

Procurement Centralization in the EU: the Case of Italy

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Abstract

This paper analyzes the process of centralization of public procurement in Europe, with an emphasis on the Italian case. It then empirically evaluates the potential distortions induced by the most recent wave of centralization reforms. Using procurement data on all Italian public contracts awarded between 2015 and 2017, it finds that administrations expecting to lose their ability to contract independently game the centralization requirements in three ways. In the short run, they anticipate their purchases to avoid delegating to a central body. In the longer run, they both manipulate contract values, breaking down purchases into smaller lots of amounts below the thresholds driving centralization requirements, and, when given the option, aggregate into the smallest types of centralized purchasing bodies. These three distortions partially offset the potential benefits of the centralization reforms.

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I Introduction

Every year, over 250,000 public authorities in the EU spend around 14% of the GDP on purchase of services, works and supplies for an amount of over 2 trillion euros, around the 29% of the total public expenditures (EU Commission, 2017). Improving the quality and reliability of public procurement systems has thus been a policy goal in the EU in the face of the opportunities that the creation of a common market created. Indeed, fostering efficiency in public spending, enhancing the cooperation among Member States and establishing a common regulatory framework have been the main forces pushing for public procurement reforms at EU and national level (Piga and Tatrai, 2017).

The deep transformations that the EU public procurement organization is experiencing offer a rare opportunity to empirically study key aspects of procurement. Among such features, this study focuses on procurement centralization. While there is a scant literature on this topic (notable exceptions being Bandiera et al. [2009]; Albano and Sparro [2010]; Schotanus et al. [2011] and Walker et al. [2013]), this is a central issue at a time when many governments worldwide are reorganizing their public sectors to deal with spending cuts. Stimulating cooperation among central and local purchasing bodies and, more specifically, encouraging smaller, local procurement centers to pool or share purchasing volumes, information, and resources is indeed seen as a way to achieve savings (Schotanus et al., 2011). But while there is a policy imperative for collaborative procurement, public administrations often face difficulties in forging and sustaining interorganizational relationships in the form of purchasing collaborations (Schotanus et al., 2011; Walker et al., 2013).

Indeed, procurement centralization reforms have complex dynamics.¹ Centralization of public procurement can impact a multiplicity of aspects, from the types contracts used² to the

¹According to Dimitri et al. (2006), centralization appears as a clear trend in public procurement. There is evidence that governments all over the world are encouraging public sector organizations to cooperate in purchasing, so as to achieve economies of scope and scale, with examples including the United Kingdom, United States, and Australia (Schotanus et al., 2011). If purchasing is decentralized, all governmental units and agencies have the flexibility to order products and services according to their needs. But, many of such needs are similar across agencies (e.g., office supplies, cleaning services), and the government as a whole forgoes certain benefits if such purchases are not coordinated from the center (Karjalainen, 2011). As a result, many governments are moving towards a more centralized purchasing model.

²For instance, centralized procurers tend to use framework agreements instead of traditional, fixed quan-

organizational aspects of contracting authorities.³ This paper looks at one of these aspects: resistance by local buyers to the centralization process. In particular, its aim is to quantify the distortions produced by the attempts of the local buyers to game the centralization reforms and maintaining their independence.

The paper begins with a description of the EU and Italian centralization reforms and their goals. The analysis of the recent reforms allows us to identify three main dimensions along which these reforms might produce unintended effects. Distortions might involve both short and long run effects. The former consists of anticipatory effects driving those administrations expecting to lose their ability to contract independently to anticipate their purchases. The latter involve more structural changes regarding two aspects. First, since the reforms introduced monetary threshold below which local procurers can avoid delegating their purchases to central entities, we expect manipulations of contract values, breaking down purchases into smaller lots of amounts below the thresholds at which centralization requirements kick in. Second, when local buyers are given the option to aggregate into new entities, differing in their degree of centralization, their choice might be to opt for the least centralized ones.

Using an original dataset on the universe of Italian public contracts awarded during the period 2015-2017, our empirical assessment provides evidence in favor of the presence of all these three types of distortions. These are relevant findings as such distortions can partially offset the potential benefits of the centralization reform. More generally, they illustrate the difficulties of pushing for procurement centralization in an economically sizable part of the EU market. For this reason, at the most general level, our research belongs to the

tivity contracts. Framework agreements are negotiated at the center, based on pooled volumes of all the agencies, and the agencies are expected to order against such agreements. The central procurement unit thus has the responsibility to define the specifications, select the suppliers and the products and services, negotiate the terms and prices, and set up ordering channels for the other governmental agencies. According to Celec et al. (2003), the two main sources of savings from these agreements are price concessions from suppliers and administrative cost savings by reducing repetitive tendering. Centralization is expected to deliver additional benefits including increased quality of purchasing processes and the quality of purchased products and services (Schotanus et al., 2011). Yet, achieving and sustaining such benefits has been shown to be extremely difficult (Cox et al., 2005). Compliance to such contracts throughout the organization is crucial to achieve the benefits of these pooling efforts. Noncompliant procurement behavior, also known as maverick buying (Kauppi and Van Raaij, 2014), is hindering organizations from attaining the goals set for the procurement centralization efforts described above (Lonsdale and Watson, 2005).

