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Procedural Rules and their Impact on Procurement Outcomes: Evidence from France

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Abstract

For the last 20 years, a series of public procurement reforms has sought to enhance the efficiency of purchases by increasing public buyers' discretionary power. Yet it has been argued that there is a lack of empirical results concerning the impact of such reforms on outcomes, including efficiency. In this paper, we attempt to fill this gap by studying the use of the French "adapted procedure", a tendering procedure that allows discretion to public buyers to adapt the procedure to their needs. Using an original and comprehensive dataset from a French social housing constructor, we empirically assess the use of such procedures on the two goals identified by the government (fluidification of the procurement process and access of SMEs) and on efficiency. Our main results suggest the following: (i) using their increased discretionary power, public buyers were able to reach more efficient outcomes regarding the objectives set: the duration of the procurement procedure decreased and SMEs had broader access to the bidding stage (ii) these positive results came at no cost in terms of *ex ante* efficiency of public procurement. We conclude by discussing the implications of our results for public policies.

Keywords: Procurement, Discretion, Efficiency, SMEs

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1 Introduction

To a large extent, the regulation of the procurement process is designed to prevent manipulation by bureaucrats. McCubbins et al. [1987] show that strict procedural rules can be used to align the interests of the regulator and the public agent, thus limiting favouritism and corruption. Yet, since the end of the 1980's, the New Public Management (NPM, hereinafter) scholars have called for a decrease in the *ex ante* control of public buyers exerted through regulation. Instead, according to these authors, procurement should rely on the discretion and empowerment of public buyers to reach clear and transparent goals set by regulators. Indeed, procedural rules are viewed as barriers to efficiency as they are suspected of implying more difficult, longer and more costly contracting, especially for small purchases (Kelman [2005]). For the last 20 years, these New Public Management *doctrines* (Hood and Jackson [1991]) have had a significant direct or indirect impact on the reshaping of procurement regulations (Hood and Peters [2004]).[1] Yet, in spite of positive feedback, Potoski [2008] notes that there is a lack of empirical studies focusing on the effects of increased public buyers' discretionary power on outcomes. This gap in the existing literature is particularly worrisome considering (i) the amounts involved in public procurement (around 13% of OECD countries' GDP in 2011 (OECD [2013])) (ii) that increasing discretion may have an adverse effect on the level of corruption in public procurement (Kwon [2014]) and thus lead to distorted outcomes in terms of prices and/or quality as well as in terms of allocation.

   This paper attempts to fill this gap by studying the French adapted procedure.[2] Compared to other available procedures, the adapted procedure is a non formalised procedure that gives the public buyer discretion to adapt some key steps of the procedure to her needs (in terms of publicity, delays, and pre- and post- qualification requirements). We

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1. A prime example is the reforms of the US procurement process initiated in 1993 as part of the "reshaping government" initiative led by the then Vice President Al Gore.
2. Adapted procedures are the French equivalent of the US' "simplified procedures".

study the effects of using an adapted procedure on the two goals identified by the French government (fluidifying the procurement process and improving Small and Medium Enterprises (SMEs)' access to procurement contracts) as well as on the *ex ante* efficiency of the process. The effects are compared with those of traditional formalised procedures.

In order to do so, we have constructed an original and comprehensive database on the 472 public work contracts awarded by Paris Habitat-OPH, the largest social housing constructor in Europe, between January 2004 and July 2011. Available information includes the type of procedures used, the engineers' estimations of the amount and duration of the contracts, the number and identity of all candidates as well as whether they were admitted to bid, the identity of the winning bidders, and the amounts of the winning bids. Using firm level information provided by Paris Habitat-OPH, we have also distinguished SMEs from large firms.

After dealing with the endogeneity issue associated with the choice of using an adapted procedure, we find generally positive results on the outcomes studied. Indeed, we show that such a procedure reduced the duration of the procurement process. Moreover, while this procedure did not alter the proportion of candidate SMEs (i.e. sending a candidature), we do find that it significantly raised the share of SMEs being admitted to bid. Yet, the probability of SMEs to win contracts remained unchanged. In addition, we found no impact on the amount of the winning bid. Our findings yield support to the NPM literature by showing that higher discretionary power of public buyers in the organisation of the procedure does enable to reach higher outcomes regarding the goals set while not deteriorating *ex ante* efficiency. We conclude by discussing our results and their implications for public policies.

The rest of this paper is organized as follows. Section 2 provides a review of the literature regarding the impact of discretion on efficiency. Section 3 presents the institutional framework with emphasis on the awarding procedures available to French public buyers

as well as their associated thresholds. We notably discuss the adapted procedure and show that it is likely to lead to mixed results concerning the objectives set. In Section 4, we describe the data we have gathered from our public buyer. Section 5 describes our empirical methodology, discusses our choice of instruments for the public buyer's decision to select an adapted procedure and presents our results. We discuss our results and their limitations in Section 6 and conclude by underlining the implications of our study for public policies.

