likely to award contracts to investigated firms; (b) investigated officials make more use of discretionary procedures; (c) procurement administrations with investigated officials make more use of formal auctions (low discretionary procedures). They interpret their results under a standard delegation model, where central monitors limit discretion to hinder investigated public officers and suggest that competition is a strong tool for stripping the risks out of discretion and enjoying its benefits. Adani et al. (2016) empirically investigates the effect of the award criteria on favoritism, finding that scoring rules are more likely to lead to incumbents winning contracts' awards. Palguta and Pertold (2017) analyzes manipulation of project value to investigate the effect of discretionary award procedures in the Czech Republic. It finds that increased discretion leads to a higher probability that nontransparent firms (with anonymous owners) are awarded contracts. Celis Galvez et al. (2023) studies the effects of two reforms changing discretionary thresholds in the Czech Republic through bunching estimators and regression discontinuity designs. Notably, they also collect data on political connections and donations. They find that (i) changes in the thresholds cause manipulation of the contract value to shift from the old to the new threshold; (ii) limiting discretion lowers awarding prices while increasing it does not influence them; notably (iii) the gains in prices due to limited discretion are not extended to politically connected firms. Titl and Geys (2019) analyzes the effects of political donations on the value of procurement contracts of donating firms in the Czech Republic, finding a positive relationship. Moreover, they investigate the award mechanisms that lead to such results, highlighting that donating firms are awarded smaller contracts with discretionary procedures and face reduced competition in open auctions. In a related contribution, however, Baranek and Titl (2020) primarily attempts to measure the cost of political favoritism in PP with data from the Czech Republic.[8] Nevertheless, they also investigate the channels of favoritism, finding that discretion is not the main mechanism of contract allocation, although reduced competition (as the number of bidders) is associated with contracts awarded to

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[8]In detail, they find that contracts awarded to politically connected firms show higher final prices (8% over estimated cost), suggesting that connections not only increase the award of contracts but also at a greater profit.

connected firms. This suggests that a main channel could be the initial specific tailoring of technical prerequisites in open auctions. Similar results are obtained by Baltrunaite (2020),[9] which exploits a reform that banned corporate contributions in Lithuania, finding a drop in the likelihood of donors' winning probability. [10] Szucs (2023) uses a combination of structural model and bunching-estimator to investigate the effect of increased discretion at a threshold with data from Hungary. Results evidence that discretion leads to higher award prices, *ex-ante* less productive contractors, and a higher probability that firms connected to the central government are awarded contracts. Ohashi (2009) analyzes the effect of reduced discretion – in the pre-qualification phase – following a Japanese reform through diff-in-diff estimators. It finds a reduction in government spending, possibly suggesting that the new rules broke possible connections between firms and public officials. Auriol et al. (2016) finds that Paraguayan contracting authorities use exceptional procedures (which allow higher discretion) linked to emergencies to award contracts to firms with long-standing contractual relationships and that such firms are more profitable than firms dealing with private sector counterparts. Notably, however, Hyytinen et al. (2007) does not find political *leaning* to influence the degree of discretion in Sweden. The paper studies the effect of political partisanship with data from Swedish municipality's cleaning services procurement. They do not find differences in the choices of whether to procure, or whether to restrict bidding (award procedure) among ruling parties. Subject to having restricted entry, however, they find an effect of political leaning on the number of invited bidders.

A second strand of literature explores the risks of discretionary procedures with machine learning tools, aiming at identifying corruption rather than understanding the effects of discretion. However, as pinpointed in the introduction, these overlapping strands of literature provide useful and complementary insight into specific PP issues. Notably, the use of discretionary award procedures or criteria is not, alone, a strong predictor of corruption. However, it bears explanatory power when accompanied by other variables and outcomes of the selection procedures, such as single bidding, a result that holds in many studies. A relatively recent review of this literature is offered in Fazekas et al. (2016a), so only the main results are reported here. Decarolis and Giorgiantonio (2022) uses ML classification techniques to spot corruption red flags with Italian data coming from anti-corruption authority (broadly used in literature) and, notably, data on suspected firms coming from the police (data also used in Decarolis et al. (2020a)). The contribution is also, therefore, acknowledging that corrupt agents adapt to new rules and external monitors, finding ways to avoid spotlights. Among the findings, they flag discretionary criteria – such as the most advantageous offer criteria – and procedures – such as negotiated procedures – when combined with an absent call for tender. Fazekas et al. (2016b) create a composite index of corruption in PP with Hungarian data, and show how this index maps into firms with higher contractual performances and profitability and greater connection to politicians or likelihood of being registered in tax heavens. Fazekas and Kocsis (2020) uses PP data from European countries to develop two objective proxies for corruption: single-bidding and a composite index including factors explaining single-bidding, such as the use of discretionary procedures, missing calls, extremely short submission period, etc. Such indexes are then compared with widely used corruption indicators based on perceptions, finding strong correlations.

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[9]Although not related with discretion.

[10]Notably, they also find that projects financed by the European Union appear to be less associated with favoritism.

As anticipated above, there is also some empirical evidence of discretion improving contractual outcomes – costs and delays – although limited to some countries. The following are econometric analyses similar to those examined above which show the other side of the coin, namely the positive effects of discretion. Carril et al. (2021) examines the regulation versus rules trade-off with US procurement data, exploiting manipulation of project values to escape regulatory thresholds, finding that (a) regulation discourages some purchases, and (b) discretion enhances contractual performances. Notably, the contribution suggests that the current threshold in the US is inefficiently low, as waste prevention is lower than compliance costs. Coviello et al. (2018a) uses regression-discontinuity to analyze Italian construction works (to avoid manipulation of project value), finding that higher discretion is linked to a higher likelihood of selecting a firm that has already worked with the awarding public authority but that this does not translate in a reduced quality of the contractual performance. Note that this may suggest the use of relational contracting. Finocchiaro Castro and Guccio (2021) and Finocchiaro Castro et al. (2022) exploit the same Italian reform exploited by Baltrunaite et al. (2021) finding positive effects of increased discretion (although small) on efficiency but limited to areas with higher social capital and trust in institutions. Spagnolo et al. (2022) analyzes manipulation of project value to investigate the effect of increased discretion in Italy, finding substantial differences between elected and appointed administrations, with the latter manipulating more than the former. As for the effects of "manipulation-induced-discretion", they find that it reduces delays and cost overruns, but has mixed effects on rebates.

The investigations above mostly use causal tools to examine the impact of discretion on specific outcomes in specific institutional contexts. However, there are also cross-country studies that, although partially renouncing causality, help understand the variety of the results. An important contribution comes from Bosio et al. (2022), which collects expert survey data from nearly all over the world and offers a possible way to reconcile the existing evidence. The paper shows a correlation between laws (heavier regulation limiting discretion by public officers) and practice (actual application of the laws), and a correlation between the latter and positive contractual outcomes (quality and corruption/favoritism), but not between laws and outcomes *per se*. They interpret this result by modeling PP as depending on public sector capacity, finding that regulation hinders efficiency when public sector capacity is high, while it enhances contractual outcomes for low-capacity public sectors. Notably, they model public sector capacity as the adherence of public officials to public welfare (modeling officials' objectives as weighted functions of public welfare and private gains) and measure it using education as a proxy. Their results therefore somewhat spotlight the competence of public buyers, analyzed in paragraph 4.2, rather than institutional factors. The quality of the institutions is instead directly analyzed by Chong et al. (2016), which exploits the adoption of a European directive reducing the scope of discretionary award procedures. Results highlight that: (a) high institutional quality[11] countries use more discretionary but also more transparent procedures – in terms of publication of calls for tenders or equivalent contract notice; (b) the law had a positive effect in terms of higher transparency in weaker institutional quality countries, while it had a limited effect in higher institutional quality countries. Consistent results are obtained by Nemec

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[11]Using the index developed in Charron et al. (2014) which encapsulates measures of corruption control, rule of law, citizens' voice and government effectiveness.

et al. (2023). They employ the World Bank's Worldwide Governance Indicators of Government Effectiveness and Control of Corruption to data on healthcare procurement in Central Eastern Europe, finding a positive correlation between the indexes and the cost-effectiveness of public contracts (in terms of award price over initial price estimations). In addition, it finds a positive correlation between the interactions of those indexes with variables accounting for the transparency of the procedures and cost-effectiveness, suggesting that discretion-related risks are mitigated where institutions are strong.

All the studies mentioned above explicitly focus on the matter of discretion, either addressing specific cause-effect relationships or comparing effects across diverse institutional settings and countries. However, it's important to note that none of these studies directly attempts to quantify the extent of corruption and inefficiency, which lies at the heart of the regulatory trade-off. Bandiera et al. (2009) provides an exception, as it aims at empirically measuring the extent of the waste due to corruption and due to inefficiency, with important policy consequences. It proposes a distinction between active and passive waste, the former relating to behaviors entailing utility for the public decision-makers (including favoritism, clientelism, corruption, and the like) while the latter referring to inefficiencies. They then explore a policy experiment in Italy, comparing purchases through a national procurement agency with autonomous purchases with a two-step estimation procedure: (i) pre-reform prices are regressed against public bodies' fixed effects; (ii) the probability of buying from the centralized agency is regressed on so computed fixed effects. The positive sign of the coefficient in (ii) shows that higher payers are more likely to switch to central procurement to enjoy cost savings, whereas a negative sign would have signaled the presence of active waste. With the help of a structural model, then, the authors find passive waste accounting for almost 83 percent of the total estimated waste, crucially depending on governance structure (whether the public bodies are municipalities or independent agencies). They conclude that potential resource misallocation depends on the level of competence and transparency of the public purchasers.

1.3.3   Third-parties opportunism and external checks

Paragraph 1.3.1 has provided a comprehensive review of substantial evidence on transaction costs within the public procurement (PP) context. This evidence underscores the pivotal role of discretion in supplier selection and decision-making processes related to governance mechanisms. It highlights the importance of allowing adaptability *ex-post* while structuring governance mechanisms that incentivize performance. Additionally, the paragraph sheds light on why overly restrictive regulations, intended to curb undue behaviors, may prove detrimental to contractual governance. However, it is crucial to note that the focus of the evidence presented above centered on transaction costs inherent in contractual relationships *tout-court*, applicable to both public-to-private and private-to-private transactions alike. More recently, a growing body of literature has started to identify transaction costs specific to public-to-private transactions, arising from the political context. Spiller (2008) labeled this effect *third-party opportunism*, and lays out a relatively simple but powerful idea: probity-related challenges that arise in the political and civic spheres add contractual constraints in PP.

In detail, Spiller (2008) posits that both public and private entities encounter additional threats stemming from the opportunism of political competitors, citizen organizations, the media, or other private parties. These entities may raise suspicions of corruption or favoritism, or even attempt to obstruct projects to protect their interests. Consequently, public contractors are incentivized to adhere more rigorously to bureaucratic procedures, aiming to preempt potential probity challenges from political competitors. Moreover, both public and private counterparts tend to specify more contingencies as a preventive measure against external incursions. As a consequence, public-to-private contracts exhibit greater rigidity compared to their private-to-private counterparts, providing less room for mutual adaptation. Moszoro and Spiller (2012) demonstrates how the interplay between the probability of successful challenges and the level of political competition influences the behavior of political opponents and, consequently, the rigidity of public contracts. Notably, the results indicate that a more concentrated political environment raises the prize of the challenges, thereby increasing their likelihood.

The theory started gaining empirical support, too. Moszoro et al. (2016) uses textual-analysis contract data from companies subject to US SEC's filing, finding that companies defined as utilities or operating in quasi-regulated sectors feature contracts that are more rigid than private contracts. In this case, rigidity refers to a higher share of clauses that require formal amendments instead of simple relational adaptation. Furthermore, their findings reveal that contracts associated with the defined public sphere tend to be longer and more rigid in U.S. states with greater levels of political competition. Beuve et al. (2019) contrasts procurement of parking services made by either French public bodies or private procurers, finding that (a) public-to-private contracts feature more rigidity clauses than private-to-private ones; and (b) such clauses raise with political contestability, i.e. the degree of political competition to which the public body is exposed to. Beuve et al. (2021) shows that formal renegotiations, as opposed to informal adaptation to changed circumstances, positively depend on the degree of political competition, through the two channels of political tolerance for deviations and contractual flexibility. They also test the preposition with French data on parking services finding that (a) public-to-private contracts feature more formal renegotiations, (b) renegotiations rise along with political contestability. Beuve and Saussier (2021a) find that Franch procurers of parking services are more likely to renovate contracts when two conditions are met: (a) a discretionary power in the award procedure is used, such as when concessions are used instead of service contracts; and (b) a non-null and non-exaggerated number of renegotiations happened during the execution of the contract. The use of discretion, thus, suggests a higher relational nature of the contracts, as suggested above (Bajari et al., 2009; Bafundi et al., 2023). Notably, Beuve and Saussier (2021b) takes the theory to an extreme by challenging the conventional perception of inefficiencies associated with public contracts. Their argument proposes that the frequent occurrences of observed renegotiations are a result of the spotlight placed on the rigidity of public contracts, rather than variations in the negotiation abilities of public entities. These rigidities, in their view, are contingent on the presence of opportunism from third parties.

It is worth noting analogies with other, independent, pieces of evidence found in the literature. Brooks and Liscow (2023), for instance, empirically investigates the causes of the rise in infrastructure costs in the US, finding evidence of a strong correlation with increases in income and housing

prices. Input prices, in contrast, explain little in their findings. Furthermore, their findings indicate that land use litigations account for a significant portion of the cost increase. They discuss their results, proposing that this effect is attributed to the heightened influence of 'citizens' voice, defined "*as a combination of social movements, legislation, and judicial doctrine that significantly expanded the opportunity for citizens to influence government behavior directly to reflect their concerns*"(Brooks and Liscow, 2023, p. 3). Notably, they offer two possible interpretations of the phenomenon, both rooted in the political nature of the construction of infrastructure and in general the provision of services. The first interpretation is that such provision impartially reflects the will of citizens, so the resulting rise in costs is welfare-neutral. The second interpretation posits that if political influence is disproportionately tied to wealth, there could be adverse effects on welfare, leading to potential decreases. Again, Bertelli (2019) studies the political economy of public-private-partnerships (PPP), where the choice of the governance mode bears different distributive effects over the political constituency. It argues and finds a correlation with data from projects across developing economies, that political institutions influence the choice between build-operate-transfer agreements – a particular type of PPP – and other governance choices. Namely, more public forms of governance are chosen when political institutions are more stable, and thus there are fewer threats of opportunism by third parties. Another result pointing towards the disadvantages of public oversight is advanced by Calvo et al. (2019). They use US public works data to examine the effect of increased regulatory oversight on cost and time overrun, exploiting a regulatory cutoff with RDD and matching estimators. They find that increased oversight raises costs and time overruns, in particular when the contractor is inexperienced and the type of work is labor-intensive. They relate this to operational issues related for instance to staffing, or increased bureaucracy, however, it might well be that adaptations are less possible. On the contrary, private oversight by a third party that is interested in the well-execution of the contract is found to be beneficial: Giuffrida and Rovigatti (2018) analyzes the effects of public versus private oversight. Their investigation exploits a threshold in US procurement, finding that private oversight (by sureties) ensures better screening of bidders in the award phase, while public oversight (in the form of regulation) negatively affects outcomes.

Lastly, the theory of third-party opportunism can be viewed as a unique distortion within the bureaucratic context. This distortion manifests as defensive behaviors, wherein individuals prioritize adherence to rules over the use of discretion, potentially compromising outcomes due to a fear of personal responsibility. On this matter, Artinger et al. (2019) investigates the presence of defensive decisions in public administration with data from surveys of German managers. They observe that the phenomenon is pervasive and propose that potential root causes include (a) a culture that seeks to assign blame and (b) the challenge of distinguishing and rewarding positive outcomes. Battini et al. (2020) discusses the use of administrative tools to prevent responsibility by Italian public administrators. They suggest that (a) the presence of a solid insurance market covering financial damages to the public administration, on the one hand, and (b) the positive effect of regional administrative courts' sentences on the preparation time of tender procedures, on the other hand, point towards the existence of the phenomenon in Italy.

In a nutshell, the implementation of external checks has the potential to prompt defensive responses from public officials, when combined with ambiguous laws and low tolerance (an aspect

raised by Beuve et al. (2019)). The repercussions may extend further: a rigorous oversight by the media, civil society, and the justice system, while containing corruption and favoritism (Dávid-Barrett and Fazekas, 2020), theoretically carries the risk of inducing adverse selection among public officials and politicians. Ultimately, individuals with lower competence or moral standards might be the ones willing to take on such roles. This concern is emphasized by Estache and Foucart (2018). In their study, they construct a model where the effectiveness of accounting and criminal courts serves as endogenous factors influencing corruption, procurement efficiency, and the quality of politicians. The paper suggests that the fear of potential punishment may dissuade high-quality politicians from entering politics. It is posited that efficient courts might marginally decrease corruption and inefficiency, but only if the quality of politicians is not too much deteriorated. Unfortunately, there is no empirical evidence on this, yet. In fact, there is little evidence of citizens' oversight curbing corruption at all. Olken (2007) implements a randomized field experiment in Indonesian villages, finding that road-building projects assigned to villages with top-down (governmental) audits featured lower missing expenditures than those assigned to villages monitored through grassroots participation (by citizens). Cavalieri et al. (2020) implement a bootstrapped-DEA two-step approach with Italian data to investigate institutional effects on the efficient provision of infrastructure procurement.[12] They find a positive correlation between indexes of general institutional quality and efficiency. Notably, the paper also investigates the effect of sub-indexes accounting for particular aspects of institutional quality. It finds that, besides a high effect of corruption control, the quality of government also affects positively efficiency, while both the *rule of law* and the *voice and accountability* indexes show no significant relation.

1.3.4   The governance of corrupt exchanges

This section concludes the discussion on private ordering issues. However, the focus here shifts from the public-to-private transaction itself to the potential transactions that accompany it in the presence of corruption, defined above as a hidden collateral contract. In some cases, when the existence of the public contract is subject to a continuous relationship, the corrupt exchange might even be seen as a hidden master agreement, while official public contracts are similar to appendices. A strand of literature based on new institutional and transaction costs economics focuses on the governance of corrupt exchanges, developing out of the theoretical frameworks of Husted (1994), Vannucci and della Porta (1999), Lambsdorff and Teksoz (2004), well summarized in Vannucci (2015). Nevertheless, this literature is crucial for understanding the context in which public procurement (PP) occurs, as the same institutional setting influences both the principal contract and its hidden collateral. The theoretical approach presented here begins with the observation that corrupt exchanges are not legally enforceable. Therefore, the parties involved must depend on external institutional mechanisms to ensure mutual contractual performances. Additionally, transaction costs are heightened by the fear of being deceived and facing actual legal sanctions under criminal law. This creates a perverse effect where harsher sanctions might unintentionally strengthen illegal

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[12]Thus, the paper does not investigate the effects on corruption as an outcome, but it is generally assumed that efficiency and low corruption are correlated, as showed by Finocchiaro Castro et al. (2014) and Cavalieri et al. (2018).

bonds (Gambetta, 2009).