³See (Kelman, 2005; Brunjes and Kellough, 2018).

analysis of the impacts organizational adaptations (Nieto Morales et al., 2012).⁴ A few practical implications that can be distilled from the evidence analyzed and used to steer the organizational adaptation in a socially desirable way are offered in the conclusions.

II The EU and Italian Procurement Regulations

From an historical perspective Centralized Procurement Bodies (CPB) were firstly introduced to EU public procurement law through Directive 18/2004. This Directive contained a few, basic provisions dealing with CPB as a form of demand aggregation. By 2012 all Member States (MS) except for Estonia, Germany and the Luxembourg had included a provision in their national law contemplating CPBs. Building upon the CPB growth during the last decade across the EU, the new Procurement Directive 24/2014 introduced several changes increasing CPBs functions, modifying their nature and improving the basic regulation of Directive 18/2004. The new Directive states (art. 69): “Centralised purchasing techniques are increasingly used in most Member States. Central purchasing bodies are responsible for making acquisitions, managing dynamic purchasing systems or awarding public contracts/framework agreements for other contracting authorities, with or without remuneration. The contracting authorities for whom a framework agreement is concluded should be able to use it for individual or repetitive purchases. In view of the large volumes purchased, such techniques may help increase competition and should help to professionalise public purchasing.” Dynamic purchasing systems are completely electronic provisioning processes

⁴From the regulated organizations’ perspective, transnational regulations (like those of the EU) are often crafted elsewhere, outside the organizations’ geographical and industrial realm, and not easily translated to their local settings and everyday practices (Djelic and Sahlin-Andersson, 2006). Thus, organizations struggle to meet various and often conflicting demands on how to perform key activities (Smets et al., 2015). This particularly applies in the public sector, which is regulated by both national law and transnational regulations and is subject to scrutiny by government and media (Meyer and Hammerschmid, 2006). As regulations change, well-established practices and norms risk being challenged, deemed inappropriate and replaced with new ones (Cloutier et al., 2015; Perner and Skjølsvik, 2017). Previous research shows that such changes can lead to unexpected outcomes, conflicts, and resistance, and can have far-reaching effects on the regulated organizations (Cloutier et al., 2015; Greenwood et al., 2002). It also shows that the implementations of transnational regulations “are often associated with significant gaps between the intended content and purpose of the regulation and its actual implementation at the national level” (Canning and O’Dwyer [2013], 191). For this reason, this research is taking into account legislative changes at the EU level and their national implementation.

aiming at the supply of standardized and widely used goods and services. Framework agreements, instead, are indefinite time/quantity contracts underwritten by CPBs and more than a single economic operator. They set the rules that will regulate specific public contracts.⁵

According to Anchustegui (2015), Directive 24/2014 allows contracting authorities to employ CPB services in four ways: i) acquire goods through public contracts awarded by the CPB; ii) use dynamic purchasing systems run by the CPB; iii) employ framework agreements that have been concluded by a CPB; and iv) employ their ancillary purchasing services. Framework agreements are a contractual arrangement that is peculiar of CPB and characterizes their activity. Indeed, the few instances where the existing literature has looked at the activity of CPB is indeed in relationship to their usage of framework agreements (Bandiera et al. (2009), Gur et al. (2017)). However, to synthesize even further the content of art. 69, it can be said that the Directive establishes two manners by which central purchasing bodies operate. First, they should be able to act as wholesalers by buying, stocking and reselling. Second, they should be able to act as intermediaries by awarding contracts. Such an intermediary role might in some cases be carried out by conducting the relevant award procedures autonomously, without detailed instructions from the contracting authorities concerned; in other cases, by conducting the relevant award procedures under the instructions of the contracting authorities concerned, on their behalf and for their account.

In Italy, three major legislative changes have impacted public procurement centralization in the period of our study, between 2014 and 2016. To clarify this fragmented, changing and intricate legislation, Table 1 summarizes the main reforms. First, in 2014, new CPB were created as “local CONSIP,” replicate at local level the CONSIP model.⁶ They include Regional Purchasing Bodies and Metropolitan Area Purchasing Bodies. The same reform also reduced the ability of smaller municipalities (those that are not provincial capitals) to

⁵Framework agreements - with their pre-determined general rules and successive personalization by authorities - find their logical fit somewhere between the framework contracts that are used for standardized product categories and the calls for tender designed to meet the specific requirements of individual contracting authorities. For a discussion of aggregated procurement techniques in the light of the Directive 24/2014 see, inter alia: (Sanchez-Graells and Herrera Anchustegui, 2014; Hamer, 2014; Racca, 2010).