2 Discretion and Efficiency

Given the important amounts involved in public procurement, the different actors engaged in the process may be tempted to divert it from its initial aim so as to obtain personal benefits. Hence, politicians and bureaucrats, the principal actors responsible for the attribution of public contracts may, for instance, manipulate the procurement process to gain financial benefits (i.e. corruption, see e.g. Lengwiler and Wolfstetter [2006]; Ingraham [2005]) or to satisfy electoral perspectives (see e.g. Laffont and Tirole [1991]; Chong et al. [2013]; Witko [2011]).

Following the weberian view on the superiority of bureaucracy to organize public administration (Weber [1947]), the traditional answer to the above mentioned problems has come from the regulation of public procurement. More specifically from imposing strict procedural rules on public buyers in order to prevent them from resorting to manipulation or exploitation of the implementation process (Girth [2014]). Indeed, procurement can be seen as a traditional principal-agent problem (Jensen and Meckling [1976]) in which a principal (the government) delegates decision-making authority to an agent (a procurement officer) to procure goods and services on her behalf. Because the agency and the principal have divergent interests and because monitoring the bureaucrat's performance

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is costly for the principal, there is a possibility that the agency's interests will override those of the principal. McCubbins et al. [1987] argue that strict regulation through rigid procedural rules achieve the principal's aim of aligning the agency's interests on his because any deviation will be judicially punished. Thus, according to these authors, the discretion of public buyers should be kept to a minimum to avoid them from turning to abnormal behaviour such as corruption and favouritism.

This rule-based approach to the regulation of public procurement was widely criticised by the NPM scholars. The NPM literature points out the failures of the public sector, in particular concerning its organisation and the procedures used, and discusses ways of achieving more effective and competitive public service delivery. Central to the NPM literature is the analysis of overwhelming bureaucratic regulation (Hood and Scott [1996]). These regulations are viewed as clear limitations to achieving efficiency as the process is burdened with procedural constraints and red tape (Kelman [2009]; Girth [2014]) and bureaucrats are more focused on rules than on outcomes (see Kelman [1990, 2005] for the case of public procurement). Instead, the NPM literature defends a set of *doctrines* in order to achieve more efficient outcomes. Among them, there is the idea that bureaucrats should be independent and empowered to reach clear and transparent goals using increased discretionary power (Hood and Jackson [1991]). Discretion is claimed to enhance the performance of public managers as they are liberated from routines and regulation from the administrative system (Kaboolian [1998]). In particular, public managers can take decision based on the particularities of each case (Lipsky [1980]).

In spite of the numerous procurement reforms influenced by this strand of literature, Potoski [2008] notes that there is a lack of empirical studies focusing on the effects of increased public buyers' discretionary power on outcomes. A very recent body of empirical work has attempted to fill part of the gap. A significant proportion of these studies has relied on testing the impact of a particular awarding procedure that allows

more discretionary power to the public buyer on procurement efficiency. Among these, previous work on restricted auctions (Coviello et al. [2011]; Chever et al. [2011]), that allow more discretion to procurement officers in their selection of candidates, and negotiated procedures (Chever and Moore [2013]), which increase discretion through the possibility of negotiating the tenders, have found generally positive results.

Our analysis participates to this debate in the sense that we provide additional evidences on the impact of allowing more discretion to public buyers on outcomes, notably efficiency. To the best of our knowledge, our analysis is the first to study the effects of a decrease in procedural rules. As discussed in this section, depending on the strand of literature considered, the amount of procedural rules may both impede the efficiency of the process (Kelman [2005]; Potoski [2008]) or prevent abuses of public funds (McCubbins et al. [1987]). This empirical study seeks to shed some light on this issue. Our results should thus be of particular importance to management and economic scholars as well as procurement practitioners.

3 French Awarding Procedures: Description and Distinction

3.1 Thresholds and Organization of Procedures

In order to award public work contracts, there are two main categories of procedures available to French public buyers: non formalised procedures, consisting only of the adapted procedure, and formalised procedures, which regroup procedures such as the open call for tenders and formalised procedures with a negotiation phase.

The choice between formalised and non formalised procedures is not entirely left to the discretion of the public buyer. Indeed, awarding procedures have to be chosen according

to thresholds defined in the French public procurement Code. Table 1 sums up their evolution. The use of adapted procedures and formalised procedures with a negotiation phase is limited to contracts whose values are below (or between) the reported thresholds. As for the open call for tenders, its use is permitted under the thresholds but it is mandatory above them.