Possible enforcement mechanisms are therefore of a relational or reputational nature, thus based on the value of future exchanges, just as legal contracts executed under ineffective courts of law or when the performances are third-parties unverifiable. The role of informal networks in sustaining corrupt exchanges is oftentimes underestimated in literature and policy-making, both for corruption in general and PP in general.[13] Most notably, the institutional structure can give some individuals or organizations the ability to act as third-party enforcers of such exchanges. For instance, political parties "*can use their influence over public decision-making processes - whose implementation is guaranteed by the coercive authority of the state - to impose costs on cheaters in corruption contracts, or vice versa to promise future advantages to those who respect those informal rules*" (Vannucci, 2015, p. 22). Third-party enforcement is not, however, limited to political actors as, for instance, the role can be taken by other types of intermediaries and middlemen such as foundations, consortia, or business associations. Della Porta et al. (2015) supplies two case studies from Italian scandals showing two different types of governance, one pivoting around a local business association and one around a well-connected informal intermediary. Lambsdorff and Teksoz (2004) theorizes and illustrates with case studies how corrupt deals are born out of perfectly legal relationships, which save on searching costs and serve as both enforcement mechanisms (of a relational nature) and resource extraction vehicles. Finally, criminal organizations can enforce corruption through the threat of violence (Gambetta, 2009; Vannucci, 2015). Most importantly, repeated interaction creates routines and codes of conduct that shape the expectations of the agents and facilitate searching and coordination (Vannucci, 2015), and locks partners in the relationship under mutual threats (Gambetta, 2018; Lambsdorff, 2002).

Statistical empirical evidence on these mechanisms is scant at best, given the hidden nature of the issue. Nevertheless, much of the evidence for instance linking political competition or bureaucratic organization to corruption/favoritism - reported in the next sections - can also be interpreted in this direction. For instance, the below-analyzed Schoenherr (2019), Mahmalat et al. (2023), Dahlström et al. (2021) showcase the channels of bureaucratic appointments as ways to build networks, centered around political connections, where favoritism is the norm. An explicit analysis of third-party enforcement and corruption comes from Fazekas et al. (2022). The paper empirically investigates the effect of PP features that are broadly related to corruption on the presence of mafia-style criminal organizations at the municipal level, using municipalities whose councils are dissolved under Italian law and comparing before and after the dissolution.[14] They find that some procurement indicators before dissolution do predict the presence of criminal organizations, such as the number of bids received (with maximum risk with single bids), direct contract award, and the month of award publication. Moreover, other subjective indicators also predict their presence, such as the size of the contracting authority and a high share of a single supplier in the buyer's annual spending (higher than 40%). Notably, however, they find no significant effect of private negotiations on the presence of criminal organizations, possibly suggesting that highly visible flags for corruption are avoided and

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[13]On the issue, see Jancsics and Jávor (2012).

[14]A limit of the analysis is that after dissolution the municipalities may behave differently, leaving exogenous variation in the estimates.

that procurement processes might be modified in a more fine-tuned way.

1.4   The political-institutional context

The previous sections have illuminated both the risks and benefits associated with bureaucratic discretion in PP, particularly in the context of award procedures. Most importantly, section 1.3.2 has pinpointed broad divergences in outcomes and linked them to institutional factors. It seems therefore appropriate to examine those factors in greater detail, at the small price of broadening the view from PP to the institutional setting. Widening the lens, the political setting emerges as the primary institutional factor shaping the risks linked to favoritism or corruption in PP outcomes. Section 1.4.1 looks at the complex relationship between corruption and the political environment, while section 1.4.2 goes more in-depth into the institutional mechanisms that most heavily influence PP through the channel of discretion. The implications upon discretion will then be dealt with in the dedicated discussion paragraph 1.5.

1.4.1   Corruption and the political environment

This section primarily aims to explore how political competition and electoral processes impact corruption, before delving into the institutional channels that directly influence PP in the next section. While most of the analyses here do not directly examine PP, some employ PP data to assess corruption issues. Therefore, the first part of the paragraph will describe two complementary strands of literature of a general nature—i.e., not using or referring to PP. The second part will then report analyses related to these strands that however use PP as a means to study corruption and political institutions.

The causality between political competition and corruption appears to operate both ways. On one hand, democratic systems are expected to curb corruption through incentives for electoral replacement. On the other hand, the potential for corruption might ease political competition, leading towards collusion, and the overall effect appears to be context-dependent. At a closer look, indeed, the link between political competition is more complex, and the details about party systems and the specific institutional dynamics appear to make the relationship more fragile. A thorough discussion about the political factors that influence corruption is offered by Della Porta (2004), which discusses the possible relationships and vicious circles between political-institutional and organizational aspects, among which the effects of voters' partisanship, the degree of fragmentation of political parties, and the possibility of collusion among parties.[15] The empirical literature might be segmented into two strands, somewhat complementary, whose main results are here briefly reported.

The first strand examines the correlation between democracy or political competition and corruption, mainly with cross-country techniques, generally finding a diminishing effect. Among the empirical evidence, Montinola and Jackman (2002) analyzes cross-country data investigating the

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[15]Creating equilibria based on mutual threats, or what Gambetta (2018) calls "*sharing compromising information*".

effect of political and economic competition on corruption, finding the expected negative relation.[16] Del Monte and Papagni (2007) analyze Italian data, finding an association between political concentration indexes and corruption. Similar results for the Italian case are reached by Alfano et al. (2023). Lederman et al. (2005) explores the institutional determinants of corruption with cross-country data, finding correlations between democratic institutions, parliamentary systems, political stability, and freedom of the press with reduced corruption. Schleiter and Voznaya (2014) analyzes the effects of aspects of the political environment on corruption with cross-country data, finding a negative (but declining) correlation between party fragmentation and corruption and a positive (but declining) correlation between the dominance of the governing party and the levels of (perceived) corruption. The relationship is not however without criticism, also linked to the way corruption is measured. For instance, Sharafutdinova (2010) uses Russian data to show that political competition and press covering of corruption news influences corruption perception, rather than corruption levels *per se*, arguing that perception indexes do not reliably account for actual levels for hybrid regimes.

The second strand of literature directly investigates whether the electoral process effectively mitigates corruption, by replacing corrupt politicians. Theoretically, the failure of this process is justified, citing factors such as clientelism, the absence of corruption-free alternatives, collective-action problems, or entry barriers in the political arena Kurer (2001). The very existence of a "principled principal", namely the voters, upon which many political theories of corruption are based is theoretically challenged. As argued by Persson et al. (2013), with the support of interviews in Kenya and Uganda, in highly corrupt countries corruption is best described as a collective action problem.[17] Unsurprisingly, the empirical evidence on electorally punished corruption is mixed and context-dependent, whereas the practical functioning of political parties and the media play a big role. For instance, Chang et al. (2010) argues and finds evidence with Italian data, that political corruption is punished by voters only when adequately informed and a certain saliency is given to corruption-related issues. Fernández-Vázquez et al. (2016) explores the hypothesis of selective electoral punishment of corrupt politicians—namely, the idea that voters only penalize corrupt acts from which they do not benefit. This analysis is conducted using Spanish data. Pereira and Melo (2015) analyzes the relationship between corruption and electoral accountability with Brazilian data, finding a negative effect that is, however, strongly mitigated by the provision of public goods. Ecker et al. (2016) investigates the impact of corruption perceptions on political accountability using survey data from European countries. The study identifies a positive relationship contingent on voters' characteristics, such as whether they are partisans or not, and their belief in the efficacy of voting to bring about change. They argue that context, including the saliency of corruption, also plays a role in shaping this relationship. Bågenholm (2013) uses European Union cross-country data to investigate the impact of corruption on the electoral performances of political parties and the

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[16]Although dictatorships - thus the total absence of political competition - are not associated with corruption. Moreover, they find members of the OPEC showing higher levels of corruption, due to low competition in the economic arena.

[17]There is evidence that anti-corruption messaging can even backfire, reinforcing the high-corruption equilibrium (Cheeseman and Peiffer, 2022). Evidence compatible with the absence of "principled principals" in politics is showcased by Finocchiaro Castro and Guccio (2020). The paper analyzes how social capital affects the probability of political malfeasance and electoral accountability, exploiting data from judicial proceedings at the Italian House of Representatives and electoral outcomes. They find that areas with lower trust in government (proxied by cheating teachers) are more likely to select politicians accused of malfeasance and to not punish them at next elections.

likelihood of a government change, finding that corruption allegations have a significant but limited effect on political electoral performances, but none on governmental change. It should be noted, however, that corruption can bring about other political distortions such as polarization (Apergis and Pinar, 2023), voters' disaffection (Giommoni, 2021), and populism (Daniele et al., 2023; Foresta, 2020), rather than simply promoting "clean" competition.

Zooming in on papers using procurement-related data, Ferraz and Finan (2008) and Ferraz and Finan (2011) empirically exploit random governmental audits of municipal spending, among which procurement outcomes, in Brazil to investigate the two sides of the coin (political competition and electoral accountability). Ferraz and Finan (2008) finds that reports of corruption before elections significantly reduce the likelihood that incumbent mayors are re-elected. Moreover, they find that the effect is magnified by the presence of radio stations, so underlying the role of media and information as a channel, in line with Chang et al. (2010). Ferraz and Finan (2011) finds evidence of lower misappropriation of resources by Brazilian mayors with reelection incentives. Similar results are obtained by Zamboni and Litschig (2018), which finds empirical evidence of reduced corruption in Brazil due to the increased probability of audits in PP.

As for the intensity of political competition, the prolonged absence of political competition seems to be associated with the deterioration of procurement processes. Coviello and Gagliarducci (2017) exploits a reform limiting the number of consecutive mandates for mayors in Italy. They find that Italian mayors' tenure negatively influences procurement outcomes such as rebates, overruns, and delays, possibly suggesting collusion between politicians and private suppliers. Broms et al. (2019) analyzes the effect of political competition on non-competitive outcomes in PP with Swedish data, finding that municipalities that are long-lasting one-party dominated are more likely to show single-bidding. Note that single-bidding here proxies for favoritism or corruption, in line with the strand of literature listed in paragraph 3.2 (red flags).

The evidence above highlights the crucial role of electoral processes and political competition in mitigating corruption. Regrettably, there is also evidence suggesting the opposite. Indeed, elections might stimulate favoritism and foster clientelistic connections, introducing complexity and context dependency to the influence of political competition on the impartiality of the procurement process. A study by Fazekas and Hellmann (2023) addresses the effect of elections on corruption risks, using PP data in the particular setting of World Bank aid projects. In this study, corruption risk is approximated using single-bidding in procurement outcomes, and the exogenous variance arises from the independence of the projects from the election time. Matching estimators reveal that corruption risks are elevated in the year preceding the election, with the counterfactuals derived from the year post-election and one year after the election. This effect is more pronounced when political competition is heightened, and local clientelism is relevant. Remarkably, the effect persists despite World Bank projects being subject to greater scrutiny.

1.4.2   The main channel of political favoritism: bureaucracy

Section 4.1 presented mixed evidence regarding the impact of political competition and electoral accountability on the risks of contractual mismanagement. This section aims to take a step further

toward understanding the mechanisms that pave the way for favoritism or corruption in PP. In a meaningful effort, Dávid-Barrett and Fazekas (2020) advances a framework for the analysis of grand corruption in PP, highlighting three main institutional channels through which governing parties can influence procurement outcomes and foster cronyism: (i) exerting influence over bureaucrats in the design/execution phase; (ii) the design of procurement law; (iii) deactivating controls by civil society, media, and judges. Moreover, their study exploits the change in governments in the UK and Hungary in 2010 to examine whether politically connected firms gained from the change. They first examine whether firms increased/lost contract value after the change to identify *surprise winners* and *surprise losers*, identified through changes in the direction of the error terms at the firm level; they then check whether winner firms are associated with contracts with a higher corruption risk index. Results show that connected firms significantly gained more value through suspected corrupt procedures in Hungary, while the same did not happen in the UK. The authors conclude that the difference is explained by the limited opportunity that the institutional setting in the UK leaves to the governing party, in contrast to the Hungarian case.

The structure of bureaucracy thus is an important channel of favoritism or corruption. Moreover, it is also the most capable of tilting the balance towards rules or discretion, as will be discussed in paragraph 5. Both the way bureaucrats are appointed and their incentive system carries deep consequences on the outcomes of PP. The literature on state personnel is at an early stage, but growing. For a thorough literature review, the reader is addressed to Finan et al. (2015), which broadly surveys topics related to public workers' financial incentives, selection, and monitoring. Here only the studies that directly touch upon PP are reported, but needless to say, the general insights have deep consequences in procurement as well.

Firstly, there is evidence that the political nomination of top-level bureaucrats fosters favoritism. Fazekas et al. (2023) analyzes favoritism in the context of US federal procurement, finding evidence of increased risk (measured with a composite index with commonly used red flags) linked to political donations, in particular to governing parties and –most importantly here – exacerbated when contracting authorities are less politically independent. They discuss their results in light of a principal-agent theory with self-interested politicians (unprincipled principals) and politically-captured bureaucrats. In a similar vein, Dahlström et al. (2021) find that (i) more politicized US executive departments are most likely to show noncompetitive procedures and outcomes, (ii) more politicized agencies – compared with politically independent ones in diff-in-diff – show less competitive contracts in battleground states, and more supplier turnover after presidential changes, pointing at (i) political favoritism and (ii) the use of procurement for electoral support.[18] Schoenherr (2019) analyzes the mechanisms and consequences of political connections in PP in Korea. More in detail, it exploits a particular institutional setting in which the newly elected president nominates state-owned firms CEOs, which then award public contracts. Exploiting data about social connections[19] and the election date as an event, it finds that: (a) connected firms are awarded more contract

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[18]Strong evidence of favoritism in the US –although of a broader type – is also obtained by Goldman et al. (2013), which evidences that US companies whose boards of directors include politically connected people are more likely to win procurement contracts when the party to whom they are connected controls both House and Senate.

[19]Two degrees of social connections are defined, (a) between the president and the nominated CEOs in public firms, and (b) nominated CEOs to private firms CEOs. A relationship is defined if a CEO: (a) comes from the same university as the president, or (b) comes from the same private firm in which the president was CEO in the past.

value than unconnected peers; (b) contracts awarded to connected firms exhibit a higher likelihood of adverse events such as delays or mistakes and, notably, higher cost renegotiation rates. It is suggested that political connections result in distorted and inefficient allocation of public contracts, while the evidence does not support the positive view that social relationships increase efficiency through better monitoring or *ex-post* adaptation. In another study, Mahmalat et al. (2023) scrutinizes the mechanisms of resource allocation, specifically PP contracts, in Lebanon. The researchers categorize politically connected firms into two groups: those with general political connections and those with particular connections linked to PP. In particular, this second group comprises firms linked to political elites holding positions in the agency responsible for implementing substantial contracts designed for development. The findings reveal that only the latter category of connections significantly impacts the amount awarded to firms.

Turning to the incentives of the bureaucrats, Charron et al. (2017) explores the effect of the structure of bureaucratic incentives on the levels of corruption in European regions. The primary distinction in this study is based on whether career progression is meritocratic or reliant on political connections. They use PP data to compute the main dependent variable through generally accepted red flags such as single-bidding outcomes and discriminatory elements in the selection procedure (negotiations, most economically advantageous criteria, speed of award, etc.). As for the independent variable, they use data from large-scale surveys to account for the incentives of bureaucrats, exploiting an instrumental variable empirical strategy. They find that meritocratic bureaucratic careers reduce the likelihood of corruption-related red flags. Concerning the incentives of the bureaucrats, Tukiainen et al. (2023) use a conjoint online experiment with actual PP officials from Finland and Germany to investigate the existence of intrinsic motivations, namely the extent of the interest in the outcomes of the work, a feature that literature has often underlined missing in bureaucracy. Contrary to the common perception of indifferent public officials, the study reveals that officials are concerned about avoiding very low competition, extreme prices, and, most importantly, firms with poor reputations. Conversely, avoiding litigation complaints does not emerge as a crucial consideration. In a similar vein, Rasul and Rogger (2018) studies the effect of management practices – namely the autonomy given to bureaucrats and their incentives under supervision – in Nigeria for both construction and non-construction projects with data coming from two sources, surveys and project-level quality measured by engineers. They find both a positive correlation between autonomy and quality and a negative relationship between supervision and quality. They interpret their results referring to Simon's view of bureaucracy and Holmstrom and Milgrom (1991) classical results on incentive contracts in contexts characterized by multi-tasking.

Unsurprisingly, the competence of public officials responsible for procuring goods and services has been identified as a factor influencing the efficiency of contractual outcomes, in line with the above-reported results by Bosio et al. (2022) and Bandiera et al. (2009). Decarolis et al. (2020b) analyzes US federal procurement contracts exploiting the deaths of specific types of public officials to instrument for competence, finding that higher competence leads to better contractual outcomes. Liscow et al. (2023) analyzes the drivers of increasing infrastructure (roads) costs in the US, by linking data from three sources: (i) surveys of procurement entities and construction firms; (ii) realized project-level costs; and (iii) administrative data. Survey respondents highlighted that the two main drivers are

the capacity of States' procurement offices and the lack of competition in the sector. Moreover, the low capacity is related to the use of expensive external consultants, which however does not reduce the risk of misspecified projects leading to higher bids and costly renegotiations. Surveys correlate with state results at the project level.

Linked to competence, the degree of centralization of procurement authorities has been targeted by procurement reform, and there is some evidence of positive effects. The already quoted Bandiera et al. (2009) uses centralized purchases as a benchmark for measuring active and passive waste. Direct evidence is instead supplied by, for instance, Chiappinelli (2020), which finds that Italian municipalities obtain lower rebates than less decentralized entities, but such phenomenon crucially depends on the competence of procurement officials (measured by average literacy at the level of decentralization). Similarly, Baldi and Vannoni (2017) analyzes the impact of centralization on the price paid by Italian procurers of drugs for hospital usage, finding that centralized procurers pay significantly less than decentralized purchasers. Moreover, they find that centralization has a greater impact where corruption levels are higher. Interestingly enough, the presence of skilled buyers in the market not only has direct advantages but also bears positive spillovers: Lotti et al. (2023) exploits an Italian reform that required centralization to investigate the existence of possible indirect effects, i.e. price reductions for non-centralized purchase because of spillovers on information, finding indeed such an effect.

1.5   Discussion

Thus far, this chapter has examined selected strands of economic literature, highlighting issues related to both the contractual and public sphere in PP. Along the way, three key findings from the literature have been identified. Firstly, public-to-private exchanges face similar risks as private-to-private transactions (Bajari and Tadelis, 2001), with the additional threat stemming from the opportunism of third parties (Spiller, 2008). The literature has introduced a trade-off between rules and discretion, pinpointing that discretion may enhance efficiency through the selection of better suppliers (Kelman, 1990), at the price of higher corruption risks (Fazekas et al., 2016a). Notably, empirical evidence has yielded mixed results on this issue, with the balance leaning toward one side or the other depending on the context (Spagnolo et al., 2022; Szucs, 2023; Carril et al., 2021; Baltrunaite et al., 2021). Secondly, corrupt exchanges are characterized by high transaction costs due to their inherent hidden nature, necessitating complex governance mechanisms for sustainability (Vannucci and della Porta, 1999). Importantly, there is evidence suggesting that these governance structures may center around legal entities and that social ties and personal networks facilitate the exchanges (Lambsdorff and Teksoz, 2004). Third, two institutional elements linked to the political setting have been identified as influencing corruption and the capture of public procurement (PP) transactions, namely the levels of political competition (Della Porta, 2004) and political influence over the bureaucracy (Dávid-Barrett and Fazekas, 2020). Once again, the literature underscores the significance of the institutional context, referring to the rules of the game as they are played.