⁶CONSIP is the oldest CPB, established in 1997 as a fully owned and managed firm by the Ministry of Economy and Finance. Over the years, CONSIP dealt with a small number of very economically significant purchases involving standardized goods and services.

purchase goods and services over €40,000 and works over €150,000. Above these thresholds, these municipalities can merge their public procurement offices with those of either other municipalities (forming a “Centrale Unica di Committenza,” CUC, the smallest form of CPB) or with their province procurement office (the “Stazione Unica Appaltante,” SUA, the next level of centralization) or, for some purchases, relying on regional or national (CONSIP) CPB (called “Soggetti Aggregatori”, SA, which also include the CPB of the nine largest municipalities).

Municipalities with less than 10,000 inhabitants were bound to buy all goods, services and works through one of these three types of CPB. For municipalities with more than 10,000 inhabitants it was possible to purchase good and services up to the threshold of €40,000 and works up to €150,000. Provincial capitals could, instead, buy autonomously. The coming into force of this regulatory regime was postponed so that these rules started to operate only on November 1st, 2015. Two months later, however, the Budget Law 2016, approved by the end of December 2015, eliminated the distinction between municipalities with more/less than 10,000 inhabitants and larger municipalities. The thresholds of €40,000 and of €150,000 became the same for all municipalities.

Finally, in April 2016, Italy enacted a fully redesigned Code of Contracts incorporating in the national law the EU Directive 24/2014. This reform touched on many salient features of the system. Regarding centralization, the legislator established a new system imposing technical, economical and organizational requirements to qualify public procurers: higher qualifications are required to purchase contracts of higher value. When its contracting authority does not meet the requirements to obtain qualification, a public entity must purchase through a qualified CPB. Among the three types of CPB (CUC, SUA and SA), only the latter are automatically qualified for all kinds of purchases. CPB of the former two types must, instead, apply and meet requirements for qualification like any other contracting authority.

While this approach appears very reasonable, major controversies over the criteria to use for the qualification system have blocked the implementation of this part of the reform. Hence, its effective functioning cannot yet be assessed. The current system is thus still the one introduced by the Budget Law 2016.

Table 1: Legislative changes per year

2014	2015	2016
<p>a) Introduced 35 regional and metropolitan qualified contracting authorities called “Soggetti Aggregatori”. These entities are able to purchase on behalf of local governments;</p> <p>b) municipalities divided into three classes: 1) provincial capital 2) Municipalities with more than 10,000 inhabitants and 3) municipalities with less than 10,000 inhabitants.</p> <p>c) Different thresholds introduced in public purchasing for each class of Municipalities. Provincial capitals were able to purchase independently over thresholds; municipalities with more than 10,000 inhabitants were allowed to purchase independently up to €40,000 for services and furnitures and up to €150,000 for works; municipalities with less than 10,000 inhabitants were allowed to purchase services, furnitures and work only up to €40,000.</p> <p>d) Over these thresholds municipalities were obliged to purchase through CONSIP or SA or merging with other municipal contracting authorities in a entity called “Stazione Appaltante Unica”.</p>	<p>a) By November 1st, all the centralization provisions of 2014 became effective;</p> <p>b) By December 28th (Budget Law), the legislator eliminated the division made on the number of inhabitants for Municipalities;</p> <p>c) With the new regime Provincial capital remained able to purchase independently up to European thresholds;</p> <p>d) All the other municipalities (non-provincial capital) were able to purchase up to €40,000 of furniture and services and up to €150,000 of works independently.</p>	<p>a) On April 19th, the new Code for Public Contracts came into force;</p> <p>b) The division based on provincial capitals and municipalities is abolished in favor of a regime based exclusively on contracting authorities’ qualification;</p> <p>c) To purchase furniture and services over €40,000 and works over €150,000 contracting authorities have to obtain a qualification meeting dimensional, organizational and skills requirements established by the legislator.</p> <p>d) If the contracting authority does not meet the requirements and it does not achieve its qualification to purchase over the thresholds it is obliged to purchase through CONSIP or SA or merging with other non-qualified contracting authorities in a entity called “Stazione Appaltante Unica” in order to achieve qualification;</p> <p>e) Qualification is essential to every contracting authorities for public purchasing over the thresholds established by the law.</p> <p>f) Only the Soggetti Aggregatori are contracting authorities qualified-by-law and they do not need to meet requirement to obtain qualification.</p>

III Potential Effects of the Recent Reforms: Hypotheses

There are three main directions along which it is interesting to evaluate the above reforms and which represent our research hypotheses to be empirically tested below. First and foremost, the reforms should change the identity of the public entities involved in the procurement process. Less procurement activity should be undertaken by the smaller, local buyers and more by the CPB. Furthermore, the flexibility given to municipalities to freely choose which of the three types of CPB to use suggests the possibility of a distorted use of this choice. In particular, the first hypothesis is:

(H.1) Centralization: The November 2015 reform should lead to an increase in the number of contracts procured by CPB and, conversely, to a decrease in the number of contracts awarded by decentralized authorities. Among the CPB, a concentration of purchases among aggregators of small municipalities (the CUC) can signal a distorted use of centralization.