Table 1 – **Successive thresholds between 2001 and 2010**

Date of change	Possibility of using adapted procedures (non formalised)	Possibility of using negotiated procedures (formalised)	Open call for tenders (formalised)
March 2001	< 90,000€	-	> 90,000€
January 2004	< 230,000€	> 230,000€ and < 5 900 000€	> 5,900,000€
January 2005	< 210,000€	> 210,000€ and < 5 270 000€	> 5,270,000€
January 2008	< 206,000€	> 206,000€ and < 5 150 000€	> 5,150,000€
December 2008	< 5,150,000€	< 5,150,000€	> 5,150,000€
January 2010	< 4,845,000€	< 4,845,000€	> 4,845,000€

Available procedures also differ in their organisation as well as in the possibility of negotiating offers. First, when using formalised procedures with a negotiation phase, public buyers have to separate the reception of candidatures and the reception of bids into two phases. In contrast, when using the open call for tenders or the adapted procedure, firms have to simultaneously submit both their candidatures and their bids. Second, contrarily to the two other awarding procedures, no negotiation phase may be used in the open call for tenders.

3.2 The Adapted Procedure

The adapted procedure was introduced in 2001. As advocated by NPM scholars, this procedure decreases the regulatory burden of procurement officers by "leaving the modalities of the procedure to their discretion".[3] The official explanatory leaflet on adapted

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3. Article 28 of the French public procurement Code.

procedures from the "Direction des Affaires Juridiques", the subdivision of the French Ministry of Finance and Economics in charge of writing the French public procurement Code, identifies two goals for this procedure: fluidifying the procurement process and allowing broader access to SMEs.[4] In the rest of this section, we describe the different aspects of the process that can be adapted by the procurement officer when using an adapted procedure (compared to formalised procedures) and study how each of them might help to reach the previously stated goals.

Regarding the impact on SMEs, our analysis relies on the literature pointing out the existence of barriers to participation such as entry costs (Coviello and Mariniello [2012]) and pre-qualification requirements (Estache and Iimi [2009]). Those barriers are supposed to have a particular impact on SMEs (as compared to large firms) as they are less efficient (Albano et al. [2009]) and it is more probable for small businesses to be unable to deliver the required documents (Carpineti et al. [2006]).[5]

First, regarding the publicity requirements, the public buyer is exempted from making the call for tenders available within both the French national database (BOAMP) and the European one (OJEU).[6] Indeed, depending on the value of the contract, the number of publicity supports can be reduced to none or to a sole support and the most suitable one can be chosen (ranging from the public buyer's own website to the BOAMP). Moreover the content of the call for tenders is free, official European and national forms need not be used.[7] Hence, this possibility to adapt both the number of supports and the content enables the public buyer to reduce her administrative burden. However, from the firms' side, it might decrease the level of available information through the decreasing number

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4. http://www.economie.gouv.fr/files/directions_services/daj/marches_publics/conseil_acheteurs/ fiches-techniques/mise-en-oeuvre-procedure/marches-procedures-adaptees.pdf, accessed July 20, 2014.

5. Albano et al. [2009] argue that since SMEs are less efficient, they expect lower profits from public contracts than large firms and are thus more affected by a raise in entry costs.

6. BOAMP stands for "Bulletin Officiel des Annonces des Marchés Publics" and OJEU for "Official Journal of the European Union".

7. Note that sufficient information still needs to be incorporated within the tender to ensure transparency and competition (see the French Council of State decision n°290236).

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of supports where tenders can be found and the decrease in centralisation (operated via the BOAMP and OJEU). This might increase search costs and thus decrease the entry of firms and more particularly of SMEs.

Second, the public buyer is exempted from requesting a number of documents as pre-qualification requirements. For instance, the proofs of competences to be asked need not be the ones listed within the law but any other substitutes can be accepted; technical requirements can be reduced to a minimum. This adaptation enables the public buyer to reduce her administrative burden both in terms of number of documents and content to be produced, analysed, and compared before awarding the contract. From the firms' side, it might decrease the costs related to the preparation and submission of the formal offer and decrease the probability of not being able to deliver all the required elements to be admitted to bid. As a consequence this adaptation might increase both the entry of SMEs and their probability of being admitted.

Third, the public buyer does not have to respect the strict delays of 52 days for firms to submit their offers and of 16 days for firms to contest her decision.[8] This reduction in procedural delays enables the public buyer to adapt the process to the degree of urgency of her needs. From the firms' side, the decrease in the delay left to submit the offers might decrease the entry of SMEs since the preparation of an offer may be more difficult and thus more time-consuming for these firms.

Finally, concerning post-selection requirements, the public buyer is exempted from (i) writing a report justifying the regularity of both the procedure and her choices and (ii) informing all eliminated candidates of the reason for their refusal (though she can voluntarily execute them).[9] This adaptation enables the public buyer to decrease the number of documents to be produced and thus increase the speed of the process.