The objective of this paragraph is to elucidate the key relationships arising from the diverse pieces of evidence, providing potential theoretical interpretations, and proposing questions to guide future research.

A main starting point for discussion is Bosio et al. (2022), which highlights the role of the public sector's capacity to solve a puzzle: rules are correlated with practice and practice with outcomes, but rules are not correlated with outcomes directly. For the sake of this chapter, the importance of this result is to spotlight the context of regulation, rather than the content of single rules. In other words, it foregrounds the background. However, it is here argued that public sector capacity is only one aspect of the solution of the puzzle and an intermediate one that should be explored further. Indeed, Bosio et al. (2022) builds a model where public sector capacity reflects the weight bureaucrats assign to public welfare over their own, and empirically proxies it with education. Both theoretically and empirically, there still are missing pieces for a complete understanding. Theoretically, bureaucrats' weighting should be made endogenous, and it is here argued that should be explained by institutional factors. A principal-agent theory of corruption (Rose-Ackerman, 1975; Banfield, 1975) may suggest explaining it with the probability of getting caught in the act. This theory seems to go far concerning petty corruption, i.e. the exchange of public contracts for a bribe directly to public officials at low levels, and might well explain why rules improve outcomes in widespread corruption countries. Nevertheless, it is not clear whether regulation alone is sufficient in these contexts either, as corruption there might better be depicted as a collective action problem (Persson et al., 2013).

Moreover, corruption in PP in the presence of formal checks needs a higher structure and the involvement of more actors (Vannucci and della Porta, 1999; Della Porta et al., 2015). Indeed, we saw that corrupt exchanges face high transaction costs both in searching the counterparts and enforcing deals (Lambsdorff, 2002). In other words, when corruption is not the general expectation, the role of regulation is more ambiguous. For instance, Gambetta (2018) attempts to explain the Italian anomaly – Italy has a higher level of corruption when compared with countries with similar GDPs – with tacit collusion (based on *sharing compromising information*) among political and influential actors, fostered by an overloaded judiciary and a richness of ambiguous laws. This analysis does not only refer to grand corruption – i.e. corruption by high-level officials or politics – but still emphasizes that some degree of political complicity is necessary to provide the structure for the governance of corrupt deals, for instance within networks as underlined by Jancsics and Jávor (2012). The structure, independence, and incentives of public officials at all levels becomes then important, as underlined above (Charron et al., 2017; Dávid-Barrett and Fazekas, 2020; Dahlström et al., 2021) due to collective action problems.

Why is all this important regarding the role of public procurement (PP) regulation? Two main points are worth noting. Firstly, it should be emphasized that regulation pertains to the *process* of contracting, especially in the selection of counterparts. Prohibiting discretion results in the rejection of valuable information dispersed in the market (in a Hayekian sense), specifically information about the reputation and capacity of private suppliers. The design of an efficient process through regulation should, therefore, internalize this lost information, for instance, by introducing scores based on past performances (Spagnolo, 2012; Picci, 2006). When implemented in practice, however, the advantages should be weighed against the costs of the new rules. The concern is that there

is a risk of introducing second-order problems related to measurement and enforcement costs (succinctly, transaction costs) into already costly administrative systems. The case of the Italian utility provider that implemented it described by Andreyanov et al. (2023) is emblematic of the difficulties of making such a system stick, as private contractors would probably challenge it, in court or the polity. Secondly, and more importantly, the literature has demonstrated that formal adherence to procedural norms does not guarantee positive outcomes, either. The efficiency of the outcomes depends more heavily on the institutional context. In fact, a procedural approach might even have a confounding effect, creating ambiguity regarding political or bureaucratic responsibility for the outcomes. Significantly, the challenge of distinguishing corruption from well-intentioned discretion unleashes third-party opportunism, and employing formal procedures is a potential response, not necessarily seeking efficiency (Spiller, 2008; Moszoro and Spiller, 2012; Beuve et al., 2021). In summary, the institutional setting collectively shapes the three types of private ordering issues affecting public procurement (PP): the contractual aspects, the level of third-party opportunism, and the governance of corrupt deals. It is argued here that there is still a lack of understanding regarding both the relationship between these three aspects and the institutional mechanisms that jointly influence them.

1.6   Conclusion

This chapter has reviewed selected strands of economic literature about public procurement, framing it as an intersection of private and public ordering issues. It has identified three types of private ordering problems explored in the literature: contractual issues, challenges arising from third-party opportunism, and those related to the governance of corrupt exchanges. On the institutional side, the paper has underscored how the political and bureaucratic setting influences the likelihood of outcomes generally perceived as negative, such as corruption, favoritism, and clientelism. Additionally, the literature on the rules-versus-discretion trade-off has been examined and linked, in the discussion, to the institutional setting, shedding light on overlooked areas in the literature.

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

Abstract

Does weak judicial enforcement provoke relational contracting in public procurement? This chapter empirically investigates the effect of judicial effectiveness – in its timing dimension – on the use of discretionary adjudication procedures in public procurement. Indeed, although formally denied relational contracts, public authorities can use more discretionary award procedures, such as regulated negotiations, to partially replicate the mechanism and ensure contractual fulfillment. The study uses data from the procurement of works by Italian municipalities for the period 2009-2012 and for a monetary range where the choice is available. It exploits a spatial discontinuity design using contracts issued by municipalities at jurisdictions' borders, following Mattera et al. (2023), refined by coarsened exact matching (Iacus et al., 2012). Results showcase a negative causal relationship between judicial delay and the likelihood of using 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 against suppliers' legal challenges. This hypothesis is discussed against an explanation based on *third-parties opportunism* (Spiller, 2008) and the formalization of contractual relationships.

2.1 Introduction

Relational contracting[20] facilitates contractual fulfillment when third-party enforcers (e.g. courts or arbiters) are unavailable. This is the case, for instance, when quality is non-verifiable or, notably here, when courts are ineffective.[21] Generally, repeated spot contracts based on auctions and enduring relational contracts can therefore be seen as 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, and nearly none for relational contracting (Spagnolo, 2012). Such regulation aims to curb corruption and ensure impartiality and equal access.[22] 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 (Calzolari and Spagnolo, 2017) or selecting them for private negotiations (Bajari et al., 2009; 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 (Fazekas and Kocsis, 2020; Decarolis et al., 2020a; Decarolis and Giorgiantonio, 2022).

This chapter studies whether the effectiveness of the judiciary affects the choice of public buyers to select suppliers through auctions or private negotiations.[23] A key dimension of effectiveness, in particular, is the time employed to solve disputes, reducing uncertainties and therefore opportunistic behaviors (Marciano et al., 2019). As such, a straightforward prediction is a positive relationship between courts' ineffectiveness and relational contracts, and therefore private negotiations, as it happens in private contracting. However, as will be further discussed, regulations often introduce special incentives that can flip the relationship. Indeed, as for the Italian case (see section 2.3), 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 et al., 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 et al., 2023). Consequently, an ineffective judiciary may act as a further defense for public authorities, making relational contracts less useful.

To test this hypothesis, this chapter gathers data on public contracts issued by Italian munici-

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[20]Types of governance mechanisms where transactions are sustained by the value of future exchanges, as 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).

[21]See, e.g. Brown et al. (2004) and Johnson et al. (2002). A similar argument in institutional economics 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 even when quality is verifiable, too.

[22]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.

[23]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 which instead points to the usual concept of efficient allocation of scarce means (Marciano et al., 2019). Note however that much of the literature uses the terms interchangeably.

palities 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 public procurement outcomes, such as delays and cost overruns, by Mattera et al. (2023). The technique is further refined here through (i) the sole selection of intra-regional borders – eliminating inter-regional borders – to avoid possible exogenous alterations, and (ii) the application of coarsened exact matching to improve balance on both sides of the borders. Results confirm the hypothesis of a negative relationship between judicial delay and the likelihood of choosing a negotiated procedure, with a magnitude of about 3-6 %. Finally, the hypothesis of judicial ineffectiveness as a further defense mechanism available to public procurers is discussed against the formalization of contractual relationships due to *third-party opportunism* (Spiller, 2008; Moszoro and Spiller, 2012; Beuve et al., 2021).

2.2 Literature review

This chapter 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 better suit negotiations, which ensure a better *ex-ante* exchange of information[24] and better-fit cost-plus contracts[25], whereas open auctions are apt for low-complexity goods where *ex-post* adaptation costs are less likely to emerge (Bajari and Tadelis, 2001).[26] This preposition gained support in several empirical applications, notably in public procurement contexts (Baldi et al. (2016); Guccio et al. (2012)). In light of all this, Chever et al. (2017) analyzes a paradox often observed in the auction versus negotiation practice: negotiations are often used for small-value contracts, although theory suggests their use for complex objects. They use data from a French public social house provider, finding that negotiations are used to save *ex-ante* transaction costs in combination with the restriction of bids to high-reputation suppliers. They interpret their results by analogy to hybrid organizations in the TCE tradition. In their view, open auctions can be seen as the opposite pole to single-firm negotiations: on the one hand, auctions provide competitive incentives

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[24]An issue underlined by Goldberg (1977)

[25]Allowing adaptation in a transaction costs economics perspective (Bajari and Tadelis, 2001; Williamson, 2005)

[26]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.

but face high *ex-ante* administrative costs that are not justified by economic reasons, as the marginal benefit of receiving one more bid is decreasing. On the other hand, single-firm negotiations feature lower *ex-ante* costs (in particular for low-complexity contracts) but at the detriment of competitive incentives on the price. Note that the latter also theoretically allows better *ex-post* adaptation, but Chever et al. (2017) here is analyzing small contracts that likely encompass low complexity. In their framework, restricted auctions or negotiations with more than one firm represent intermediate situations, allowing cost-savings in the *ex-ante* evaluation phase and some adaptation *ex-post*.

In a dynamic context, relational contracting becomes relevant. Taylor and Wiggins (1997) sees repeated spot contracts based on auctions and relational long-lasting 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 low-performing suppliers from future bids can be seen as a punishment belonging to the relational contracting sphere (Calzolari and Spagnolo, 2017).[27] Indeed, there is empirical evidence that public authorities 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. Similarly, Bajari et al. (2009) empirically verifies 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-verifiability is unrelated to judicial effectiveness. The first concept relates to the fact that some contractual 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 et al., 2019). The first is therefore an inherent feature of a contract, while the latter is intrinsically related to the judicial system. 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 systems, both theoretically and empirically. For instance, Johnson et al. (2002) evidences the role of effective courts in post-communist countries as enablers of new relationships; Brown et al. (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. It finds evidence that 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. It 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[28] on

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[27]Albano et al. (2017) reaches similar conclusions with a slightly different punishment mechanism, namely the possibility to discriminate underperforming firms within future bids.

[28]Though referring to it as judicial *efficiency*.

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 effectiveness of the judicial system, confirming these results with panel data. Similar results are obtained by Coviello et al. (2018b), again with panel data in Italy. The results obtained by Coviello et al. (2018b) add important refinements though. Firstly, the study identifies a positive effect of judicial delay on contractual delay, consistent with prior findings by D'Alpaos et al. (2013). Secondly, it brings attention to a non-linear relationship, noting that the effect diminishes with increasing courts' delay. Thirdly, this effect is observed to be amplified by project complexity. Fourthly, the study highlights that joint-stock companies are more likely to secure contracts in less effective jurisdictions, possibly suggesting some sort of reputation effect. Lastly, it reveals a positive association between trial delay and final payment, suggesting that contractual authorities may seek to deter opportunism by offering larger payments when external enforcement becomes weaker. Finally, Mattera et al. (2023) produces significant causal evidence on the matter. The study implements the spatial discontinuity design borrowed from this chapter and uncovers a non-linear relationship between contractual and court delay using quantile regressions. In essence, the findings reveal that slower courts lead to a reduction in delay in the lowest two deciles while increasing delay in the top three deciles. This divergent impact is explained by the distinct incentives that private firms have in challenging contractual penalties in court. The proportionality of delays and penalties plays a crucial role, where timing execution becomes relatively preferable for low levels of delay (and penalties), while delay and challenge become attractive for high levels of delay (and penalties).

This chapter contributes to these three strands of literature by implementing a spatial discontinuity design borrowed from Mattera et al. (2023) and Giacomelli and Menon (2017) to the analysis of the choice between auctions and negotiations. It connects to the first strand of literature by shedding light on the institutional determinants of the choice of award mechanism. This is done by connecting the choice to the intrinsic difference between the two mechanisms to integrate relational contracts, in the tradition of the second strand of literature examined above. Thirdly, this study is directly linked to the analyses of the effects of judicial enforcement on economic behaviors, going one step up in the causal chain, namely from the contractual outcomes to the way contractors are selected.

2.3   The institutional framework

The Italian law regulating public works in place for the period 2009-2012[29] 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

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[29]Legislative Decree 163/2006, modified in 2008 (legislative decree 152/2008) and 2011 (law decree 70/2011)

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 below 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[30] 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.[31] Since the sample here employed 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 et al., 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 et al. (2023), it is highly unlikely that (a) public contractors opt for a different tribunal and, most notably, (b) that they start a dispute. In practice, public contractors typically assume the role of defendants in disputes, as the regulation of public contracts empowers public authorities with three legal tools to guide contractors toward fulfilling their obligations. These tools include: (i) retaining the cautionary guarantees that contractors are obliged to deposit; (ii) the option to delay installment payments; and (iii) imposing penalties on the final installment linked to delays in the execution (Mattera et al., 2023). At the same time, these 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, therefore, the competent court at the territorial level will almost always be the one to which the municipality belongs (Mattera et al., 2023).

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[30]Law decree 70/2011

[31]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))

2.4 Data

The data includes public procurement 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 ANAC (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[32] are excluded, to avoid any possible differences in fine-grained regulation.

The analysis employs 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 issuing the contract, the publication date, the type of procedure used for the choice of the contractor, 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 time frame (May 2011 to the 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 divided by dispute matters. In line with most of the literature, these data have been used to compute the *judicial delay* (JD) index (CEPEJ, 2014; see Marciano et al. (2019) for a discussion).[33] Since there is little theoretical guidance on the time frame, 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. However, the first two versions are preferred due to increased volatility at the publication year, and because the effect studied here is likely to be internalized slowly by economic agents.

As for control variables, measures about the municipalities that are issuing the contracts and the institutional and social features are gathered. In particular, population, altitude, and a dummy for provincial capital control for municipalities features. Finally, two variables accounting for corruption at the provincial level (Nifo and Vecchione, 2015) and voter turnout at the preceding elections account for institutional and social differences. Descriptive statistics of the resulting samples are reported in Table 1 below.

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[32]Trentino-Alto-Adige, Friuli-Venezia-Giulia, Val d'Aosta, Sicilia, Sardegna.

[33]Judicial delay is computed as:

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

.

Table 1: Descriptive statistics.

Variable	Obs	Mean	Std. dev.	Min	Max
Intra-regional borders sample					
Discretion (negotiation = 1, auction = 0)	14,053	0.681	0.466	0	1
JD (average)	14,053	2.851	0.836	1.049	5.659
JD (mobile average)	14,053	2.660	0.746	1.055	5.455
JD (publication year)	14,053	2.839	0.877	0.830	8.455
Population	14,053	338879.000	813560.700	30	2617175
Altitude	14,053	227.088	252.346	0	2035
Provincial capital	14,053	0.253	0.435	0	1
Turnout	14,053	0.753	0.074	0.216	1.000
Corruption	14,053	0.824	0.219	0	1
Award criteria (MEAO = 1, LP = 0)	7,363	0.100	0.300	0	1
Project value	14,053	239966.900	110496.800	100001.100	499999.800
Inter-regional borders sample					
Discretion (negotiation = 1, auction = 0)	16,748	0.687	0.464	0	1
JD (average)	16,748	2.860	0.827	1.049	5.659
JD (mobile average)	16,748	2.669	0.747	1.055	5.455
JD (publication year)	16,748	2.849	0.873	0.830	8.455
Population	16,748	286310.000	754881.700	30	2617175
Altitude	16,748	251.906	265.943	0	2035
Provincial capital	16,748	0.228	0.420	0	1
Turnout	16,748	0.752	0.078	0.216	1.000
Corruption	16,748	0.832	0.207	0	1
Award criteria (MEAO = 1, LP = 0)	8,762	0.098	0.297	0	1
Project value	16,748	238706.900	110354.600	100000.100	499999.800

2.5 Empirical analysis

2.5.1 Spatial discontinuity design

The analysis here employs a spatial discontinuity design (Duranton et al., 2011) as introduced for the analysis of justice in Italy by Giacomelli and Menon (2017) and applied in the context of public procurement by Mattera et al. (2023). In more detail, this embodies the use of contracts issued by municipalities that lie on jurisdictional borders only[34] 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

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[34]To reduce bias, moreover, only borders with at least 5 contracts per side are used.

at the border; (2) that other confounding variables change smoothly (Mattera et al., 2023). The first assumption is satisfied by the institutional framework described above; while Giacomelli and Menon (2017) provides an empirical demonstration that the second assumption is satisfied for the Italian case by use of density comparisons and regressing socio-economic outcomes on judicial delay, without finding significant effects. 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 here automatically by the use of 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 et al. (2023) assign municipalities to the borders they lie on while minimizing the distance between the centroids of the municipality and the jurisdictions, whenever 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 disincentivizing local modifications, regions could – and have in the past (Decarolis and Giorgiantonio, 2015) – implemented local regulations adapting to local circumstances. Furthermore, other regional differences external to public procurement can interact with individual behavior. Mattera et al. (2023) adjusts 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.[35] This chapter 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 maps below (figures 1 and 2) show the average JD and discretion for the period considered in the whole sample at the jurisdiction level and thus are for descriptive purposes only.[36] However, they are informative about geographical tendencies. Indeed, it is possible to note that southern regions have slower courts and make more use of formal auctions than the northern ones.

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[35]Jurisdictional borders can overlap with provincial borders, too. However, as explained by Mattera et al. (2023), provinces have little impact on public procurement.

[36]Note that only municipalities with contracts included in the sample show up in the map, so if a municipality did not procure any work in the selected range during the considered period, it is white in the map exactly as municipalities that do not lie on borders.