Second, many authors have shown how the introduction of monetary thresholds in public procurement can lead to manipulations of contract value or timing by the contracting officers aimed at keeping control over the auction process, avoiding bureaucratic burdens or monitoring (Palguta and Pertold, 2017; Giuffrida and Rovigatti, 2017; Coviello and Mariniello, 2014). The second and third hypotheses look, respectively, at distortions due to the timing of the centralization reforms and to the newly created monetary thresholds:

(H.2) Anticipation: Local procurement officers foreseeing the effects of the November 2015 and January 2016 reforms anticipate their purchasing right before the reforms enactment dates, purchasing less afterwards.

(H.3) Manipulation Local procurement officials have an incentive to manipulate the ex-ante contract value in order not to be subject to the centralization provisions.

The first and third hypotheses regard structural changes to the procurement system that can display their effects long after the reforms' enactment. The second hypothesis, instead, regards a phenomenon that is necessarily short lived, given its linkage to the reforms' date of enactment. In this respect, since for a regular law it takes 15 days to become effective at after

its publication, it was around mid October 2015 that public administrators became aware that the centralization reform of 2014 was not going to be further postponed past November 1st, 2015. Methodologically, assessing the first hypothesis is relatively straightforward given that the availability of data on the universe of procurement contracts allows us to count those awarded both before and after the reforms. The latter two hypotheses, instead, require a slightly more sophisticated approach. Indeed, to argue about manipulations in terms of timing or amount of the contracts, we need to correctly specify a benchmark. Below, we explain the procedures followed and the results obtained.

IV Data and Analysis

The analysis uses an original dataset based on several data sources. The main source is the universe of public contracts collected from the ANAC, the Italian Anticorruption Authority, which is the public body supervising the sector. Essentially all contracts above €40,000 shall be communicated to the ANAC and registered on its portal. The data is available starting from January 2015 and we collected data up until April 2017. We complemented this data with a subset of contracts that, due to their nature, are communicated only to the Ministry of Infrastructure and Transportation. We also added demographic data at the municipal level provided by the National Statistical Office and the list of qualified CPB (*Soggetti Aggregatori*).

The data report several variables related to the allotment (the auction ID, the contract type - goods, works or services -, the object, the contracting authority and the awarded firm), the relevant dates (tender publication, awarding date, validity date, completion date) and the auction process (base and awarding amount, the final amount and the number of bids accepted). The overall dataset contains about 800,000 awarded contracts.⁷

Hypothesis (H.1): Centralization

To explore the extent of centralization and the types of CPB, table 2 reports the total amount and the number of contracts (the latter is reported in parenthesis) per type of public buyer.

⁷See Castellani et al. (2017) for a more in depth discussion of the data.

In the table, the data span two months before (November 1 to November 30, 2015 - *pre*) and after (December 1 to December 30, 2015 - *post*) the introduction of the new regulation in November 2015. The first two columns are for contracts involving public works, the next two for services and the last two for supplies.

Panel a) focuses on the three types of CPB, whereas panel b) looks at decentralized purchasing authorities. There are clear data patterns supporting H.1: the qualified CPB and the CUC experience a dramatic increase in the number and value for all contract objects. Interestingly, the CUC show a +612% on public works contract value and the qualified CPB supplies contract value reveal a +255% figure. The striking increase in the role of CUC is also underscored in the growth in their number which nearly triples (from less than 10 to nearly 30). Furthermore, an analysis of the identity of the most active CUC reveals that most of them are relatively small and derive from the aggregation of micro-municipalities (those with less than 10,000 inhabitants). This seems a clear flaw relative to the stated intent of the reform to drastically reduce the number of contracting authorities.