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8. Note that the public buyer still has to ensure that the delay enables all interested firms to submit an offer (see for instance the decision from the Administrative tribunal of Lille n°307117).

9. Note that firms may still individually request from the buyer to justify their elimination when using an adapted procedure. If so, the Code obliges the public buyer to respond.

Table 2 summarises the expected impacts of the possible adaptations.

Table 2 – **Expected impacts of the possible adaptations**

Possible Adaptation	Fluidity of the process	Entry of SMEs	Qualification of SMEs
Publicity	+	−	
Pre-qualification	+	+	+
Delays	+	−	
Post-qualification	+		

4   Data

4.1   Our Dataset

In order to test the impact of the decrease in procedural rules on outcomes, we have gathered information on the complete sample of 472 public work contracts awarded by Paris Habitat-OPH, an independent public buyer responsible for the construction of social housing in Paris, between January 2004 and July 2011.[10] These contracts consisted of the construction, destruction or restoration of social housings in the Parisian area.[11] Table 3 summarises the information we have gathered.

Our public buyer received a total of 3868 candidatures for these contracts, i.e. a mean of 7.8 candidatures per contract (*Nb Candidates*). The average contract lasted 8.7 months (*Duration*) and was estimated at slightly more than 1.5 million euros (*Estimate*). Contract values ranged from a minimum of 15,000€ to a maximum of 22,600,000€. On average, the winning bid (*Winning Bid*) was 9% under the estimated value of the contract and around 22% of the average contract was subcontracted by the winning firm (*Subcontracted*). Formalised procedures with a negotiation phase and adapted procedures (*Mapa*) were the most frequently used procedures to award the contracts. They each

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10. Only purely fixed-price contracts were taken into consideration.
11. Paris Habitat-OPH is divided between several departments, each of which being in charge of a particular type of public work.

Table 3 – **Descriptive Statistics**

Variable Name	Description	Nb. Obs.	Mean	Std. Dev.	Min	Max
Mapa	Equals 1 if the contract was awarded using an adapted procedure, 0 otherwise	472	0.400	0.491	0	1
Duration	Estimated duration of the contract in months	472	8.752	6.585	1	38
Estimate	Estimated contract value in euros	472	1,509,568	3,087,829	15,000	22,600,000
Subcontracted	Amount subcontracted by the winning firm	472	539,458.2	1,555,980	0	22,107,794
Nb Candidates	Number of firms who submitted a candidature for the contract	472	7.809	5.536	1	31
Price Index	Price Index in the construction industry (French national statistics institute)	472	1417.4	109.38	1225	1638
Nb Contracts	Number of contracts currently being awarded by Paris Habitat-OPH	472	31.85	10.38	2	51
Share SMEs	Number of candidate SMEs divided by the total number of candidates	469	0.522	0.308	0	1
Share Adm SMEs	Number of SMEs admitted to bid for the contract divided by the total number of admitted firms	469	0.469	0.315	0	1
Winner SME	Equals 1 if the winner of the contract is an SME, 0 otherwise	429	0.499	0.501	0	1
Winning Bid	Amount of the winning bid	472	1,355,343	2,774,812	9,645.21	23,042,727.42
Diff Length	Duration in months between the reception of the candidatures of the firms and the notification to the selected supplier	472	5.79	3.37	1	23

account for around 40% of the procedures used.

We distinguished SMEs from large firms using information collected by Paris Habitat-OPH from the candidature documents of firms. In order to distinguish SMEs from other firms, we retained the definition of the European Union.[12] The European Union defines an SME as a firm with less than 250 employees and a turnover under 50 million euros. Out of the 3,686 candidatures received and the 472 winning firms in our sample, we were able to distinguish, respectively, 3,190 and 429 SMEs from large firms (for the latter, see *Winner SME*).[13] In the end, 53% of the candidatures received by Paris Habitat-OPH were from SMEs. They were awarded approximatively 50% of the contracts, yet these contracts only accounted for less than one third of the total value of the contracts, this latter figure being 7 percentage points under the corresponding aggregate figure for

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12. Commission Recommendation of May, the 6th 2003. Available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:EN:PDF, accessed July 20, 2014.

13. This difference is mainly due to some imprecisions in the data. For example, some firms only reported the number of employees in their Parisian office(s) or the turnover of a subpart of the firm. Moreover, in some cases, the information on the firms was completely missing.

French public work procurement (OEAP [2011]).