Figure 1: This map depicts municipalities that lie at jurisdictions' borders, and whose contracts are used for the analysis. The colors represent the average judicial delay at the level of the jurisdictions, for descriptive purposes. Darker colors are smaller values. The dark lines are jurisdictions' borders, while thin red lines are the borders of the municipalities.
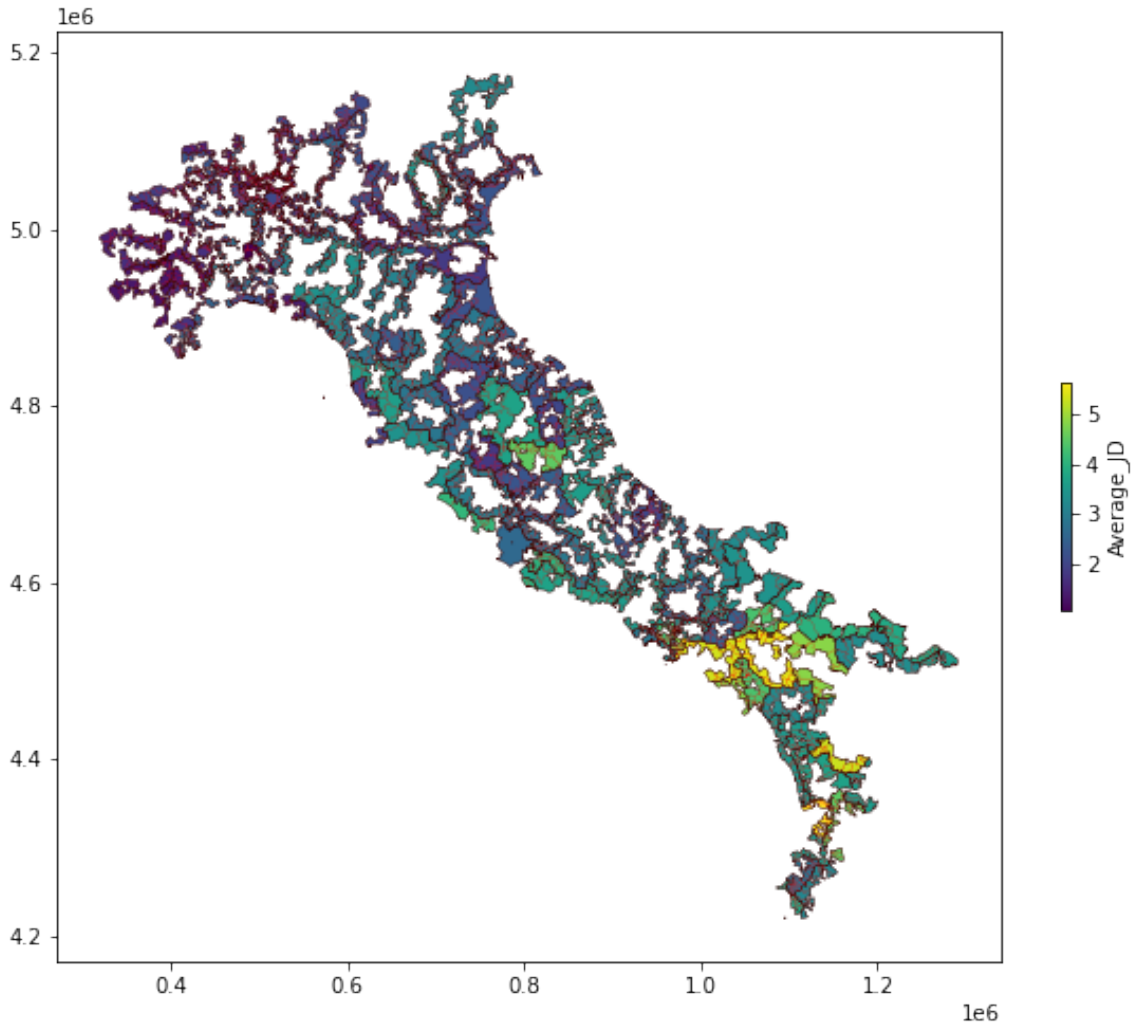
Figure 2: This map depicts municipalities that lie at jurisdictions' borders, and whose contracts are used for the analysis. The colors represent the average use of discretion (negotiated procedures = 1; auctions = 0) at the level of the jurisdictions, for descriptive purposes. Darker colors are smaller values. The dark lines are jurisdictions' borders, while thin red lines are the borders of the municipalities.
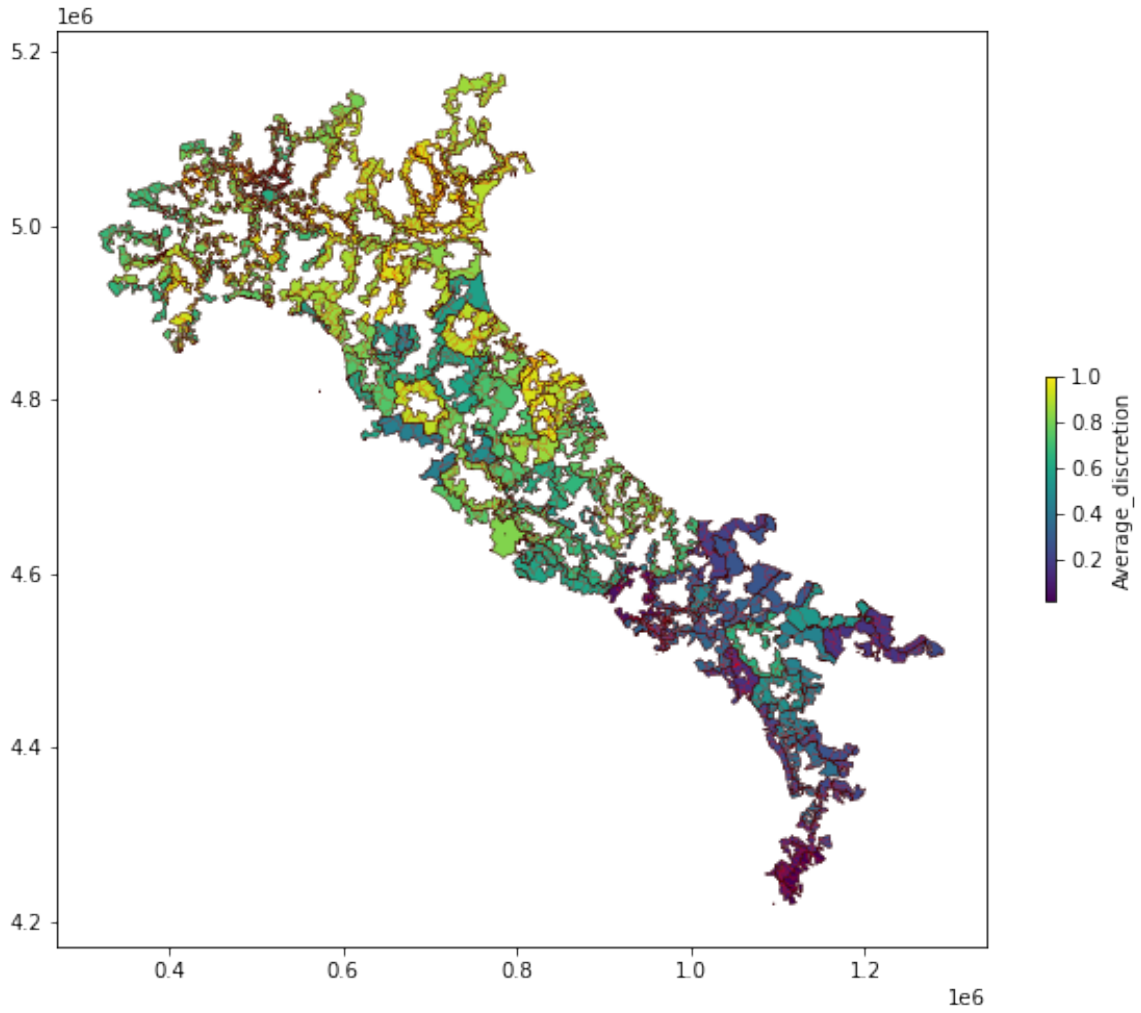
2.5.2 Econometric implementation and results

For the econometric implementation, different specifications of the following Linear Probability Model are used,[37] controlling for unobserved heterogeneity at the border, regional, and time levels:

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

Here, contract i is awarded by municipal administration m in jurisdiction j at time t. The 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 are regional fixed effects; y_t are year (of publication) dummies. X_i 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,[38] and in some specifications the criteria used in the adjudication procedure (most economically advantageous or lower price). M_m includes controls for municipalities' characteristics: population, altitude, and whether the municipality is a local capital. Furthermore, it includes a variable accounting for corruption[39] 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 intra-regional 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 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. Indeed, Mattera et al. (2023) does not make this distinction. 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,

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[37]Baldi et al. (2016) also use OLS to estimate the binary choice between the use of negotiated procedures and open auctions, motivating the choice with the high use of binary variables as covariates and a small share of predicted values fall outside [0-1]. The same applies to this study.

[38]Common Procurement Vocabulary following the classification of the European Union.

[39]At the base year 2009.

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 %, depending on whether the award criteria are accounted for or not. Notably, the most economically advantageous award criteria strongly correlate with the use of formal auctions in the selection of the contractor, possibly meaning that public administrations retain some discretionary powers in auctions to make up for the impossibility of selecting bidders beforehand.

Table 2: Results of LPM regressions on the use of discretion (negotiated procedure = 1; auction = 0) 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.

Dependent: discretion	(1)	(2)	(3)	(4)	(5)	(6)
JD (average)	-0.037**			-0.061***		
	(0.017)			(0.021)		
JD (mobile average)		-0.030*			-0.049**	
		(0.018)			(0.022)	
JD (pub. year)			-0.017			-0.022
			(0.013)			(0.017)
Award criteria				-0.135***	-0.134***	-0.134***
				(0.035)	(0.034)	(0.034)
Border	x	x	x	x	x	x
Region	x	x	x	x	x	x
Municipality	x	x	x	x	x	x
Year	x	x	x	x	x	x
Work	x	x	x	x	x	x
Institutional	x	x	x	x	x	x
Constant	0.812***	0.796***	0.784***	0.624***	0.624***	0.572***
	(0.146)	(0.146)	(0.145)	(0.189)	(0.193)	(0.192)
Observations	14,053	14,053	14,053	7,363	7,363	7,363
R-squared	0.301	0.301	0.301	0.323	0.322	0.321
N_municipalities	2053	2053	2053	1521	1521	1521
N_borders	180	180	180	180	180	180

Clustered standard errors in parentheses

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

Table 3: Results of LPM regressions on the use of discretion (negotiated procedure = 1; auction = 0) 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.

Dependent: discretion	(1)	(2)	(3)	(4)	(5)	(6)
JD (average)	-0.035**			-0.062***		
	(0.016)			(0.020)		
JD (mobile average)		-0.030*			-0.049**	
		(0.016)			(0.019)	
JD (pub. year)			-0.020*			-0.026*
			(0.012)			(0.016)
Award criteria				-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
Municipality	x	x	x	x	x	x
Year	x	x	x	x	x	x
Work	x	x	x	x	x	x
Institutional	x	x	x	x	x	x
Constant	0.883***	0.865***	0.856***	0.987***	0.976***	0.920***
	(0.168)	(0.168)	(0.167)	(0.219)	(0.223)	(0.222)
Observations	16,748	16,748	16,748	8,599	8,599	8,599
R-squared	0.294	0.293	0.293	0.326	0.325	0.324
N_municipalities	2599	2599	2599	1905	1905	1905
N_borders	258	258	258	258	258	258

Clustered standard errors in parentheses

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

2.5.3 Improving balance through Coarsened Exact Matching

The estimations reported above (Tables 2 and 3) entirely relied on Giacomelli and Menon (2017) and Mattera et al. (2023) concerning the satisfaction of the assumptions for the spatial discontinuity design. This section aims at strengthening the satisfaction of assumption 2, namely ensuring the comparison of apples to apples, through a further refinement of the sample. In detail, this is done by repeating the estimation after the application of coarsened exact matching (Iacus et al., 2012, CEM), by pruning away contracts issued by municipalities that have no same-size comparisons on

the other side of their border. This happens through exact matching on population bins and border dummies. The bins selected are 10, 50, 100, 200, 300, 400, 500 thousand, and 1 million inhabitants. As illustrated in Table 4 below, the sample (for specifications 1-3) is reduced by about 4,5 thousand contracts issued by nearly 160 municipalities. Moreover, five borders are discarded altogether.

Indeed, Figure 3 below suggests potential biases in the estimation above. For each border, contracts issued by municipalities on the faster jurisdiction borders have been assigned the value 1, while contracts issued on the slower side 0. Figure 3 compares the densities of all the ones and all the zeroes, therefore only providing vague evidence of imbalance in the sample. Indeed, the proper methodology would make the comparison by each border. That is exactly what CEM does. Indeed, although Figure 4 still supplies an aggregate comparison, it provides both graphical suggestions of balance and, most importantly, relies on actual side-by-side balance within each border.

The LPM is then repeated on the cleaned sample, exploiting the weights provided by the CEM algorithm and ensuring that contracts issued by similar municipalities on opposite sides of jurisdiction borders are equally weighted.[40] This way, both balance and common support (an assumption typical of matching) are ensured, at least for a parameter that crucially encapsulates many social and economic dimensions such as population, while other unobserved factors are accounted for by the spatial design. The same method is then repeated using only contracts with non-missing award criteria. The overall results are reported in Table 4 below, whose estimations only use intra-regional borders. It is possible to note that the coefficients of the two main versions of the judicial delay index remain significant and with a magnitude similar to what was estimated in the previous section, although slightly higher (4 to 7.5 percentage points instead of 3 to 6). Notably, this confirms the negative effect of judicial delay on the likelihood of choosing negotiated procedures.

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[40]See Iacus et al. (2012) for details about the weighting.

Figure 3: Aggregate density comparison of the population for contracts issued by municipalities lying on the faster sides of borders – in blue – and on the slower sides – in red.
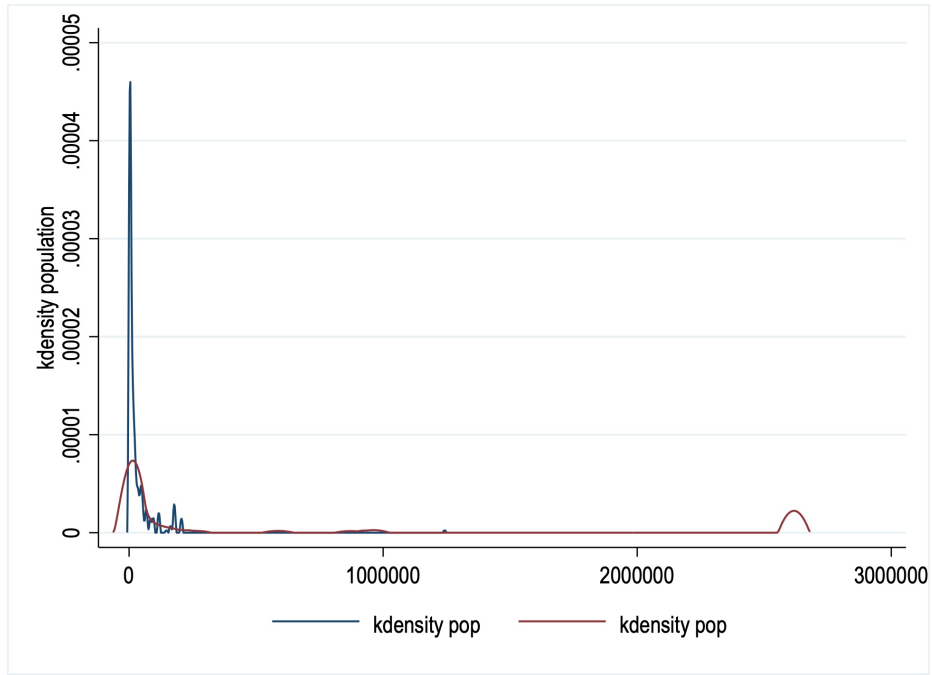
Figure 4: Aggregate density comparison of the population for contracts issued by municipalities lying on the faster sides of borders – in blue – and on the slower sides – in red – after the application of CEM for population and border.
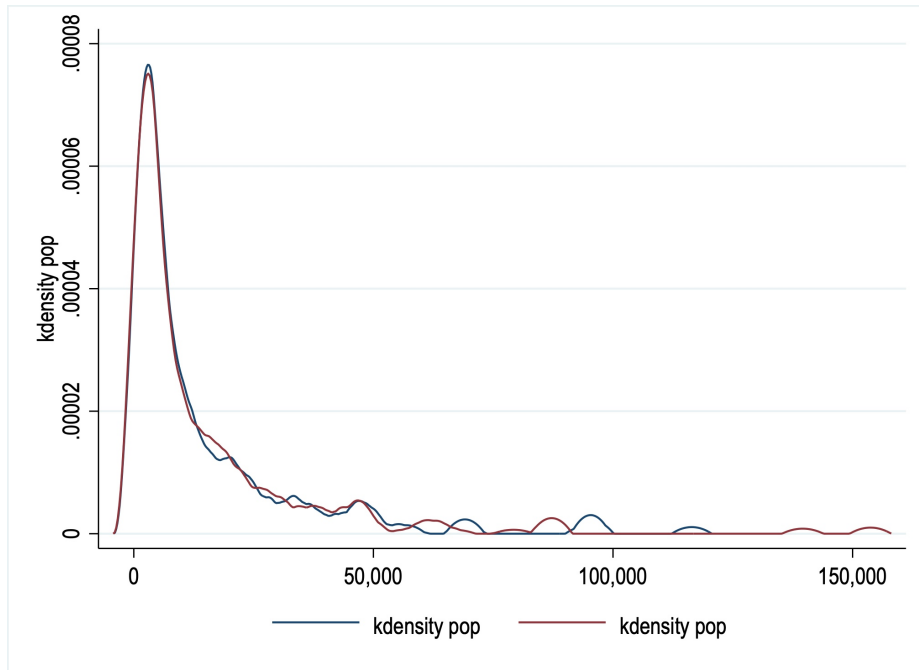
Table 4: Results of LPM regressions on the use of discretion (negotiated procedure = 1; auction = 0) in the award of public procurement works in 2009-2012. Columns 4-6 also control for the use of the most economically advantageous criteria in the award procedure. All specifications control for the jurisdiction 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. The sample used has been cleaned through CEM, as explained above, ensuring balance and common support for the population of municipalities issuing contracts sharing jurisdiction borders.

Dependent: discretion	(1)	(2)	(3)	(4)	(5)	(6)
JD (average)	-0.046**			-0.071***		
	(0.020)			(0.024)		
JD (mobile average)		-0.048**			-0.066***	
		(0.021)			(0.026)	
JD (pub. year)			-0.019			-0.013
			(0.015)			(0.022)
Award criteria				-0.144***	-0.147***	-0.147***
				(0.031)	(0.031)	(0.031)
Border	x	x	x	x	x	x
Region	x	x	x	x	x	x
Municipality	x	x	x	x	x	x
Year	x	x	x	x	x	x
Work	x	x	x	x	x	x
Institutional	x	x	x	x	x	x
Constant	0.854***	0.849***	0.796***	1.015***	0.908***	0.786***
	(0.244)	(0.242)	(0.245)	(0.294)	(0.291)	(0.295)
Observations	9,373	9,373	9,373	4,488	4,488	4,488
R-squared	0.321	0.321	0.320	0.354	0.353	0.350
N_borders	175	175	175	168	168	168
N_municipalities	1893	1893	1893	1348	1348	1348

Clustered standard errors in parentheses

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

2.5.4 Robustness check: placebo test

This section provides a robustness check by estimating the same LMP reported in Table 1, on the same sample, but using civil courts' data related to familiar issues instead of the general category containing contractual obligations. In detail, the same versions of the judicial delay index are computed using the sum of contested and uncontested separations and divorces. Litigation issues impose different burdens on courts and are affected by socioeconomic differences at the geographical

level, although accounted for by the research design. However, delays remain correlated at the jurisdiction level, and thus the magnitudes reported in Table 5 are similar to the main estimations (section 5.1). Nevertheless, they are not significant, thus providing robustness to the mechanism here investigated, as estimated in the sections above.