Panel b) indicates that, as expected, contracts awarded by municipalities decrease in number and value (-46% and -51% in public works, respectively). Regarding public administrations that are not municipalities (last group), the decline after the reform is evident especially for public works. Contracts for supplies and services, instead, remain nearly identical, as it should be expected since the group indicated as “other administrations” contains mostly State administrations already procuring supplies and services through CONSIP. Furthermore, for goods and services the €40,000 threshold is low enough that the ANAC data, which covers contracts above €40,000, does not allow a clear monitoring of their behavior.⁸

Hypothesis (H.2): Anticipation

To explore the second hypothesis, we first resort to a graphical analysis in fig 1. In panel a) we split the sample in two “classes” according to the contract amount, either below or above €150,000, and plot the relative time series. We highlight with vertical, dashed lines the three reform dates: November 1, 2015, January 1, 2016 and April 18, 2016. There are spikes

⁸Table 2 reports a two-months window around the November 2015 regulation change date, but the centralization effect is long-lasting and the descriptive results are robust to the choice of different window sizes. Additional tables are available from the authors upon request.

Table 2: Total Amount and Number of Contracts per type - November 1, 2015

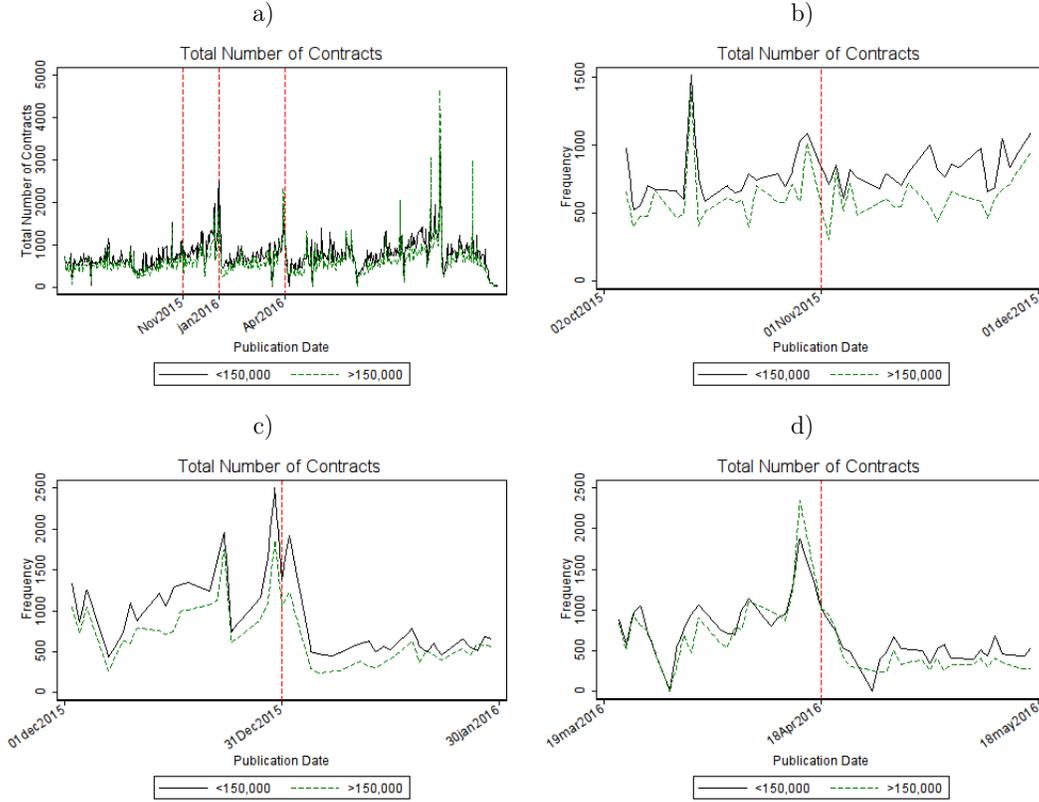
	Panel a): CPB					
	Public Works		Services		Supplies	
	Pre	Post	Pre	Post	Pre	Post
Qualified CPB (SA)	83 (190)	150 (412)	775 (310)	2,756 (411)	283 (352)	720 (304)
SUA	157 (188)	71 (252)	11 (57)	27 (118)	5 (19)	5 (32)
CUC	16 (125)	114 (178)	10 (33)	30 (100)	0 (8)	9 (31)
# Qualified CPB (SA)	17	20	24	28	18	19
# SUA	25	28	14	27	7	9
# CUC	11	26	8	21	2	6
Observations	503	842	400	629	379	367
	Panel b): Non-CPB					
	Pre	Post	Pre	Post	Pre	Post
Municipalities	1,597 (4,704)	778 (2,509)	2,249 (2,963)	1,311 (2,398)	202 (668)	182 (922)
Other Administrations	4,865 (4,679)	2,845 (5,838)	5,199 (6,851)	6,425 (8,991)	3,881 (9,548)	4,145 (10,174)
# Municipalities	1375	698	893	680	262	356
# Other Administrations	593	644	1061	1205	737	866
Observations	9,383	8,347	9,814	11,389	10,216	11,096

Note: Contract Amounts (in million euro) by object, period and type of contracting office in a 2-months window around November 1, 2015. Total number of contracts is reported in parentheses.