4.2 Restriction of the Data

As we have discussed in Section 3.1, formalised procedures with a negotiation phase are differently organized than adapted procedures and open auctions. Reception of the candidatures and of the offers are separated in two distinct phases. As a consequence, our public buyer received far more candidatures when using a formalised procedure with a negotiation phase (as illustrated in Table 4). This results from the fact that candidatures are made up of relatively standardised documents. The cost of preparing a candidature is thus far lower than that of preparing an offer. Traditionally, researchers use the number of candidatures either to assess entry or to control for the competitiveness of the environment. Yet, in our case, the number of candidatures received is likely to be more correlated to the procedure and the way it is organised than to entry decisions or to the competitiveness of the environment. An alternative way of controlling for the competitiveness of the environment is to use the number of bidders as a covariate. Unfortunately, we lack this information. Consequently, we are unable to directly compare the number of SMEs in adapted procedures to that in other procedures. We circumvent this caveat by focusing on the proportion of candidate SMEs (*Share SMEs*) and on the proportion of admitted SMEs (*Share Adm SMEs*) which should not be affected by this difference in organisation of the procedures.

Table 4 – **Procedure Used and Candidatures**

Used Procedure	Nb. Obs	Mean	Std. Dev.	Min	Max
All Procedures	472	7.81	5.54	1	31
Open Auction	93	5.23	3.11	1	14
Adapted Procedure	189	5.02	3.46	1	28
Formalised Procedure With a Negotiation Phase	190	11.85	5.69	2	31

5   Methodology and Results

5.1   Methodology

Our goal is to assess whether the supplementary discretionary power enabled by the use of adapted procedures enabled public buyers to reach the goals set by the regulators in terms of access of SMEs and duration of the process. We use three different proxies for the access of SMEs to public procurement: the share of candidate SMEs, the share of SMEs admitted to bid, and the probability that an SME wins the contract. As for the duration of the process, we use the variable *Diff Length* which captures the time elapsed in months between the "Commission d'Appel d'Offres" (CAO, in charge of opening the candidature documents of firms) and the notification to the winning firm (i.e. the moment when the public buyer officially announces its selection to the supplier). If public buyers focus on specific goals, we may fear adverse effects on other outcomes. In order to control for this, we also assess whether the use of such procedures altered another measure of the efficiency of the process: the amount of the winning bid. Thus, we estimate the following equation:

$$Outcome_n = \gamma_0 + Mapa_n\gamma_1 + Controls_n\Gamma_2 + C\Gamma_3 + \epsilon_n \tag{1}$$

Where *Outcome* is alternatively *Diff Length*, *Share SMEs*, *Share Adm SMEs*, *Winner SME* or *Winning Bid*. *Mapa* is the variable we are primarily interested in and γ_1 its associated coefficient. $Controls_n$ is a matrix that consists of variables related to contract n (*Estimate*, *Duration*, *Subcontracted*, *Price Index* or *Nb Contracts*) and Γ_2 its vector of coefficients. C is a matrix consisting of year and month dummies with Γ_3 its vector of coefficients. Since we use data from 2004 to 2011, year dummies are meant to capture unobserved heterogeneities in time. We also add month dummies to account for Paris Habitat-OPH's yearly agenda. γ_0 is a constant and ϵ the error term.

According to our discussions with the legal department of Paris Habitat-OPH, there was a centralised decision within Paris Habitat-OPH to encourage the use of adapted procedures when possible. However, in our data, adapted procedures were only used for approximatively 78% of contracts below the associated thresholds. Evidently, the procedure used still resulted, in some cases, from a decision taken by the different departments of our buyer (or by contracting officers). As a result, when estimating the previous equations, we are likely to face an omitted variable bias. In particular, the choice of a contracting officer to use an adapted procedure may be based on her own expectations on the outcomes. For instance, since adapted procedures enable to reduce pre-qualification requirements, a procurement officer may be more prone to choose such procedures when she expects potential competition for the contract to be scarce. Thus *Mapa* is suspected to be endogenous. To solve this endogeneity problem, we use an instrumental variable approach for which we have constructed two instruments. To be valid, our instruments must be relevant (i.e. correlated to the instrumented variable) and exogenous (i.e. uncorrelated to the error term) (Murray [2006]).

Routines, our first instrument, is related to our buyer's internal routines. We suspect that newly available procedures may take time to be adopted by public buyers as these latter may resist change (de Vries and Balazs [1999]). During that time, a spillover effect may play a role: different departments of our public buyer may communicate or observe each other's practices regarding used procedures (see Fernandez and Rainey [2006] on the importance of employee communication and feedback as a means to overcoming resistance to change). As a result, a given department may take into account past choices of other departments when making their decision of the procedure to use for a particular project. That is, if a procedure is more frequently used by other departments in the recent past, this may raise the probability, for a particular department, of choosing this procedure. Our instrument is designed to capture this spillover effect. *Routines* is defined as the

ratio of contracts awarded by other departments using an adapted procedure during the last two months divided by the ratio of contracts awarded by other departments using an adapted procedure before the last two months. Basically, *Routines* captures how the use of adapted procedures has evolved in a recent period of time compared to the past in other departments of our public buyer. According to our previous discussion, we expect *Routines* to have a significant and positive effect on the use of adapted procedures. Furthermore, we believe that *past* choices of procedures by *other* departments will not impact the outcomes of the current call for tenders through another channel than the choice of the procedure, satisfying the exogeneity condition.