Table 5: Results of LPM regressions on the use of discretion (negotiated procedure = 1; auction = 0) 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. Controls are the same as used above, namely related to contracts, municipalities, regions, publication years, and institutional aspects. Judicial delay is here computed using data on civil disputes involving divorces and separations only.

Dependent: discretion	(1)	(2)	(3)
JD_family (average)	-0.041		
	(0.042)		
JD_family (mobile average)		-0.007	
		(0.026)	
JD_family (pub. year)			-0.036
			(0.025)
Border	x	x	x
Controls	x	x	x
Constant	0.793***	0.767***	0.793***
	(0.148)	(0.146)	(0.147)
Observations	14,053	14,053	14,053
R-squared	0.301	0.300	0.301
N_municipalities	2053	2053	2053
N_borders	180	180	180

Clustered standard errors in parentheses

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

2.6 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 a relationship ranges from about 3 to 7 % in the preferred specifications, meaning that an expectation of a year longer disputes causes a drop in the likelihood of choosing a negotiated procedure by 3 to 7 %. 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 (Calzolari and Spagnolo, 2017; Albano et al., 2017) and empirically (Bajari et al., 2009; 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 (Marciano et al., 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 et al., 2023). As such, this chapter 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, making private negotiations less attractive. With a reduced emphasis on future contingencies, public contractors might therefore seek to leverage the advantages provided by auctions in terms of cost incentives (Bajari and Tadelis, 2001).

Note that this interpretation *prima facie* contrasts with the findings of Coviello et al. (2018b), which shows that longer disputes can sway away contracting authorities from enforcing penalties. In their model, contracting authorities cannot credibly commit to defending themselves in court, since they bear 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.[41] This probability depends on the complexity of the project, which in their empirical analysis, as well as in the context of this study, is accounted for with the type of work dummies. Mattera et al. (2023) offers a possible explanation for these seemingly contrasting views. Notably, Mattera et al. (2023) results refine D'Alpaos et al. (2013) and Coviello et al. (2018b) suggesting a non-linear relationship between court delay and contractual delay. In more detail, they find a negative

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[41]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.

relationship for low levels of execution delay and a positive one for high execution delays. The interpretation provided here of delay as a further defense against challenges would be consistent with a negative relationship between judicial delay and strategic delays, disincentivizing disputes by private parties. Admittedly, it might be possible that the analysis here exposed focuses on the first portion 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 range allowing the choice of selection mechanism due to regulation reasons), which might overrepresent low complexity projects. This could limit the external validity of the study, although it reconciles with the non-linear relationship found in Mattera et al. (2023). Interestingly, Coviello et al. (2018b) also finds 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 the results of this chapter, 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.

Notably, a second theoretical interpretation grounded in transaction costs economics might explain the negative effect found here. Spiller (2008) noted that public procurement suffers from an additional type of transaction cost typical of the public nature of one of the contractors. More in detail, the presence of actors external to the transaction but still interested in its outcomes and execution – such as citizens, political opponents, the media, and private competitors – raises contractual hazards due to possible probity challenges. Spiller labels this effect *third-party opportunism* to emphasize the fact that the external parties are not only non-neutral to the transaction but are also opportunistic. Moszoro and Spiller (2012), Moszoro et al. (2016), Beuve et al. (2021) argued that *third-party opportunism* causes increased rigidity in the contractual relation, meaning that as opportunism increases the parties add clauses that require formal acknowledgment in case of unexpected contingencies. Therefore, public-to-private contracts are intrinsically less adaptable than their private-to-private counterparts. In addition, Beuve et al. (2019) suggests that public buyers might turn to *proceduralization* in the presence of such external threats, what might be described as a particular form of defensive administration. Notably, the choice of formal auctions instead of negotiated procedures might well be interpreted as an attempt to formalize a contractual relationship to preempt possible probity challenges. Note that this is in line with the findings of Decarolis et al. (2020a) in the Italian context, namely that administrations inserted into corrupt contexts make less use of discretion. This could also explain why municipalities in the South use more formal auctions than in the North, as depicted in Figure 2 and linked to local regulation in Decarolis and Giorgiantonio (2015).

In any case, this strand of literature underlined the role of external threats, which are partially accounted for in this analysis by the introduction of two control variables, namely voter turnout at the preceding elections and corruption at the provincial level. Notably, the role of judicial effectiveness in this context is not yet theoretically explored. However, the classical view of judicial delay as increased uncertainty (Marciano et al., 2019) would point toward a higher potential for external challenges, *ceteris paribus*. On one hand, a plausible speculation is that contracts resulting from open auctions tend to be more rigid compared to those arising from negotiated procedures. This

is because, in the context of open auctions, certain clauses are inherent to the tender and are outlined in the initial documentation. However, the lack of data on the actual contracts renders this conjecture unverifiable. On the other hand, the selection of formal auctions may be viewed *per se* as a form of *proceduralization*. While this interpretation may seem plausible, it does not align well with the self-defense tools offered by regulation. For example, if a contractor selected through negotiation delays the execution, the public authority can impose penalties, mitigating the risk of probity challenges. The prospect of getting entangled in a costly and protracted dispute can even enhance the administration's probity status by demonstrating resilience against an uncooperative contractor. Finally, it should be noted that the selected sample includes contracts in the 100-500 thousand euros range, possibly focusing on a relatively low-complexity context. In such a context, the choice between auctions and negotiations is also affected by *ex-ante* administrative costs, which are higher for open auctions (Chever et al., 2017). For these two reasons, the preferred interpretation here is the first one, namely the role of ineffective judiciaries as further protection for public buyers armed with self-defensive regulatory tools.

To conclude, another noteworthy sub-result of this study is the negative and significant correlation between the award criteria and the award mechanism. The theoretical case for interpreting this as a causal relationship is weak, as the two are likely better considered joint choices. Consequently, its inclusion as a covariate in the regression is here approached with caution. Nevertheless, the use of the most economically advantageous criterion, as opposed to the lower price, is strongly correlated with the use of formal auctions. This criterion allows public administrations to consider quality aspects within the context of open auctions, albeit within a guided procedure, undoubtedly introducing an element of discretion. This suggests that the loss of discretionary powers typical of private negotiations is mitigated by the use of the award criteria.

2.7   Conclusion

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 mimics relational contracting (Calzolari and Spagnolo, 2017). This chapter 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. It uses data on work contracts from Italian municipalities in the period 2009-2012, exploiting a spatial discontinuity design (Mattera et al., 2023) refined by coarsened exact matching (Iacus et al., 2012). The estimations showcase a 3% to 7% 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, judicial 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. Regulation flips the sign of the expected relationship. This interpretation is contrasted with a second theory based on *third-party opportunism* (Spiller, 2008), suggesting the formalization of contractual relationships due to external threats, possibly increasing with judicial ineffectiveness – and thus in contractual uncertainty. 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 influential administrative borders. On the other hand, however, Italy is also characterized by relatively high regulation 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. 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.

3 Political competition and the use of discretion in public procurement: evidence from Italian data

Abstract

This chapter empirically investigates the effect of political competition on the utilization of discretionary adjudication procedures in public procurement. It leverages data from Italian municipalities in the period 2009-2016 and the entry of a new political party, the 5 Star Movement, through matching estimators. The findings indicate that probity-based political opposition is linked to a reduced likelihood, ranging from 4% to 9%, of opting for negotiated procedures over formal auctions. The results align with two potential explanations: (i) diminished reliance on relational contracting or favoritism/corruption and (ii) bureaucratic defensive strategies. However, repeated cross-section regressions using indicators from the literature to capture political competition do not reveal significant effects. Following the two possible interpretations, it is argued that (a) the entry of an external actor disturbed an equilibrium built on *sharing compromising information* (Gambetta, 2018); and/or (b) *third-party opportunism* (Spiller, 2008) limits well-intentioned public administrators.

3.1 Introduction

Public procurement is contracting between public and private entities. As such, it shows all the issues related to contracting in general – unverifiable quality, cost/time overrun – on top of a principal-agent relationship between citizens and public officials (Banfield, 1975), thus making it vulnerable to corruption and favoritism. As for private-to-private transactions, the inclusion of reputational and relational elements (Macneil, 1977; Klein, 1996) in the choice of suppliers could relieve part of the contractual issues linked to non-verifiability (Spagnolo, 2012; Picci, 2006). For instance, in a dynamic setting, public procurers could screen between the possible suppliers, inviting only bidders that performed well in the past (Calzolari and Spagnolo, 2017; Albano et al., 2017). Nevertheless, many legal settings across the world limit public officials' discretion to curb corruption and ensure impartiality. Indeed, discretionary awarding procedures in public procurement often emerge among the red flags for corruption, when accompanied by other indexes (Fazekas et al., 2016a; Fazekas and Kocsis, 2020; Decarolis and Giorgiantonio, 2022). A usual regulatory choice is to leave public officials choosing between formal auctions and private negotiations only for contracts of limited amounts. In this context, there is empirical evidence of discretion being used to screen reputable suppliers and implement relational contracting (Bajari et al., 2009; Bafundi et al., 2023).

While a wide and ever-growing literature is analyzing the regulation/rules trade-off, this chapter focuses on a particular aspect that crosscuts both the contractual and corruption sides of public procurement: political competition. Political competition is linked to discretion in public procurement through two main channels. On the one hand, it is supposed to curb corruption, as political opponents should control the behavior of the governing party with the intent to replace it.[42] Since corruption is limited by political checks, discretionary award procedures have less scope of action, possibly related to efficiency motives. On the other hand, probity challenges might raise personal and political liability on the public contractual side, posing additional threats to contractual relationships since voters and courts cannot easily discern efficient relational contracting from favoritism. Spiller (2008) labeled this effect *third-parties opportunism*. A possible consequence is that public entities might give up discretionary awarding procedures as self-defense against wrongful accusations, a form of so-called bureaucratic defense. Beuve et al. (2019) called this effect *proceduralization*.

This chapter empirically investigates this straightforward hypothesis: political competition limits the use of discretionary procedures in public procurement. The empirical setting is represented by Italian municipalities in the period 2009-2016 and for a monetary range of contracts which allowed public officials the choice between formal auctions and negotiated procedures for the choice of the contractors. In the first part, it exploits established indicators of political competition developed in literature, based on the share of votes at the preceding elections. As illustrated below, this analysis does not provide significant estimates. In the second part, the entry of a probity-based and anti-establishment political party – the 5 Star Movement – into municipal councils is used as a treatment. It is argued that this party represented a shock in the Italian political environment, thus representing

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[42] A thorough discussion about the political factors that influence corruption is offered by Della Porta (2004), which discusses the possible relationships and vicious circles between political-institutional and organizational aspects, among which the effects of voters' partisanship, the degree of fragmentation of political parties, and the possibility of collusion among parties. Highlights of the empirical evidence on the matter are supplied in the literature review section below.

a suitable natural experiment theoretically able to raise the level of electoral competition. Its entry is argued to be theoretically able to both curb corruption and increase political intolerance.[43] This natural experiment, coupled with the random nature of election dates in the Italian institutional framework, allows the estimation of the average treatment effect on the treated. The estimation exploits techniques based on matching, namely nearest-neighbor matching and coarsened-exact-matching. While regressions with widely used political indicators do not show significant effects, matching-based estimates reveal a reduced likelihood of choosing discretionary procedures ranging from 4% to 9%, which represents an important effect to acknowledge.

Paragraph 2 reviews the pertinent literature, while paragraph 3 delineates the Italian institutional framework regarding public procurement and the political environment. In paragraph 4, we detail the data and indicators employed in the analysis, and paragraph 5 outlines the empirical methodology and presents the results. The discussion of these results takes place in paragraph 6, where two possible interpretations are examined. Finally, paragraph 7 offers a conclusion. The study is constrained by two limitations. Firstly, like any natural experiment, its applicability beyond the specific context in which it takes place may be restricted, potentially limiting its external validity. Secondly, the study cannot distinguish whether the observed effect is associated with curbed corruption or a self-defense mechanism, thus leaving its theoretical interpretation to future endeavors.

3.2   Literature review

This chapter draws on four key strands of literature, encompassing: (i) the economics of contracts, with a focus on the choice between auctions and negotiation; (ii) analyses of the discretion/rules trade-off in public procurement; (iii) the impact of political competition on corruption, both generally and in the context of public contracts; and (iv) the influence of third-party opportunism on public contractors.

The economics of contracts supplies the background for the study. A wide literature has examined both the choice between auctions and negotiation and the types of supply strategies in dynamic contexts. Here are the main results. The main prediction in a single transaction context is that complex objects better suits negotiations, which ensure a better *ex-ante* exchange of information[44] and better-fit cost-plus contracts[45], whereas open auctions are apt for low-complexity goods where *ex-post* adaptation costs are less likely to emerge (Bajari and Tadelis, 2001).[46] This preposition gained support in several empirical applications, notably in public procurement contexts (Bajari et al., 2009; Baldi et al., 2016; Guccio et al., 2012). In a dynamic context, relational contracting

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[43]Vannucci (2015) notes that the entry of *honesty-promoting* political parties can exert a check on corruption. Beuve et al. (2019) highlights the role of political intolerance in the *third-party opportunism* framework, thus leading to *proceduralization*.

[44]an issue underlined by Goldberg (1977)

[45]Allowing adaptation to transaction costs, Bajari and Tadelis (2001)

[46]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.

and reputational effects also become relevant. A useful distinction is made by Taylor and Wiggins (1997), which sees spot contracts based on auctions and relational long-term contracts as opposite poles in the selection of suppliers. However, public procurement differs from private contracting because relational contracts are formally denied. That is when discretion kicks in. Indeed, the possibility of banning or penalizing underperforming suppliers from future bids can be seen as a punishment belonging to the relational contracting sphere (Calzolari and Spagnolo, 2017; Albano et al., 2017). Indeed, there is empirical evidence that public authorities subject to contractual incompleteness make use of negotiations or restricted auctions to repetitively select trusted firms, so steering the execution of the obligations (Bajari et al., 2009; Bafundi et al., 2023). Negotiated procedures, therefore, can be seen to install relational contracts or, similarly, to include reputation in the choice of the supplier (Spagnolo, 2012).

The relationship with corruption is however slippery: Lambsdorff and Teksoz (2004) argues that legitimate relationships between public and private firms born out of trust can degenerate into corruption by creating a suitable environment for it. Discretionary procedures favor that outcome (Fazekas and Kocsis, 2020; Decarolis et al., 2020a), creating a trade-off. A growing literature is therefore investigating the overall consequences of limiting public buyers' discretion in selecting suppliers. Kelman (1990) pioneered the policy view that discretion could improve outcomes in the aggregate. Empirical evidence is however mixed. Bandiera et al. (2009) analyzed Italian data finding that most of the wasted resources are due to inefficiencies (passive waste), rather than corruption (active waste), relating it to different governance structures of public bodies. Coviello et al. (2018a) finds that discretion raises the probability that buyers award contracts to the same contractors, but overall, this is not reflected in worse outcomes in Italy. Finocchiaro Castro and Guccio (2021) also find that discretion enhances efficiency in Italy, but may also open to corruption where social capital and institutions are weak. On the contrary, Baltrunaite et al. (2021), also with Italian procurement data, finds that higher discretion increases the probability that a contract is awarded to politically connected firms in more corrupted contexts, while not increasing its ex-ante productivity, thus *selectively* suggesting potential misallocation of resources. In the Hungarian context, Szucs (2023) finds that discretion raises prices and reduces *ex-ante* productivity while leading to a higher likelihood of selecting politically connected firms. In the Czech Republic, Palguta and Pertold (2017) finds that discretion increases the likelihood that anonymously owned firms are selected. On the other hand, Carril et al. (2021) finds that value is lost in banning discretion in the US. Notably, Bosio et al. (2022) showed in a cross-country study that procurement rules are correlated with better practices, but their benefits depend on the quality of the public sector capabilities. This contribution is important because it partially solves the puzzle.

Pertaining closely to the central focus of this chapter, a particular strand of literature delves into the intricate relationship between political competition and corruption. Theoretically, the failure of the electoral process as a deterrent to corruption is justified by factors such as clientelism, the absence of corruption-free alternatives, collective-action problems, and entry barriers in the political arena (Kurer, 2001). The relationship is acknowledged to be complex and contingent on specific contexts. Moreover, parties can collude, tilting towards an equilibrium based on blackmail (Della Porta, 2004), a possibility that Gambetta (2009) labels '*sharing compromising information*' equilibrium.

Unsurprisingly, the empirical evidence is mixed. Evidence of punished corruption comes from Ferraz and Finan (2008), who find incumbent mayors in audited Brazilian municipalities have a lower probability of reelection. Bågenholm (2013) finds that European voters punish corrupt politicians, although with a limited magnitude. Other scholars found evidence of politically unsanctioned corruption. Among them, Chang et al. (2010) found that Italian voters tolerated corruption for a long time, suddenly punishing it when a large-scale judicial investigation exposed large scandals in 1992-1994. Therefore, they underline the importance of press coverage and the overall informational environment for political accountability in elections. In addition, voters could tolerate corrupt politicians because of political alignment or partisan bias (Rundquist et al., 1977; De Sousa and Moriconi, 2013), or because of the perception of larger public spending and the creation of positive externalities Pereira and Melo (2015); Fernández-Vázquez et al. (2016).[47] Ecker et al. (2016) found that the punishment depends on the context and the individual-level characteristics of the voters with a cross-country study from European countries. Other studies find a correlation between political competition and diminished corruption, in general. Among these, Alfano et al. (2023) with Italian data, although limited to *grand* corruption. Montinola and Jackman (2002) also find a negative effect of political competition on corruption in a cross-country study with data from the 80s, using perception indexes as the dependent variable. Yet, Sharafutdinova (2010) shows that in the Russian regions, political competition along with press freedom affects corruption perception, rather than corruption itself, because of its use in political battles.

Examining the effects of political competition within public procurement, the empirical evidence also presents a mixed picture. Coviello and Gagliarducci (2017) shows that political tenure in Italy is linked to a deterioration in the functioning of the auction mechanism (fewer bidders, lower rebates, etc.) at the expense of contractual outcomes (cost and time overrun). This result is interpreted as the consequence of collusion between long-tenure mayors and locally embedded bidders, as opposed to better screening selection due to learning effects. Baldi et al. (2016) notably finds the level of corruption to soften the positive link between the use of discretion and the complexity of the project. Findings of misallocation linked to political accountability are also reported by Ferraz and Finan (2011) for Brazilian municipalities. They find that fewer resources are misappropriated by mayors having re-election incentives than by mayors who do not run in the next elections. Although not focusing on political competition directly, Olken (2007) provides evidence of a scarce effect of civic accountability on corrupt outcomes when compared with top-down monitoring in the context of a field experiment in Indonesia. Notably, the closer contributions to this chapter come from Broms et al. (2019) and Chong et al. (2011). Broms et al. (2019) analyzes the effect of political competition on non-competitive outcomes in public procurement with Swedish data, finding that municipalities that are long-lasting one-party dominated are more likely to show single-bidding. Note that single-bidding here proxies for favoritism or corruption. Chong et al. (2011) finds a correlation between political competition indicators, such as those used in the first part of this chapter, and the likelihood of using open auctions instead of negotiations in French municipalities.