associated with each of these dates, but there are overall three clear spikes. Two of them are associated with the end-of-the-year increases due to expiring budgets (see Liebman and Mahoney (2017) for a comprehensive explanation of the phenomenon) around December, 31st of 2015 and 2016. The third spike is right before April, 18th - i.e., the day before the introduction of the new code. To better assess the changes around the reform dates, in panels b), c) and d) we show the same series “zoomed” in two-months windows around the reform dates. They show how the spikes are due to an excess mass of contracts accrued right before the threshold date. This is an indication in favor of H.2: that is, local purchasing authorities actually manipulated the awarding dates in order not to be subject to the new regulation (i.e., exploited the last possible days to award autonomously contracts with face

values above the threshold).

Figure 1: Excess mass decomposition around centralization dates



Note: total number of contracts 2014-2017 (panel a) and in a two-months window around November 1, 2015 (panel b), December 31, 2015 (panel c) and April 18, 2016 (panel d).

Our data allow us to take a step further in characterizing such an anticipation effect. In table 3 we quantify it in terms of excessive number of contracts awarded. In order to do that, we first split the sample in five contract amount classes and make use of the methodology proposed by Chetty et al. (2011) to quantify how many contracts “in excess” contributed to inflate the distribution right below the cutoff date.⁹ In other words, the test is aimed

⁹The methodology involves several steps. We divide the support of the variable of interest in J bins, and generate the contract frequency *per bin* (C_j , $j \in [1, \dots, J]$). We then fit a q^{th} order polynomial based on the empirical distribution of $C_{(\cdot)}$ using the regression

$$C_j = \sum_{i=0}^q \beta_i^0 (Z_j)^i + \sum_{i=-R}^R \gamma_i^0 1[Z_j = i]$$

where Z_j is the contract amount of the j^{th} bin minus the threshold amount (in our case, $Z_j = [-1.500, \dots, 1.500]$) and R is the number of excluded bins around the threshold. These have to be carefully chosen, as excluding big regions can bias results, whereas keeping bins in the proximity of the excessive mass

at finding how the distribution of contracts would have been absent the reform (this is the *counterfactual distribution*) by excluding the inflated region around the threshold date and “filling” the gap created with a function of the included data. The second step, then, is to quantify the difference between how many contracts would have been awarded in the counterfactual case, and how many have been actually awarded. We repeat the test on each of the contract categories individually (columns 1-5) and on the full sample. We perform the test with three different time windows around the threshold - i.e., with an excluded region of a week before the enactment day and 1, 3 or 5 days afterwards. Panels a), b) and c) refer to November 1, 2015, January 1, 2016 and April 18, 2016, respectively.

Nearly all tests show strongly positive values, even for the most conservative test hypotheses, and this is true in particular for larger amounts. This is a strong statistical evidence in favor of H.2, as it clearly indicates that contracting authorities anticipated purchases due to the introduction of the new regulation, and they did so mostly for the largest contract amounts, which were the most affected by the centralization.

could invalidate the test. The first counterfactual density estimation is then given by $\hat{C}_j^0 = \sum_{i=0}^q \beta_i^0(Z_j)^i$, where the effect of the excluded region is eliminated. Using this result, the number of “excessive” contracts at the threshold (B_N) can be estimated as $\hat{B}_N^0 = \sum_{j=-R}^R C_j - \hat{C}_j^0 = \sum_{i=-R}^R \hat{\gamma}_i^0$. Such a counterfactual density, however, must be corrected taking into account that the excess mass before the threshold has been in some sense taken from the density after the threshold - in an “anticipation” attempt, indeed. In order to correct this bias, the counterfactual density is augmented proportionally to the number of excessive contracts, and becomes

$$C_j \left(1 + 1[j > R] \frac{\hat{B}_N^0}{\sum_{j=R+1}^{\infty} C_j} \right) = \sum_{i=0}^q \beta_i^0(Z_j)^i + \sum_{i=-R}^R \gamma_i^0 1[Z_j = i]$$

which can be used to determine the excessive number of contracts as $\hat{b} = \frac{\hat{B}_N}{\sum_{i=-R}^R \hat{C}_j / (2R+1)}$

Table 3: Chetty et al. (2011) test on public works contracts around concentration dates

	$\leq 100,000$	$\leq 150,000$	$\leq 200,000$	$\leq 250,000$	$> 250,000$	total
Panel a) November 1, 2015						
Window 1	622	326	264	126	285	1339
Window 3	1101	447	439	123	624	2110
Window 5	1574	367	520	218	1170	2678
Panel b) January 1, 2016						
Window 1	3129	1296	921	467	2583	5809
Window 3	2641	821	727	346	2057	4533
Window 5	487	-84	345	98	593	831
Panel c) April 18, 2016						
Window 1	2403	1059	1038	602	3272	5098
Window 3	2785	1065	1258	574	3870	5669
Window 5	1364	489	886	271	2591	2996
Average Est	2,184	871	1,061	482	3,244	4,588