We have constructed a second instrument related to a new form of contract litigation introduced during the studied period. Since May 2009, the *référé contractuel* enables an evicted candidate to challenge an awarding procedure after the contract has been signed if she feels that the public buyer did not comply with the advertising and competition requirements. Prior to its introduction, such claims could only be made before the contracts were signed through the *référé pré-contractuel*. We believe that this new litigation tool will influence the choice of procedure by public buyers. After its introduction, public buyers may fear a raise in the number of litigations. To avoid being challenged (and thus being discredited) in such ways, contracting officers are likely to have used more adapted procedures after May 2009. Indeed, since adapted procedures consist of a lower number of rules and can be almost freely adapted to the buyer's needs, the probability of being challenged on a specific rule or on the overall organisation of the procedure should be lower than with traditional formalised procedures. Thus, adapted procedures seem to be a convenient choice of procedure to avoid challenges from evicted candidates. Our instrument *Litigation* is a dummy variable that takes the value one for every contract awarded after May 2009 and 0 for contracts awarded before that date. Based on our previous discussion, we expect this instrument to have a positive and significant impact

on the choice of using adapted procedures. Since the expected changes in the behaviour of contracting officers are induced by an exogenous change in the law, we believe that this instrument satisfies the exogeneity condition. Table 5 provides descriptive statistics on our two instruments.

Table 5 – **Descriptive statistics of the instruments**

Instrument	Nb. Obs	Mean	Std. Dev.	Min	Max
Routines	472	1.02	0.89	0	7
Litigation	472	0.25	0.43	0	1

5.2 Results

In the following subsections, we report the regressions of several outcomes on *Mapa*, our variable of interest and other covariates. All specifications include heteroskedasticity robust standard errors as well as year and month dummies. All continuous variables are expressed in logarithms. Our regressions are voluntarily organised in a similar fashion: two specifications are shown for each dependent variable. First, we only include exogenous variables (*Duration*, *Estimate* and *Price Index*). In the second specification, we add other covariates (*Subcontracted* and *Nb Contracts*). *Duration*, *Subcontracted* and *Estimate* may all be viewed as measures of the complexity of the contract (Chong et al. [2009]) while *Price Index* is used to capture the evolution of prices in the construction industry.

In all of our first stage regressions, our instruments consistently have the expected signs and are statistically significant. We always reported the F-Statistic associated with these first stage regressions. These latter are consistently above the rule of thumb of 10 (Staiger and Stock [1997]). We thus need not worry about a weak instrument issue. In our second stage regressions, we always reported the p-values associated with the Hansen J-Statistic. They are consistently above the 10% threshold, telling us that we may consider our instruments exogenous provided that at least one of them is.

Results on the Duration of the Procurement Process

Results from the 2SLS regressions of our variable *Diff Length* on our variable of interest and other covariates are shown in Table 6. Unsurprisingly, the expected duration of the contract has a significant and positive effect on the length of the procedure. However, it seems that all else held equal, the more valuable the contract, the quicker the awarding process. As for *Mapa*, our variable of interest, we find that once accounting for all covariates, adapted procedures allow a decrease in the duration of the procedure of close to two and a half months. Hence, we believe this result provides some evidence that the use of adapted procedures may enable public buyers to fluidify the procurement process.

Table 6 – **Adapted Procedures and Duration**

	Model 1 First Stage *Mapa*	Model 2 2SLS *Diff_Length*	Model 3 First Stage Mapa	Model 4 2SLS *Diff_Length*
Mapa		-2.668*		-2.944*
		(1.485)		(1.528)
Duration	-0.044	1.697***	-0.045	1.651***
	(0.047)	(0.298)	(0.047)	(0.296)
Estimate	-0.166***	-0.577**	-0.167***	-0.665**
	(0.022)	(0.276)	(0.023)	(0.281)
Subcontracted			0.000	0.015
			(0.004)	(0.029)
Nb Contracts			-0.019	-0.942
			(0.058)	(0.614)
Litigation	0.560***		0.557***	
	(0.103)		(0.105)	
Routines	0.037**		0.037**	
	(0.019)		(0.019)	
Constant	2.378***	8.865**	2.448***	12.909***
	(0.220)	(3.723)	(0.291)	(4.687)
Nb. Obs.	472	472	472	472
Adj. R^2	0.513	0.254	0.511	0.255
F-Stat	21.14		20.03	
Hansen J Stat		0.421		0.402

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All regressions include month and year dummies. Reported in the table are the p-values associated with the Hansen J-Statistic.