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[47]It should be noted, however, that corruption can bring about other political distortions such as polarization (Apergis and Pinar, 2023), voters' disaffection (Giommoni, 2021), and populism (Daniele et al., 2023; Foresta, 2020), rather than simply promoting "clean" competition.

Notably, Chong et al. (2011) justifies these results by (cautiously) referring to Spiller (2008) *third-parties opportunism*. More in detail, Spiller's theory suggests that political pressure influences public bargaining in the form of contract rigidity, i.e., the inclusion of contractual clauses limiting informal adaptation (Spiller, 2008; Moszoro and Spiller, 2012; Moszoro et al., 2016). Following this view, formal renegotiations (due to rigidity) can be seen as physiological for public contractual relationships (Beuve and Saussier, 2021b). Empirical evidence on this is scarce but growing. Beuve et al. (2019) compares private-to-private and public-to-private contracts for French parking services finding that (i) public contracts are more rigid, (ii) rigidity clauses increase with political risks. Similarly, Beuve et al. (2021) finds that public contracts are lengthier, based on more rule-based rigid clauses, and subject to formal renegotiations, which increase with political competition. Closely related to the choice of award mechanism is the contribution from Beuve and Saussier (2021a), which examines the impact of contract renegotiation on the probability of contract renewal, finding that there exists an optimal level of renegotiation. Notably, this result holds when public administration had more discretion in the choice of the contractual counterpart. Beuve et al. (2019) suggests that besides rigidity, which is expressed in the contract, there is *proceduralization*, a form of strict adherence to bureaucratic rules to preempt probity challenges. This concept is close to the concept of *defensive bureaucracy*.[48]

3.3 The institutional framework

3.3.1 Corruption and the political environment

Italy is an interesting case study since it ranks relatively low in corruption perception indexes compared with similar GDP countries. For instance, Italy ranked 72nd in Transparency International's corruption perception index in 2012 (period under study here) with a score of 42, the same as Bosnia and Herzegovina and Sao Tome and Principe, below South Africa, North Macedonia, and Brazil (sharing a score of 43).[49] Gambetta (2018) offers a possible explanation for the Italian anomaly, which he labels *Sharing Compromising Information*. In summary, this consists of a network of people holding compromising information as hostages, creating an equilibrium based on mutual threats. In his opinion, the Italian institutional framework creates a particularly suitable environment for corrupt agreements to be sustained through tacit complicity. Meanwhile, the complexity and ambiguity of the law, coupled with an ineffective and overburdened judiciary lowers the probability of being caught and punished by external investigations.

The trajectory of corruption in Italy took a drastic change in 1992, when a wave of judicial investigations discovered widespread corruption across all spheres of political actors, with public procurement being prominent.[50] Before the scandals, corruption was mainly linked to the illicit financing of political parties and characterized by mutual forbearing. As described by Della Porta et al. (2015), while before 1992 corruption *"was organized around the hidden structures of the political*

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[48]On this, see Battini et al. (2020).
[49]https://www.transparency.org/en/cpi/2012
[50]See Golden and Picci (2006) for a historical picture of corruption in Italy.

parties", corruption networks have then adapted to finding new organizational structures capable of governing and enforcing hidden transactions. Della Porta et al. (2015) describes two post-1992 scandals, related to the construction of the MOSE (a system to avoid flooding in Venice) and to Milan's Expo in 2015. It describes the former as a centripetal organization, with a central authority organizing the corruptive system, and the latter as a centrifugal system based on a polycentric network formed by connections with intermediaries. The change also resonates with recent analyses carried out by the Italian Anti-corruption Authority (ANAC).[51] ANAC uses judicial data for the period 2014-2020 to describe the tendencies in corruption linked to public procurement. Notably, it finds that the role of politics in corruption is ancillary – though not negligible – compared with before-1992 Italy: only 23% of suspected people were politicians, of which nearly half were municipalities' mayors. However, as described above, opposition parties may exert a check (or an undue limitation) on bureaucrats, too.

3.3.2   Regulation: public procurement, governance, and elections

The Italian law regulating public works in place for the period 2009-2016[52] 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 discretionary restriction of the firms invited to negotiations and a private negotiation on contractual terms. A 2011 reform[53] 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.

In the governance of local public administrations, the Italian regulation[54] establishes a fundamental principle of separating political direction, handled by locally elected mayors, from administrative, financial, and technical management, overseen by local managers. Local managers, responsible for procurement procedures and contract agreements, implement projects chosen by the political body in alignment with their strategic plans. Therefore, while the political body has the authority to select projects, the actual implementation is entrusted to bureaucrats. Hence, the legal decision on the awarding procedure and the selection of contractors is excluded from the political sphere.

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[51]ANAC, La corruzione in Italia (2016-2019) Numeri, luoghi e contropartite del malaffare. https://www.anticorruzione.it/-/la-corruzione-in-italia-2016-2019.-numeri-luoghi-e-contropartite-del-malaffare

[52]Legislative Decree 163/2006, modified in 2008 (legislative decree 152/2008) and 2011 (law decree 70/2011)

[53]Law decree 70/2011

[54]D.Lgs. 267/2000

However, this separation may lead to friction in the execution of political programs. In practice, although there are signs of an increasing emergence of a "spoil system" in Italy (Borgonovi et al., 2011; Bellodi et al., 2022),[55] in most cases a major still finds a public manager not directly chosen. On the other hand, both descriptive (e.g., ANAC, 2019) and econometric evidence (Baltrunaite, 2020) show that the separation is not always perfect. In any case, bureaucrats are not immune from political scrutiny too, as the use of "defensive bureaucracy" is documented [56] and still highly debated.[57]

Concerning the electoral mechanisms, the Italian system[58] differentiates municipalities with a population lower than 15 thousand from those with a higher population. Smaller municipalities elect the mayor at the first turn (unless votes are tied) and municipal council seats are awarded through a majoritarian system.[59] Moreover, each candidate can be associated with one party only. Municipalities with a population higher than 15 thousand people instead elect their mayors on the base of the absolute majority, while a second turn between the first two candidates is needed in case none has reached the 50% plus one threshold. Each candidate is associated with one or more parties, and council seats are divided proportionally, although the winner is granted at least 60% of the seats.

3.4 Data

The study exploits data from public procurement of works issued between 2009 and 2016 by Italian municipalities, coupled with elections data spanning from 2004 to 2016. Public procurement data comes from ANAC (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 are excluded, to avoid any possible differences in fine-grained regulation.[60] The analysis focuses on contracts ranging from 100 to 500 thousand euros since they are subject to the same regulation (see paragraph 3.2) and they are relatively comparable. Among the available variables, the following are retained for the analysis: 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, the criteria of assignment (lower price or most economically advantageous offer), and the sector of the work (CPV[61] code).

Municipal elections data come from the platform *Eligendo*, issued by the Italian Minister of Home

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[55]Public managers are generally hired through public competitions. However, they can be hired through temporary contracts, an option that is increasingly chosen: the average share of managers hired through temporary contracts increased from 16% in 2003 to 25% in 2019 (Bellodi et al., 2022).

[56]Battini et al. (2020) found that a residual, albeit significant (about 13%), the share of public managers interviewed indicates the reduction of political pressure (exerted by the mayor) among the major remedies for defensive administration.

[57]One of the pillars of the envisioned 2023 Italian reform of public contracts is the "principle of the result", aimed at shifting the focus of public bureaucrats from the strict respect of the rules to the efficiency of their action.

[58]See articles 71 and 72 of the Italian *Testo unico delle leggi sull'ordinamento degli Enti Locali* (d. lgs. 267/2000).

[59]Two-thirds are assigned to the winner party and the other are split proportionally.

[60]These are: Trentino-Alto-Adige, Friuli-Venezia-Giulia, Val d'Aosta, Sicilia, Sardegna.

[61]Common Procurement Vocabulary following the classification of the European Union.

Affairs (*Ministero dell'Interno*), further elaborated to obtain indicators of political competition. Following Chong et al. (2011), the first part of the analysis makes use of the Herfindhal-Hirschman Index (sum of squared vote shares for each candidate i at the first-round t of municipal elections preceding the publication date of the project, HHI) as a measure of political fragmentation. As Beuve et al. (2019), however, it is used as the reciprocal of the HHI, called the *Number of Effective Parties* (NEP), since it can loosely be interpreted as the number of effective candidates.[62] Moreover, as Beuve et al. (2019), the *Number of Residual Effective Parties* (NREP), computed as the reciprocal of the HHI computed on opposing candidates only, is used to account for political concentration within the political minorities. Indeed, as theorized by Moszoro and Spiller (2012), the higher the concentration of the opposition, the higher the stakes in case of successful probity challenges. Note however, Della Porta (2004) illustrates when and why this might not hold in terms of reducing corruption, as parties may end up tolerating each other in a sort of collusive equilibrium. Finally, the *SD* indicator, computed as the difference in vote shares between the mayor and the main political opponent, is used as an alternative measure of political competition: [63]

$$HHI_{m,t} = \sum_{i=0}^{n} PS_{i,m,t}^2, \qquad NEP_{m,t} = \frac{1}{HHI_{m,t}} \tag{3}$$

$$Residual\_HHI_{m,t} = \sum_{i \neq y}^{n} PS_{i,m,t}^2, \qquad NREP_{m,t} = \frac{1}{Residual\_HHI_{m,t}} \tag{4}$$

$$SD_{m,t} = PS_{i=y,m,t} - PS_{i=s,m,t} \tag{5}$$

for contracts for municipality m at time t; where i is the election candidate and y and s are respectively the mayor and the main opposition candidate. Concerning the impact of the 5 Star Movement, the focus is on the entry of the party into the municipal council, measured as a binary treatment indicator. Therefore, observations are considered as treated if there is at least one municipal councillor representing the 5SM. Since the focus is on the opposition's strength, this part of the analysis excludes contracts for municipalities where the 5SM expressed the mayor. However, estimations using the percentage share of municipal councillors held by the M5S and their absolute number are also considered.

To align with most of the close literature, variables about the municipalities are used as controls, namely population, a dummy for whether it is a local capital, and altitude. Finally, information about the mayors for each municipality issuing contracts from the database of public administrators held by the Italian Minister of Home Affairs is retrieved. In detail, the selected controls are age, gender, and education level (whether the major holds a degree or not). Finally, two indicators developed by Nifo and Vecchione (2015) at the provincial-year level to account for the institutional environment, namely for the incidence of corruption and voice (indicating the degree of participation from the society) are used. A summary of the data is reported in Table 6 below.

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[62]The interpretation is however similar.

[63]Note that the main opponent might have a greater share than the mayor in case a second turn overturns the first turn results.

Table 6: Descriptive statistics.

Variable	Obs	Mean	Std. dev.	Min	Max
Discretion	48,712	0.704	0.457	0	1
Political:					
SD	47,590	0.173	0.166	-0.300	0.965
NREP	47,590	1.879	0.923	1	8.868
NEP	48,712	2.688	0.794	1.021	7.923
5SM treated	48,712	0.099	0.298	0	1
5SM relative presence	48,344	0.727	3.473	0	62.500
5SM n$_c$ouncillors	48,712	0.193	0.943	0	20
Mayor:					
Male	48,712	0.907	0.290	0	1
Age	48,712	50.268	9.581	18.652	86.367
Degree	48,712	0.573	0.495	0	1
Municipality:					
Population	48,712	159011.300	542011.800	30	2617175
Prov. Capital	48,712	0.193	0.394	0	1
Altitude	48,712	259.622	265.064	0	2035.000
Institutional:					
Corruption	48,712	0.828	0.198	0	1
Voice	48,712	0.610	0.210	0	1
Contract:					
Project value	48,712	233399.400	108944.200	100000.100	499999.800
Award criteria (MEAO = 1, LP = 0)	28,746	0.124	0.330	0	1

3.5 Empirical analysis

3.5.1 Regressions with competition indicators

The first part of the analysis exploits different specifications of the following Linear Probability Model:[64]

$$NegotiatedProcedure_{i,m,t} = \alpha + \beta\, political_{m,t} + \gamma X_i + \lambda M_m + \theta J_{m,t} + \delta I_m + v_{r/p} + y_t + u_{i,j,t} \quad (6)$$

Here, contract i is awarded by municipal administration m at time t. Political competition variables are those detailed in section 3 (namely *Number of Effective Parties*, *Number of Residual Effective Parties*, and *Share Difference*), $v_{r/p}$ are regional or provincial fixed effects, and y_t are year (of publication) dummies. The other controls can be divided into three main groups. The first relates to the contract's characteristics X_i, and it includes a second-degree polynomial in project value, a set of dummies for the 4 digits CPVs denoting project sector[65], and the criteria used in the adjudication procedure (most economically advantageous offer or lower price). The second group controls for municipalities' characteristics M_m: population, altitude, and whether the municipality is a local capital. The third group $J_{m,t}$ includes controls for the mayor's characteristics, namely gender, age, and whether he/she holds a degree. Finally, the last set of controls I_m accounts for corruption and social capital at the provincial level.[66]

In contrast to Baldi et al. (2016), who use similar data (though restricted to 2009-2013) and a similar model, this chapter relies on regional and provincial fixed effects – instead of municipalities' fixed effects – for two reasons: firstly, data are sparse at the municipality's level, and secondly, the variable of interest only varies at the elections (every 5 years), so a mean-differentiation strategy is impossible. The latter provides a strong limitation to the analysis since political pressure can change in both directions during the electoral terms, therefore making any transformation or interaction unreliable.

Results are reported in Table 7 below. None of the proxies for political competition are found to be significant. Interestingly, neither corruption nor voice appears significant in A), while corruption becomes significant and positive in B), when the award criteria are controlled for. In addition, the use of the most economically advantaged criteria is associated with the use of formal tender, rather than with negotiated procedures, possibly suggesting that the rigidity of formal auctions (coupled with intricate rules to select the best price) is often attenuated with the choice criteria. These correlations resonate closely with the findings of Decarolis et al. (2020a), showing that suspected officials make higher use of discretionary procedures.

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[64]Baldi et al. (2016) also use OLS to estimate the binary choice between the use of negotiated procedures and open auctions, motivating the choice with the high use of binary variables as covariates and a small share of predicted values fall outside [0-1]. The same applies to this study.

[65]Common Procurement Vocabulary following the classification of the European Union.

[66]At the base year (i.e. 2009), to avoid double causality. Note also that using, for instance, voter turnout at the election to control for social capital would interfere with the estimations, as it is correlated with political competition, but the causality runs both ways as both variables are the outcomes of people's preferences.

Table 7: LPM on the use of discretion (1 for negotiated procedures, 0 for open or restricted formal auctions) at the contract level. Specifications 1-3 use regional fixed effects, and 4-6 use provincial fixed effects. All controls for mayors and municipalities characteristics and work type (4 digits CPVs) and project value (second-degree polynomial). Errors are clustered at the municipal level. Table B also controls for the award criteria (most economically advantaged offer = 1, lower price = 0). As the data for the criteria used to adjudicate the offer is often unreported, the number of observations used is significantly lower.

A) Dependent: discretion	(1)	(2)	(3)	(4)	(5)	(6)
SD	0.039			0.053*		
	(0.033)			(0.029)		
NREP		-0.002			-0.001	
		(0.006)			(0.006)	
NEP			-0.007			-0.007
			(0.006)			(0.006)
Corruption (prov)	0.080	0.078	0.077			
	(0.068)	(0.069)	(0.068)			
Voice (prov)	-0.041	-0.038	-0.037			
	(0.074)	(0.075)	(0.074)			
Mayor	X	X	X	X	X	X
Municipality	X	X	X	X	X	X
Work	X	X	X	X	X	X
Year	X	X	X	X	X	X
Region FE	X	X	X			
Province FE				X	X	X
Constant	0.925***	0.936***	0.948***	0.973***	0.984***	0.996***
	(0.091)	(0.089)	(0.086)	(0.049)	(0.047)	(0.046)
Observations	47,590	47,590	48,712	47,590	47,590	48,712
R-squared	0.250	0.250	0.249	0.276	0.276	0.274
N_municipalities	5536	5536	5738	5536	5536	5738
Regions/Provinces	15	15	15	87	87	87

Clustered standard errors in parentheses

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

B) Dependent: discretion	(1)	(2)	(3)	(4)	(5)	(6)
SD	0.029			0.039		
	(0.042)			(0.035)		
NREP		-0.002			-0.001	
		(0.007)			(0.006)	
NEP			-0.008			-0.006
			(0.007)			(0.007)
Award criteria	-0.153***	-0.154***	-0.151***	-0.150***	-0.151***	-0.148***
	(0.016)	(0.016)	(0.016)	(0.015)	(0.015)	(0.015)
Corruption (prov)	0.190**	0.188**	0.183**			
	(0.074)	(0.074)	(0.073)			
Voice (prov)	-0.122	-0.118	-0.121			
	(0.088)	(0.089)	(0.088)			
Mayor	X	X	X	X	X	X
Municipality	X	X	X	X	X	X
Work	X	X	X	X	X	X
Year	X	X	X	X	X	X
Region FE	X	X	X			
Province FE				X	X	X
Constant	1.406***	1.415***	1.439***	1.490***	1.496***	1.509***
	(0.097)	(0.097)	(0.094)	(0.057)	(0.058)	(0.059)
Observations	28,207	28,207	28,746	28,207	28,207	28,746
R-squared	0.260	0.260	0.260	0.288	0.288	0.288
N_municipalities	4504	4504	4659	4504	4504	4659
Regions/Provinces	15	15	15	87	87	87

Clustered standard errors in parentheses

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

3.5.2 The political treatment, matching, and matching-plus-regression

3.5.3 The treatment: history and assumptions (SUTVA)

The core analysis of this chapter exploits matching techniques using the entrance of the 5 Star Movement in Italian municipalities as a natural experiment. Although the 5 Star Movement originated – as a political formation – in 2009, the influence of its founder, Grillo, started in 2005 from the success of a personal blog. Therefore, an informal political activity was carried out before 2009 with citizens' "meetups" and the external approval of Grillo to autonomous local civil lists. Although informally, therefore, groups of citizens inspired by the principles of what would become the Movement, entered a handful of minor municipalities with civic lists under different names. To

avoid any confusion, this part of the analysis focuses on the 2012-2016 period (until the reform – Legislative Decree 50/2016) and only identifies lists labeled "5 Star Movement" as a treatment. The staggered election framework,[67] leaving temporarily untreated units, coupled with the scattered lack of local organization by the Movement, leaves a suitable and large pool of possible contracts as counterfactuals.

Notably, the movement's founder and the initial affiliates had probity and legality as the main value and political purpose, along with a general opposition towards traditional political parties, considered ancient and scarcely democratic (Veltri and Ceri, 2017). Most importantly, the fight against corruption, embodied by traditional parties, represented one of the pillars of the Movement's action (Biorcio and Natale, 2013). Given their fight against corruption and their probity-related political values, the entrance of the Movement's councillors represents a suitable natural experiment to test this paper's hypothesis. On the one hand indeed, the entry of "*'honesty-promoting' competitors in the political arena*" might represent one of the "*countervailing forces external to the corrupt environment*" (Vannucci, 2015). On the other hand, political tolerance is one of the ingredients for the *third-parties opportunism* effect, whereas an increased intolerance would push towards *proceduralization* (Beuve et al., 2019), here represented by the choice of formal auctions.