Note: Chetty et al. (2011) test on the excessive mass around the reform dates. For each date, the test has been run

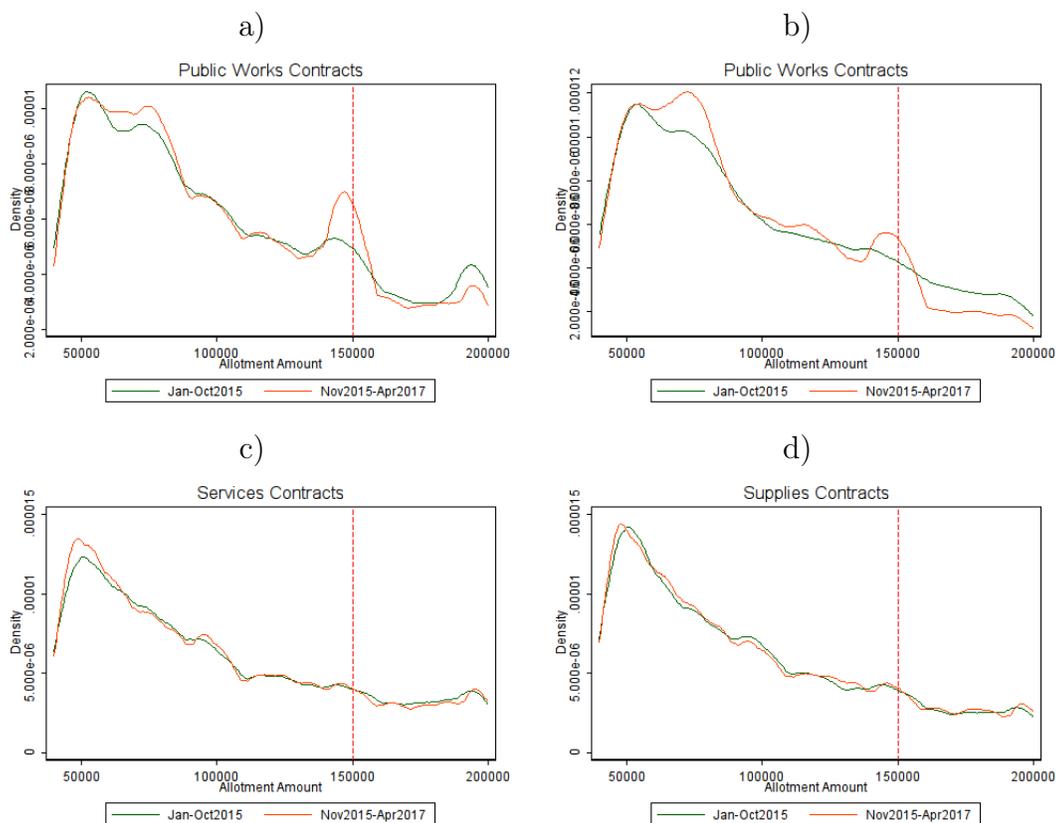
Hypothesis (H.3): Manipulation

In applied contexts, it is very hard to quantify what “purchasing level” an administration would have chosen with and without a mandate to purchase through CPB. To fix ideas, assume that the value of project X , $value_X$, lies above the centralized purchasing threshold T - i.e., $T - value_X \leq 0$. In such case, a local purchasing authority can do one of the following three things: *i*) turn to a central authority to purchase the good X ; *ii*) divide the contract in

multiple lots, each below the threshold: $value_X = value_{X'} + value_{X''}$, where $T - value_{X'} \geq 0$ and $T - value_{X''} \geq 0$, and *iii*) either purchase lower amount of goods/services (X') or lower the quality requirements in order to decrease the value, $value_X \geq T > value_{X'}$. In all cases but *i*) this would reflect into an abnormally high number of contracts right below the threshold T - i.e., there would be evidence of *bunching* at the threshold.

In order to test whether there has been manipulation of the contract amount - either by dividing contract orders or by purchasing lower amounts of goods and services - we follow two approaches; both of them imply testing the observed distribution against a counterfactual.

Figure 2: Distribution of contract amount



Notes: contract amount density pre (Jan-Oct 2015) and post (Nov 2015 - Apr 2017) the introduction of the centralization. We report the overall distribution for public works contracts (panel a), for *not provincial capital* municipalities' public works contracts (panel b), for service (panel c) and supplies contracts (panel d).

On the one hand, we provide graphical evidence that the most affected contract object, public work contracts, shows a remarkable pattern of bunching at the regulation threshold after its introduction. On the other hand, we show that this effect is heterogeneous with

respect to purchasing authorities: in line with H.3, those most affected by the new regulation show a higher intensity of contract manipulation.