Results on the Share of Candidate and Admitted SMEs

We report the results from the 2SLS regressions of the variables *Share SMEs* and *Share Adm SMEs* in Table 7. Results from our control variables are as one would expect. A more valuable contract attracts a lower share of SMEs. This difference persists after the admission phase. Moreover, holding equal the valuation of the contract (as well as other covariates), a longer contract attracts significantly more SMEs. Again, this difference persists after the admission phase. As for our variable of interest, we find that SMEs do not submit more candidatures when an adapted procedure is used. However, this procedure enables public buyers to qualify a significantly larger share of SMEs to the bidding stage.

Table 7 – **Adapted Procedures and SMEs**

	Model 5 First Stage *Mapa*	Model 6 2SLS *Share SMEs*	Model 7 2SLS *Share Adm SMEs*	Model 8 First Stage *Mapa*	Model 9 2SLS *Share SMEs*	Model 10 2SLS *Share Adm SMEs*
Mapa		0.141	0.206*		0.141	0.206*
		(0.113)	(0.117)		(0.114)	(0.117)
Price Index	-0.001	0.001	0.001	-0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Duration	-0.044	0.101***	0.090**	-0.044	0.100***	0.090**
	(0.047)	(0.035)	(0.036)	(0.048)	(0.035)	(0.036)
Estimate	-0.165***	-0.120***	-0.115***	-0.164***	-0.121***	-0.115***
	(0.022)	(0.024)	(0.025)	(0.023)	(0.024)	(0.025)
Subcontracted				-0.000	0.000	0.000
				(0.004)	(0.003)	(0.003)
Litigation	0.538***			0.538***		
	(0.109)			(0.109)		
Routines	0.038**			0.038**		
	(0.019)			(0.019)		
Constant	3.085**	0.896	0.925	3.084**	0.899	0.927
	(1.324)	(1.071)	(1.082)	(1.324)	(1.070)	(1.081)
Nb. Obs.	469	469	469	469	469	469
Adj. R^2	0.509	0.264	0.284	0.508	0.263	0.282
F-Stat	18.06			17.96		
Hansen J Stat		0.568	0.654		0.572	0.657

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All regressions include month and year dummies. Reported in the table are the p-values associated with the Hansen J-Statistic.

Results on the Probability of Winning the Contract

Next, our focus is on the impact of adapted procedures on the probability that an SME is awarded the contract. Results from the 2SLS regressions of *Winner SME* are reported

in Table 8. We find that more complex contracts (see the sign and significance of our variables *Estimate* and *Subcontracted*) are significantly less won by SMEs. However, the duration of the contract again seems to play in favour of SMEs as these latter are significantly more awarded longer contracts. As for *Mapa*, our variable of interest, we find a negative, yet non-significant coefficient. The use of an adapted procedure therefore seems to have no impact on the probability that an SME will win the contract.

Table 8 – **Adapted Procedures and Winner SMEs**

	Model 11 First Stage *Mapa*	Model 12 2SLS *Winner SME*	Model 13 First Stage Mapa	Model 14 2SLS *Winner SME*
Mapa		-0.280		-0.297
		(0.252)		(0.251)
Price Index	-0.000	0.001	-0.000	0.001
	(0.001)	(0.002)	(0.001)	(0.002)
Duration	0.007	0.198***	0.007	0.203***
	(0.052)	(0.053)	(0.052)	(0.053)
Estimate	-0.182***	-0.234***	-0.183***	-0.202***
	(0.025)	(0.049)	(0.026)	(0.051)
Subcontracted			0.001	-0.016***
			(0.004)	(0.006)
Litigation	0.543***		0.543***	
	(0.107)		(0.108)	
Routines	0.034*		0.034*	
	(0.020)		(0.020)	
Constant	3.032**	2.250	3.037**	2.191
	(1.399)	(2.368)	(1.399)	(2.339)
Nb. Obs.	429	429	429	429
Adj. R^2	0.526	0.060	0.525	0.071
F-Stat	17.65		17.55	
Hansen J Stat		0.588		0.652

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All regressions include month and year dummies. Reported in the table are the p-values associated with the Hansen J-Statistic.

Results on Efficiency

Finally, we focus on the effect of using adapted procedures on the amount of the winning bid. Results from our 2SLS regressions are shown in Table 9. Unsurprisingly, longer and more complex contracts are awarded at a higher price. However, our variable capturing the evolution of prices in the construction industry does not impact the amount of the

winning bid. We suspect that the evolution of prices are likely to be captured by the year fixed effects included in our regressions. As for our variable of interest, our regressions show a positive yet non significant effect. The use of adapted procedures therefore does not seem to have an adverse effect on the prices paid by the public body.