The stable unit treatment value assumption (SUTVA) assumption includes two requisites that must be satisfied to proceed with identification: firstly, the 'no hidden variations of treatments', and secondly the 'no interference' (Imbens and Rubin, 2015). As for the first, it requires units to be treated to the same amount. This is a rather strong assumption in the case at stake, as it would require the M5S to exert the same amount of political pressure in all the municipalities they entered. This is difficult to maintain exactly, as the number of council seats is different depending on the number of votes and the number of council seats available, which depends on the population of the municipality. In addition, it would crucially depend on the quality, competence, and effort of the single politicians entering the councils. Such differences cannot be completely ruled out. However, considering the significance of corruption issues for the 5SM and their initial fervor upon entering the political stage, it is reasonable to assume a substantial level of effort from local movements. Moreover, the 5SM acted as a local binder of unsatisfied people, presumably active in discussions at all levels, as the 5SM was at first a participative democracy experiment, where members voted on a platform for preferred topics (Veltri and Ceri, 2017; Biorcio and Natale, 2013). The regulatory framework, however, allowing councillors to intervene during assemblies and formally require further documentation from local governors, makes the presence in councils a prerequisite for thorough opposition on single and technical issues. Hence, the analysis in this section operates on the assumption of a growing yet concave correlation between the number of councillors and the intensity of political opposition, commencing from one and gradually escalating. It is argued that this relationship is plausible, even when taken to the extreme operationally, given that the presence of a second councillor is not expected to significantly augment the overall control over the ruling majority. In any case, in the second part of the analysis, which exploits coarsened exact matching on the binary presence of the M5S, the regressions on the resulting samples also employ two continuous

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[67]A political mandate lasts 5 years, however, it is not rare that a mayor loses the support of her majority, and therefore the entire political body decays.

variables, namely the percentage of M5S councillors and their numbers at the election.

The second part of the SUTVA posits that there should be no spillovers among units, meaning that councillors in one municipality should not exert control over neighboring municipalities. While complete assurance of this condition is challenging, it is crucial to recognize that the degree of control within a municipality is significant, particularly concerning technical issues like awarding mechanisms. Although there may be some supralocal coordination, the primary political interest remains at the municipal level. Councillors, typically individuals with other occupations, often lack the time to monitor activities beyond their mayors. Given these considerations, the presence of at least one councillor is selected as the primary treatment, acknowledging that the assumptions may not be entirely foolproof.

Finally, a remark on the methodology and the choice of matching over diff-in-diff. While the entrance of the 5 Star Movement is staggered and quasi-random, a diff-in-diff approach (like that proposed by Shaikh and Toulis (2021)) is not suitable because of two factors: first and foremost, the treatment coincides with the change in the mayor and administration issuing the contracts, potentially confounding the effects; secondly, the disguised entrance before 2009 potentially represents another source of confusion. Matching, on the other hand, allows to remove (control) the timing issues and only requires unconfoundedness and common support, as will be discussed below.

Therefore, the analysis exploits methods based on matching to estimate the average treatment effect on the treated (ATT). Since municipalities could sort into treatment based on the potential outcomes – in fact, monitoring corruption is one the main goals of the 5SM – the ATT is the only meaningful parameter that can be estimated, as it relies on conditional independence holding for the untreated group, meaning that potential outcomes for untreated units do not depend on treatment, conditional on confounders (Morgan and Winship, 2015). In other words, the behavior of untreated observations must be explained by either irrationality or reasons extraneous to the potential outcome, explaining why they did not take the treatment (Cunningham, 2021). Most notably, there are at least two sources of randomness in the treatment level: the first and most important is provided by the staggered timeframe of local elections; the second is the scattered – and possibly random – lack of local organization of the 5SM. Finally, pre-existent corruption levels are controlled for in the coarsened exact matching part, while matched neighbors come from the same region in the first part (nearest neighbor matching). This methodology should ensure that (a) untreated controls provide suitable counterfactuals; and (b) that environmental corruption levels are taken into account by design, instead of relying upon measures suffering from intrinsic limitations due to the hidden nature of the phenomenon.

3.5.4   Nearest-neighbour matching

The first part of the analysis exploits nearest-neighbor matching at the contract level, based on minimizing the Mahalanobis distance to identify the counterfactuals and averaging the differences between the treated observations and their matches. The variables used for the matching exercise are project value, population, and indicators for the region, the year, and the 2 digits CPVs. Notably, the counterfactuals are forced to come from the same level of indicator variables, namely from

the same region, year, and the same sector. This should ensure that all possible confounders are accounted for while avoiding bias in matching. The common support assumption, therefore, only concerns the two continuous variables, namely population and project value. As seen in Figure 5 in the appendix, the overlapping of the densities of treated and controls is not perfect for the population in some specifications. However, the estimator uses Abadie and Imbens (2006, 2011) bias-correction adjustment for the continuous variables, which should attenuate the issue. Notably, the methodology assumes a linear relationship between the potential outcomes and the controls since it uses OLS to predict missing counterfactuals (outside the common support) to compute and remove the bias. Here, this means a linear relationship between discretion (the probability of choosing a negotiated procedure) and population. Both the logarithm of the population and the non-logarithm population are used to ensure robustness. All versions of the estimations are provided both with the selection of one and three nearest-neighbors, to account for the possible bias-variance trade-off.[68] Moreover, Table 8 proposes alternative ranges of population estimates to provide some further checks. The selection of the two population thresholds is based on regulatory provisions that could (albeit weakly) impact municipal governance. Specifically, the thresholds correspond to significant changes in the electoral rule (15 thousand, as illustrated in paragraph 3.3.2) and the presence of local subdivisions at the municipal level, such as electoral constituencies for municipalities with a population exceeding 250 thousand people. Notably, especially specifications e) and f) provide decent overlap in population for the treated and untreated, adding robustness to the overall results. The average treatment effect on the treated is estimated to range from a 4% to a 9% decrease in the likelihood of using a negotiated procedure for the selection of the private counterpart.

Table 8: ATT estimates using Mahalanobis distance and bias adjustment on contracts since 2012. The total number of treated observations in the sample is 4,585.

Est.	Sample	Pop.	N_obs	N_treated	Matches	Coeff.	std. err.	95% conf. interval	
a	Full	log	20,936	4,347	1	-0.062	0.015	-0.091	-0.033
b	Full	log	20,936	4,347	3	-0.068	0.011	-0.090	-0.046
c	Full	n	20,936	4,347	1	-0.085	0.013	-0.110	-0.060
d	Full	n	20,936	4,347	3	-0.090	0.010	-0.110	-0.070
e	pop <250k	n	19,093	3,190	1	-0.043	0.013	-0.069	-0.017
f	pop <250k	n	19,093	3,190	3	-0.039	0.011	-0.060	-0.018
g	15k <pop <250k	n	5,640	2,397	1	-0.047	0.017	-0.081	-0.014
h	15k <pop <250k	n	5,640	2,397	3	-0.055	0.015	-0.084	-0.026

[68]Namely, increasing the number of neighbors decreases the variance of the counterfactual's outcome, although neighbors are increasingly less perfect matches in terms of the covariates.

3.5.5 Coarsened Exact Matching and LPM

This section exploits coarsened exact matching (Iacus et al., 2012) to both provide a stand-alone analysis and a robustness check for the results obtained by nearest-neighbor estimation. The identification strategy here is to refine the sample as much as possible to provide a suitable comparison and repeat the full LPM model in (6) using the presence of the 5 Star Movement in place of the political indicators. Moreover, the introduction of weights ensures the balance between treated observations and their controls (Iacus et al., 2012). In addition, estimations with two continuous variables accounting for the presence of the M5S, namely the number and percentage of M5S councillors, are provided.

The variables used for matching are, as before: project value, population, region, year, and two-digit sector. All variables are matched exactly, although the continuous variables are binned before.[69] In Table 9.A) the procedure results in a sample of 15,333 observations, of which 3,199 treated and 12,134 untreated, therefore discarding 1.386 treated and 9,193 untreated contracts. In Table 9.B) the same procedure is used using only observations reporting the economic criteria of awarding (the lower price or most economically advantageous) resulting in a sample of 10,006 observations (2,652 treated and 7,354 untreated, therefore pruning away 1,607 treated and 6,165 untreated contracts). Results are provided in Table 4 below, reporting ATTs showing a reduced likelihood of choosing negotiated procedures ranging from -5% to -7%. Moreover, the number of 5SM councillors and their share of the total is always statistically significant too, and negative.

However, as shown in Figure 6 in the appendix, the common support assumption is not entirely satisfied concerning the variable population, as treated observations in the sample are bigger in the aggregate. This partially represents an issue, because matching methods rely on the common support assumption. Nevertheless, as long as there is some degree of overlap between the two groups this is less of a problem for regressions, and the estimates still provide valuable insights, especially when combined with results from nearest-neighbor matching in section 5.2.2. Moreover, the sign of population is positive and significant both in these estimations and in those in section 5.1, showing some degree of linear correlation with the dependent variable, thus strengthening the inference made by extrapolation. Unfortunately, the same analysis repeated on a subsample of contracts issued by municipalities with a population ranging between 15 and 250 thousand is not able to precisely estimate the coefficient for the variable of interest (treatment). Most notably, the number of observations is drastically reduced to 2,137 (of which 985 treated and 1,152 untreated), as is the number of municipalities remaining in the sample. In addition, the coefficient for the variable population is also imprecisely estimated. Results are reported in Table 10 in the appendix, while density overlap is visible in Figure 7 in the appendix. This adds uncertainty to the overall analysis.

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[69]Stata's CEM's routine default algorithm (Scott's rule) for binning is used for this analysis.Iacus et al. (2012).

Table 9: LPM on the use of discretion (1 for negotiated procedures, 0 for open or restricted formal auctions) at the contract level. Specifications 1-3 use regional fixed effects, and 4-6 use provincial fixed effects. All controls for mayors and municipalities characteristics and work type (4 digits CPVs) and project value (second-degree polynomial). Errors are clustered at the municipal level. Table B also controls for the use of the most economically advantageous price criteria (equals one). As the data for the criteria used to adjudicate the offer is often unreported, the number of observations used is significantly lower. Unbalanced observations have been pruned away with coarsened exact matching, as detailed above.

A) Dependent: discretion	(1)	(2)	(3)	(4)	(5)	(6)
Treated$_{M5S}$ (binary)	-0.064***			-0.054***		
	(0.018)			(0.017)		
Councillors$_{M5S}$		-0.026**			-0.023**	
		(0.011)			(0.010)	
Councillors$_{M5S\%}$			-0.003*			-0.003*
			(0.002)			(0.002)
Population	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Corruption (prov)	0.227	0.237	0.249	-0.171	-0.166	-0.166
	(0.211)	(0.210)	(0.210)	(0.329)	(0.331)	(0.331)
Voice (prov)	0.010	0.004	-0.003	1.447***	1.437***	1.436***
	(0.112)	(0.113)	(0.112)	(0.233)	(0.234)	(0.234)
Mayor	X	X	X	X	X	X
Municipality	X	X	X	X	X	X
Work	X	X	X	X	X	X
Year	X	X	X	X	X	X
Region FE	X	X	X			
Province FE				X	X	X
Constant	0.911***	0.905***	0.907***	0.255	0.252	0.256
	(0.241)	(0.241)	(0.241)	(0.217)	(0.218)	(0.219)
Observations	15,333	15,333	15,333	15,333	15,333	15,333
R-squared	0.124	0.122	0.121	0.168	0.167	0.166
N_municipalities	4344	4344	4344	4344	4344	4344
Regions/Provinces	15	15	15	86	86	86

Clustered standard errors in parentheses

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

B) Dependent: discretion	(1)	(2)	(3)	(4)	(5)	(6)
Treated$_{M5S}$ (binary)	-0.074***			-0.064***		
	(0.019)			(0.018)		
Councillors$_{M5S\%}$		-0.031**			-0.028**	
		(0.013)			(0.012)	
Councillors$_{M5S\%}$			-0.004**			-0.003*
			(0.002)			(0.002)
Award criteria	-0.115***	-0.116***	-0.116***	-0.108***	-0.108***	-0.108***
	(0.023)	(0.024)	(0.024)	(0.021)	(0.021)	(0.021)
Population	0.000***	0.000***	0.000***	0.000**	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Corruption (prov)	0.344	0.345	0.360	-0.736*	-0.719*	-0.717*
	(0.325)	(0.326)	(0.326)	(0.410)	(0.411)	(0.412)
Voice (prov)	-0.035	-0.044	-0.056	1.923***	1.905***	1.903***
	(0.139)	(0.141)	(0.140)	(0.266)	(0.264)	(0.265)
Mayor	X	X	X	X	X	X
Municipality	X	X	X	X	X	X
Work	X	X	X	X	X	X
Year	X	X	X	X	X	X
Region FE	X	X	X			
Province FE				X	X	X
Constant	0.837**	0.838**	0.843**	0.424	0.412	0.415
	(0.357)	(0.360)	(0.360)	(0.273)	(0.274)	(0.275)
Observations	10,006	10,006	10,006	10,006	10,006	10,006
R-squared	0.107	0.103	0.101	0.156	0.154	0.152
N_municipalities	3066	3066	3066	3066	3066	3066
Regions/Provinces	15	15	15	86	86	86

Clustered standard errors in parentheses

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

3.6   Discussion

The results obtained in this chapter showcase the existence of an effect of political competition on the utilization of discretionary award procedures in public procurement in Italy, following the entrance of a new political party. In detail, it has been offered reasonable evidence of a reduction in the likelihood of choosing a negotiated procedure ranging from 4% to 9%. This *prima facie* seems

at odds with pre-existing evidence. Indeed, while not directly addressing discretion, Coviello and Gagliarducci (2017) highlights the ineffective functioning of the political monitoring mechanism in the Italian context. One potential explanation for their result is the perceived lack of political significance attributed to investments of a limited amount, which often constitute a substantial portion of the public expenditure for local authorities. Moszoro and Spiller (2012), exploring Coviello and Gagliarducci (2017) results, point to the electoral dispersion typical of Italian municipalities coupled with an inefficient judiciary. In this view, dispersion reduces the individual incentive of political opponents to monitor the probity of the governing party. Nevertheless, the findings of this study highlight a reduced inclination toward discretionary awarding procedures in the presence of particular political pressure. However, the overall results of this study provide a potential reconciliation for divergent findings: while conventional political indicators do not exhibit a correlation with the use of discretion, the influence of the 5 Star Movement suggests the importance of probity-related political ideals in shaping the targeted outcome. These results, therefore, are not entirely in contradiction with Coviello and Gagliarducci (2017) but rather refine them by pinpointing the importance of the historical and cultural context. Indeed, the analysis of Coviello and Gagliarducci (2017) uses contractual data from Italian municipalities between 2000 and 2005, where the political scene was dominated by two opposing factions (although including some minor parties), a situation that endured until the entrance of the M5S.

A limitation of this study is the impossibility of reaching the precise channel of transmission between political pressure and the use of discretion. Discretionary procedures can be linked to corruption/favoritism, but also represent a suitable way to procure complex objects (Bajari and Tadelis, 2001) or to incorporate relational/reputational aspects in the award decision (Calzolari and Spagnolo, 2017; Bafundi et al., 2023). It is not possible here to discern between the two effects nor to compute a net effect on welfare. Notably, while answering an unanswered empirical question – namely whether political pressure influences the use of discretion – caution is suggested in stretching such results in any direction. The results, indeed, could point towards two nearly opposite interpretations: the destruction of equilibrium based on 'sharing compromising information' (as Gambetta (2018) describes the Italian case); and Spiller's 'third-parties opportuinism'.

On the one hand, the entrance of the 5 Star Movement represents a suitable experiment. Indeed, it is an actor, in theory, capable of breaking possible collusion between the two preexisting factions. Such a form of political collusion could be sustained by mutual hostages in the form of compromising information (see also Della Porta (2004) interpreting the Italian situation before the scandals in the 90s). In fact, it was the common perception of a corrupt establishment that made its vigorous entry feasible, possibly ending up disturbing such equilibrium. The "entry of 'honesty-promoting' competitors in the political arena" can indeed represent a possible "countervailing force external to the corrupt environment" (Vannucci, 2015). The identified negative effect on discretion could substantiate this hypothesis, indicating a reduction in contractual practices linked to favoritism and corruption. Alternatively, it may suggest a shift towards other instruments, such as tailoring requisites in open auctions. This hypothesis also resonates with the results obtained by Alfano et al. (2023) – i.e., the negative correlation in the Italian context between political competition and reported "grand" corruption.

On the other hand, the results may be interpreted through the *third-parties opportunism* lens (Spiller, 2008) as a special case of *bureaucratic defense.* Well-intentioned public administrators, including mayors and bureaucrats, may be refraining from discretionary procedures as a defensive measure to prevent third parties from raising probity accusations. This defensive bureaucracy could contribute to the inefficiencies of the Italian public procurement system. This could be read in line with Bandiera et al. (2009), which shows that, in the Italian case, public procurement is affected more by inefficiencies than corruption. Note, moreover, that Beuve et al. (2021) takes into due consideration the role of political tolerance in the picture, in particular concerning deviations from the initial contractual arrangements, but the same reasoning extends to the use of discretionary procedures. In detail, political tolerance is defined there as:

> "*given by the cultural setup (including trust in institutions), the rule of law, and foremost political contestability: high political competition correlates with low political tolerance, as political opponents will take advantage to overturn the incumbent public agent.*"(Beuve et al., 2021, p. 5).

Again, the entrance of a political party that might be seen as intolerant represents a suitable testing environment. This, coupled with the findings presented above, raises an important point about the analysis of institutions, in general, and in particular concerning political competition. Importantly, the impact of political competition in this context is not only dictated by formal rules but is instead influenced by the entry of an external actor with inherent motivations, possibly highlighting the importance of informal rules and how the players play the game, rather than the rules themselves. This might resonate with the arguments presented in Bosio et al. (2022), namely that discretion is beneficial in high public sector capability countries and it is instead detrimental in low public sector capability settings. Nevertheless, it should also be stressed that political actors not only play the game but also design its rules, both in general and in public procurement specifically. Dávid-Barrett and Fazekas (2020), for instance, highlights the role of both the design of public procurement law and the possibility of deactivating the controls by civil society in shaping procurement outcomes.

3.7   Conclusion

This chapter empirically examines the impact of political competition on the utilization of discretionary adjudication procedures in public procurement. Leveraging the entry of the 5 Star Movement – a probity-based and anti-establishment political actor – in Italy as a treatment, matching estimators yield an Average Treatment Effect on the Treated (ATT) showing a reduction of 4% to 9% concerning the likelihood of employing negotiated procedures over formal auctions. Unfortunately, the analysis cannot determine the direction of the effect on welfare, as reduced discretion may be associated with both reduced corruption (or differently channeled corruption) and inefficiency stemming from the impairment of pre-contractual screening. The findings are indeed consistent with both bureaucratic defensive strategies – in particular due to *third-parties opportunism* (Spiller, 2008) – and the disruption of a forbearance equilibrium between parties upheld by mutual hostages

(Della Porta, 2004; Gambetta, 2018). Additionally, the study tests the impact of various measures from the political economy literature that gauge political competition on the use of discretion, revealing no significant results. This underscores the importance of considering specific political positions when evaluating effects related to probity or corruption.