In figure 2, panel a) we plot the empirical distribution of public work contracts valued €40,000 to €200,000, between January and October 2015 (*pre*, solid green line) and between November 2015 and April 2017 (*post*, solid red line). It is useful to remark that the empirical distribution is invariant to the total number of contracts, hence our exercise is not biased by the asymmetry of pre/post period lengths. The graph shows a clear spike right below the €150,000 threshold in the *post* period; it means that purchasing authorities awarded a relatively higher number of contracts below the threshold with respect to the *pre* period. A similar picture is shown in panel b), where we plot the same measure relative to municipalities that are not provincial capitals - i.e., those most affected by the November 1, 2015 reform. In contrast, panel c) and d) report the distributions for unaffected contractual categories (i.e., those involving services and supplies, respectively). None of them shows any bunching at the threshold after the regulation change and this strengthens the evidence on the existence of manipulations involving the amounts of public work contracts.

We then run a simple and transparent test to investigate the extent to which the regulation changes led to manipulations of contract value distribution. In particular, we perform a series of t-tests on contract amount average differences splitting the sample in two classes, either below the €150,000 threshold, or between €150,000 and €300,000. The rationale is straightforward and recalls the previous exercise: affected authorities (e.g., non provincial capitals) are supposed to bunch below the threshold, possibly splitting higher contracts in smaller lots; this, in turn, would reflect in higher average contract amount value in the lower contract class, and possibly lower amounts above. On the other hand, CPBs like CUC should experience the opposite, with negative shifts in average contract value below the threshold, and positive shifts afterwards. In table 4 we report the results of the above outlined exercise, alongside the average contract value. Results are in line with the predictions, showing a high degree of manipulation for non provincial capitals above the threshold and for CPBs in the aftermath of the reform, giving strong and robust support to H.3.

Table 4: T-tests on average import - public works

	<150,000			>150,000		
	μ_{pre}	μ_{post}	t-test	μ_{pre}	μ_{post}	t-test
Full Sample	86,747	85,275	-2.253 (0.024)	214,851	213,615	-0.941 (0.347)
Provincial Capital	83,159	88,575	1.968 (0.050)	205,190	199,291	-1.075 (0.284)
Not Provincial Capital	85,174	84,299	-0.716 (0.474)	214,848	209,950	-1.825 (0.068)
CUC	87,288	69,153	-3.762 (0.000)	183,413	221,378	5.219 (0.000)
. SUA	78,223	84,890	1.795 (0.074)	199,934	197,008	-0.341 (0.734)

V Conclusions

This study has analyzed the reaction of local public buyers to reforms promoting greater centralization in the Italian public procurement sector. Using detailed, contract level data, it has shown that local buyers adopt behaviors aimed at retaining their independence in purchasing decisions by gaming the regulations. There are at least three takeaways from these results that are likely to be generally valid, beyond the specific case analyzed. The first is that establishing an effective and stable regulation is useful to avoid anticipation and manipulation effects. Uncertain, fragmented and byzantine national procurement regulation may undermine reforms (Amirkhanyan, Meier, O’Toole, 2016). Indeed, as the case of Italy shows, too many legislative changes and derogations are an obstacle to a more efficient procurement system because they induce distortions in the form of anticipation and contracts’ manipulation effects.

The second, is that procurement centralization tends to face resistance by decentralized contracting authorities, thus making crucial the careful design of its implementation. In the Italian case, the risk is that the centralization effect may be weakened because decentralized contracting authorities, as smaller municipalities, still have legal loopholes to exploit. Indeed,

we find that they opted to merge their procurement offices at the smallest centralization level (i.e., CUC) when given the possibility. With the maintenance of this mechanism, the new Italian legislation is still providing incentives for decentralized contracting authorities rather than centralized ones. These incentives will be stronger if the implementation of the new qualification system (the system based on technical and economic requirements that was established in April 2016, but that has not yet been implemented) for contracting authorities is relaxed. In this case, the risk is a policy failure in terms of savings and to transform centralization in a mere formality without any improvements in terms of efficiency.

The third and final remark concerns the importance of controlling lot size to protect competition. Procurement centralization and demand aggregation are, at least in principle, distinct phenomena, but they tend to move hand in hand. In Italy, there is not a policy directive on lot size in public procurement and, hence, centralization has been associated with demand aggregation. In turn, this might undermine SME's participation to public tenders. Our findings indicate that the centralization reforms impacted lot size both because manipulations by local authorities reduced the lot value to be below threshold and because the lots awarded by central purchasing bodies are, on average larger. Since larger size lots may hinder SMEs' participation, a policy directive that identifies the best practices for contracting authorities in partitioning lots should be undertaken by central government.

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