APPENDIX

Figure 5: Density balance graphs for the quality of the matches in Table 8. Each line represents a match from the table above on the two continuous variables used. For each continuous variable, there is the raw data – on the left – and the matched sample – on the right. The treatment group is in red, while the control group is in blue.
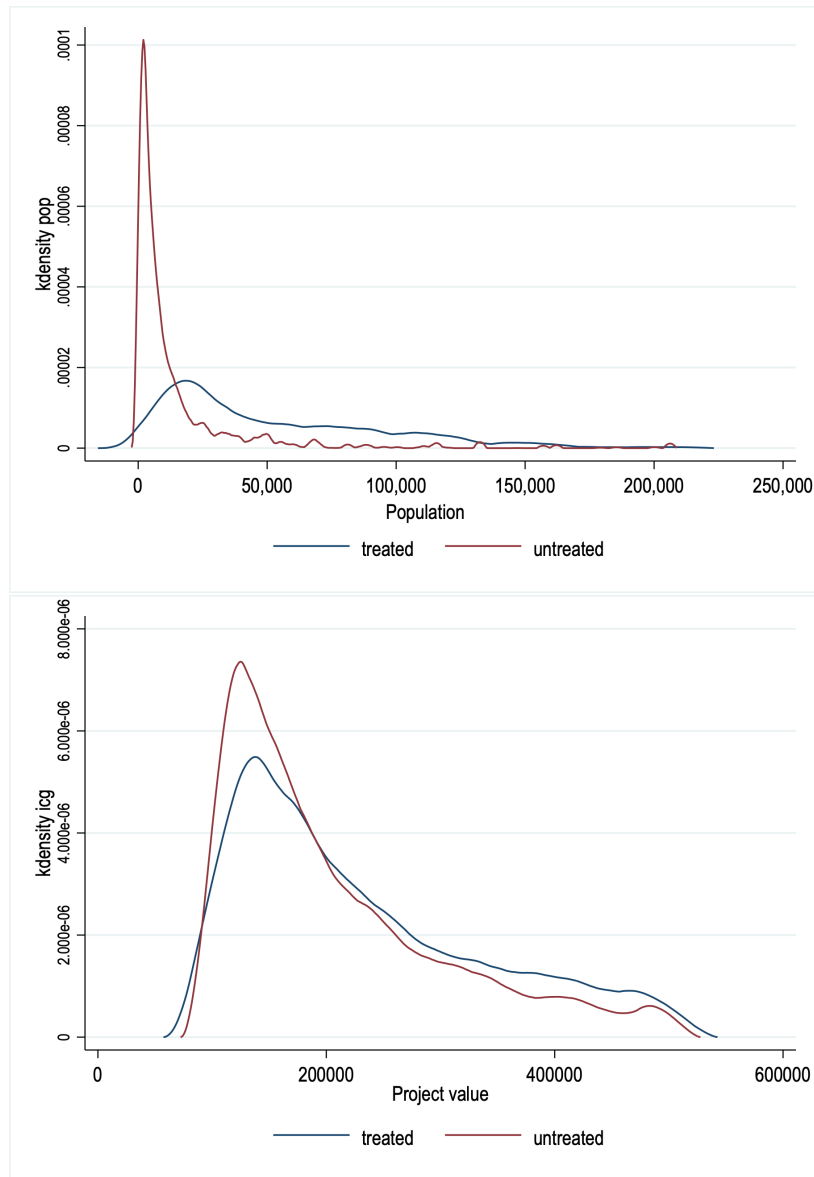
c)

d)

76

e)

Project value

Population

f)

Project value

Population

g)

h)
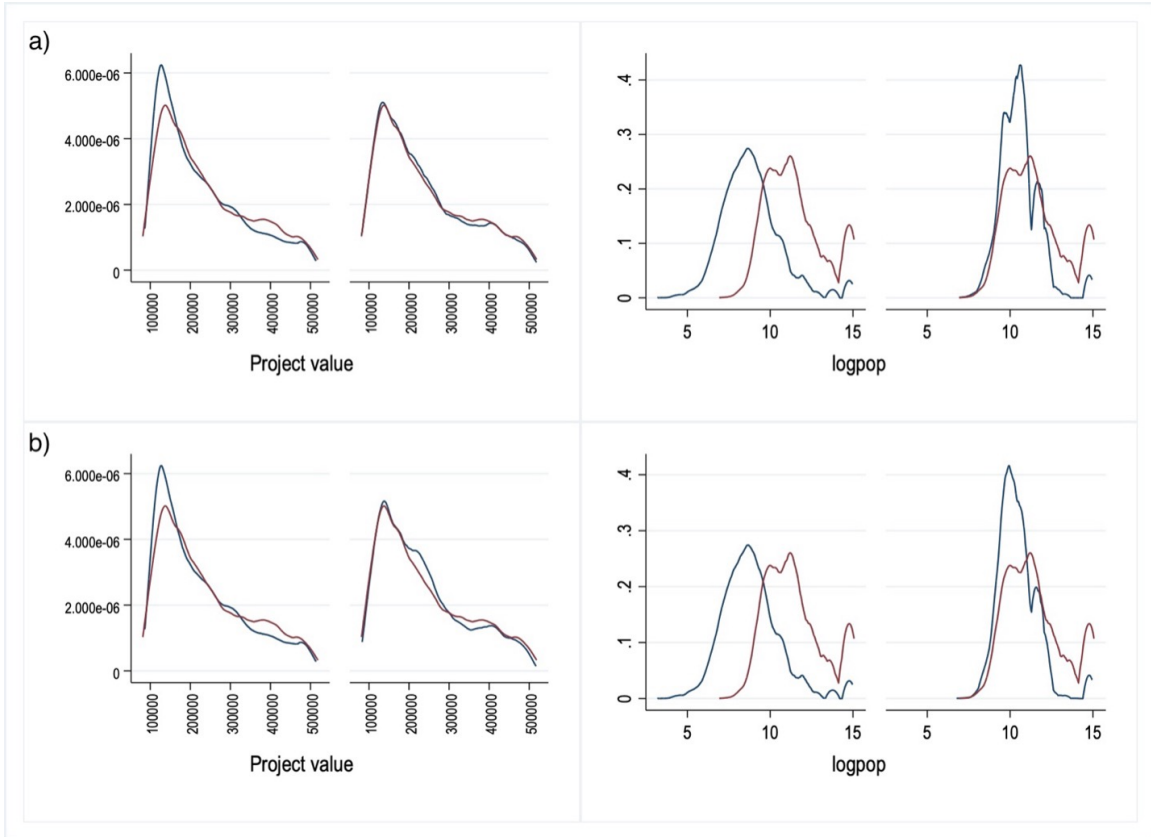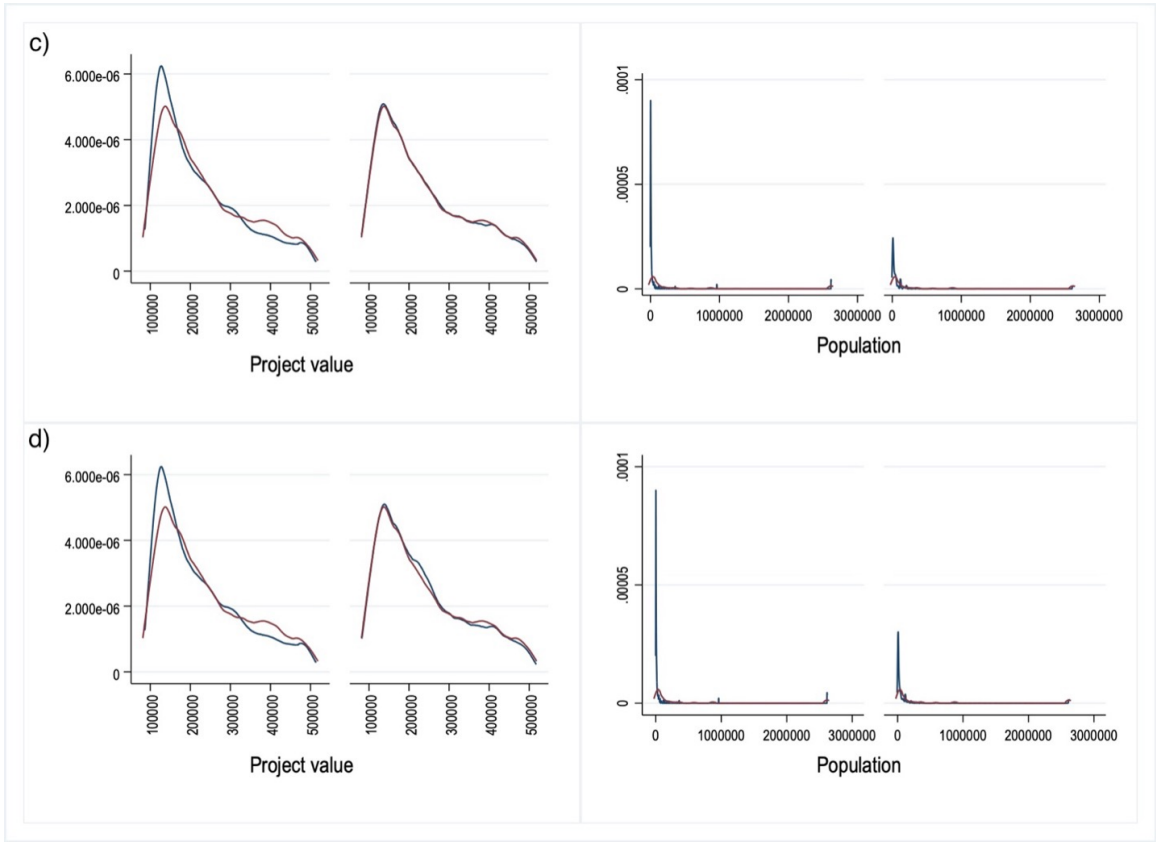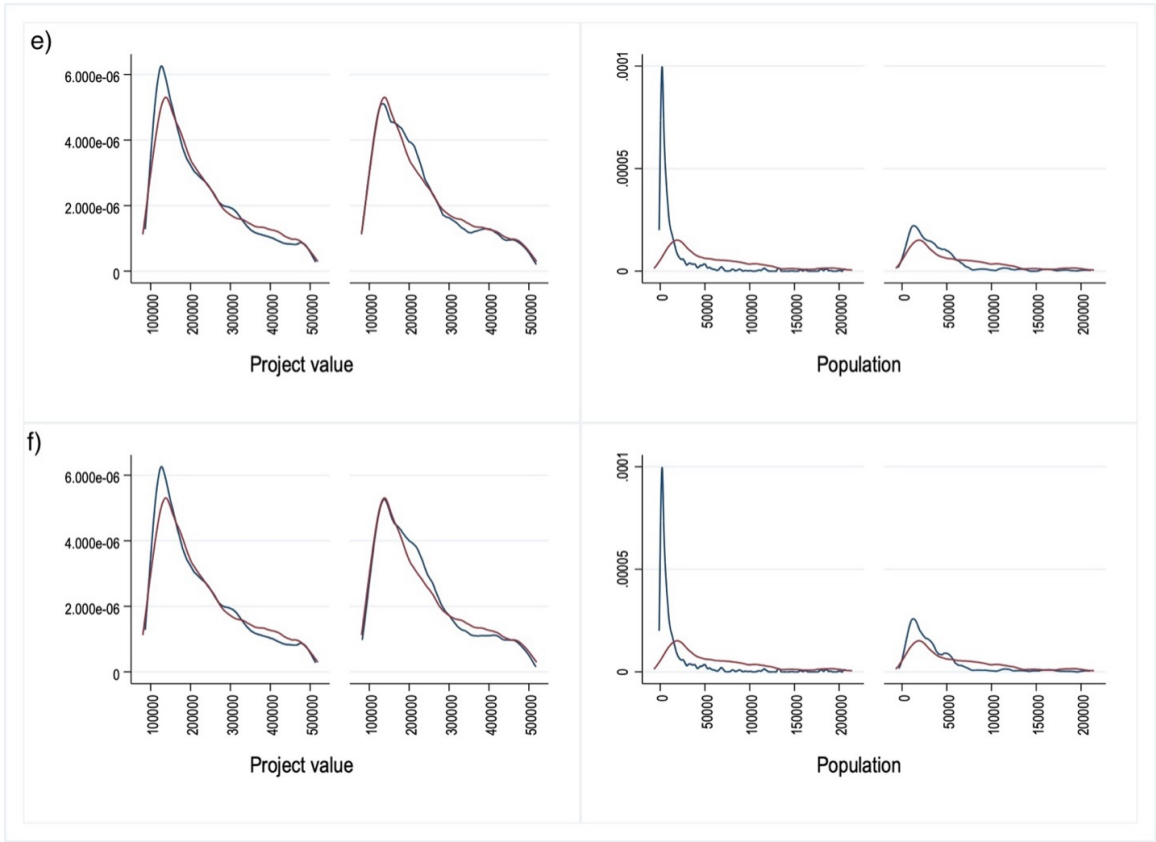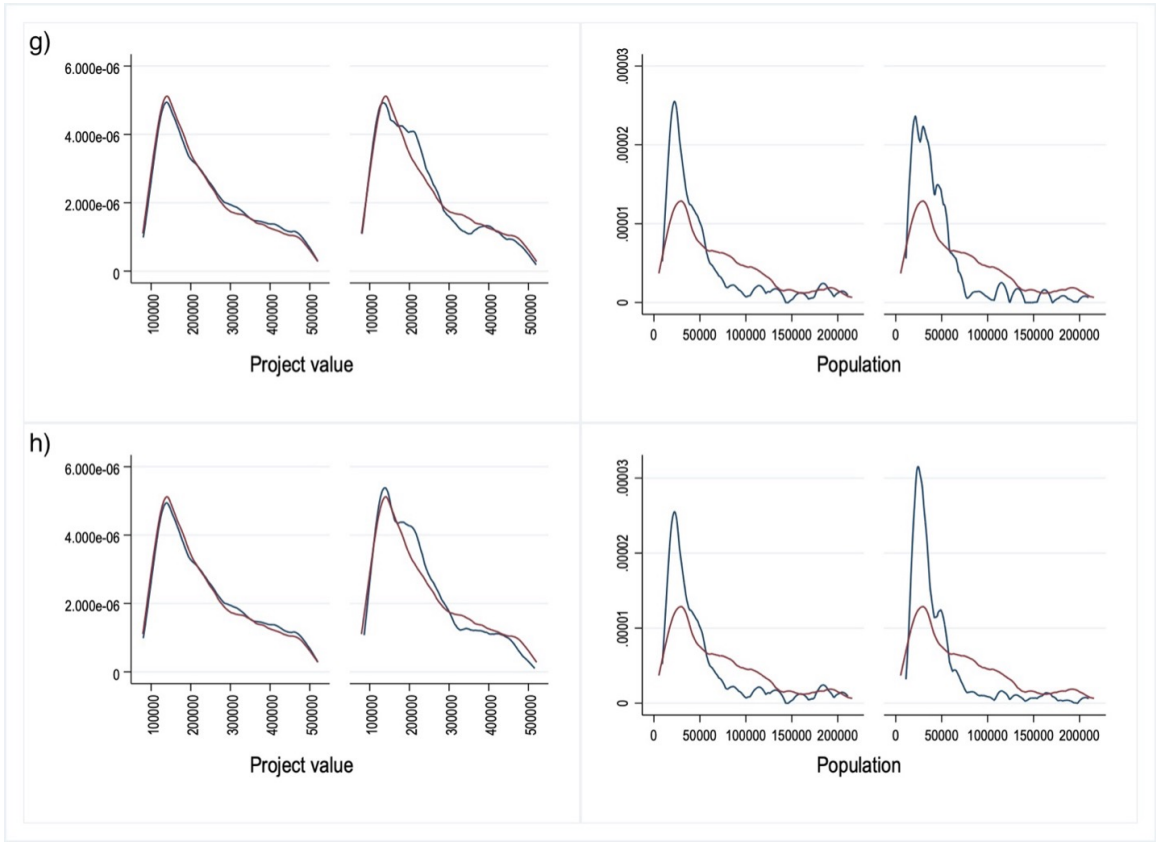
Figure 6: Density comparison of the variables population and project value for the sample of the estimations in Table 9. The graph for the population only depicts municipalities with a population lower than 250 thousand for exposition clarity.

Table 10: LPM on the use of discretion (1 for negotiated procedures, 0 for open or restricted formal auctions) at the contract level. Both specifications control for mayors' and municipalities' characteristics and work type (4 digits CPVs) and project value (second-degree polynomial). Errors are clustered at the municipal level. Unbalanced observations have been pruned away with coarsened exact matching, as detailed above. Only contracts issued by municipalities with a population comprised between 15 and 250 thousand are used for estimation after CEM.

Dependent: discretion	(1)	(2)
Treated$_{M5S}$ (binary)	0.004	0.011
	(0.023)	(0.025)
Population	0.000	0.000
	(0.000)	(0.000)
Corruption (prov)	0.150	-1.151
	(0.264)	(1.877)
Voice (prov)	-0.324*	0.032
	(0.173)	(0.983)
Mayor	X	X
Municipality	X	X
Work	X	X
Year	X	X
Region FE	X	
Province FE		X
Constant	1.234***	1.751*
	(0.313)	(1.024)
Observations	2,137	2,137
R-squared	0.188	0.280
N_municipalities	409	409
Regions/Provinces	15	86

Clustered standard errors in parentheses

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

Figure 7: Density comparison of treated and untreated units for the sample used in Table 10 in the appendix, using only population between 15 and 250 thousand.
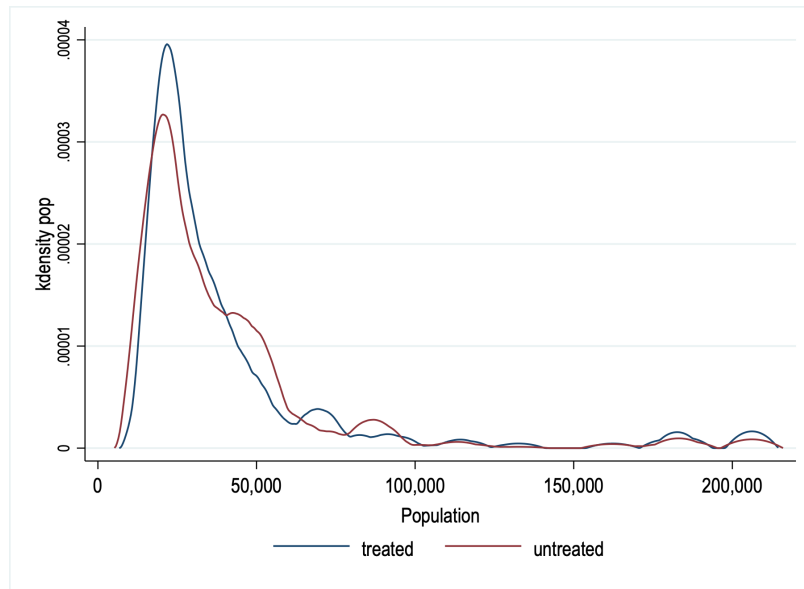
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