Table 9 – **Adapted Procedures and *Ex Ante* Efficiency**

	Model 15 First Stage *Mapa*	Model 16 2SLS *Winning Bid*	Model 17 First Stage Mapa	Model 18 2SLS *Winning Bid*
Mapa		0.010		0.034
		(0.164)		(0.158)
Subcontracted			0.000	0.024***
			(0.004)	(0.005)
Price Index	-0.001	0.002	-0.001	0.002
	(0.001)	(0.002)	(0.001)	(0.002)
Duration	-0.044	0.241**	-0.044	0.226**
	(0.047)	(0.108)	(0.048)	(0.102)
Estimate	-0.166***	0.917***	-0.167***	0.871***
	(0.022)	(0.049)	(0.023)	(0.051)
Litigation	0.543***		0.543***	
	(0.108)		(0.108)	
Routines	0.037*		0.037*	
	(0.019)		(0.019)	
Constant	3.060**	-2.302	3.063**	-2.124
	(1.322)	(2.121)	(1.323)	(2.041)
Nb. Obs.	472	472	472	472
Adj. R^2	0.512	0.941	0.511	0.945
F-Stat	18.04		17.94	
Hansen J Stat		0.224		0.281

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All regressions include month and year dummies. Reported in the table are the p-values associated with the Hansen J-Statistic.

6   Discussion and Implications for Public Policies

In this paper, we analyzed the effect of increasing the discretionary power of public buyers through a decrease in procedural rules, on several outcomes. Towards this end, we empirically assessed the impact of the adapted procedure, a French awarding procedure that allows public buyers to adapt the procedure to their needs. Its effects were analysed on the two aims set by the government (the fluidification of the process and the access of

SMEs to public procurement) as well as on the *ex ante* efficiency of the purchases.

After dealing with the endogeneity issue associated with the use of an adapted procedure, we first showed that the use of such procedure enabled to decrease the duration of the procurement process. Moreover, we showed that entry was not mitigated by the use of this procedure, at least in terms of the share of SMEs competing. This result may be put in line with our discussion in Section 3.2 showing that several contradicting effects may influence entry decisions of SMEs when using adapted procedures. We then showed that the use of adapted procedures significantly raises the share of SMEs being admitted to bid. We interpret this finding as the result of discriminatory power given to the procurement officers to adapt and thus reduce the formalism of pre-qualification requirements. These latter being frequently underlined by SMEs as barriers to their participation in public procurement (Loader [2007]). Yet, we then have shown that in spite of the latter result, these procedures do not impact the probability that an SME is awarded the contract. We believe that this result provides clear evidence that barriers to participation are not the only obstacle standing between SMEs and the attribution of procurement contracts. Even when reaching the bidding stage, SMEs are still left facing the challenge of bidding against large firms. This finding may thus be linked to the existence of cost asymmetries between SMEs and large firms (Nooteboom [1993]). Because of these asymmetries, focusing on removing barriers to participation, and thus increasing competition from SMEs, need not have a direct impact on the probability that an SME will win the contract. Finally, we found that these generally positive results do not deteriorate the *ex ante* efficiency of public procurement: no impact was found on the amount of the winning bid.

A caveat should be underlined here. The contracts analysed in this paper are for relatively complex transactions (the mean contract value is above 1.5 million euros) that are thus likely to be renegotiated (Bajari and Tadelis [2001]; Brown et al. [2010]). One might

fear that decreasing pre-qualification requirements, because it enables the participation of less experienced firms, could have an adverse effect on the amounts renegotiated. Hence, though our estimates show that the *ex ante* efficiency of procurement is unaltered by the raise in discretion, we are not able to conclude on the impact of such procedures on the total cost of the contracts.

Our results have some implications for public policies. First, our results point to the fact that cost asymmetries may be another important barrier preventing SMEs from winning procurement contracts. If the legislator's goal is to promote fair competition between SMEs and large firms, allowing public buyers to use tools such as the possibility to reduce the formalism of procedure will, at least partially, contribute to reaching that goal. However if, as it has sometimes been proposed by politicians and legislators, the aim of a reform is to significantly enhance SMEs' probability of winning contracts, then other tools affecting the costs of SMEs or the level of competition they face from large firms should also be made available to public buyers. Theoretical and empirical studies (Morand [2003]; Marion [2007]; Krasnokutskaya and Seim [2011]; Athey et al. [2013]) have shown that both bid preferences and set-asides have positive impacts on contract attribution to SMEs. Although the previously mentioned studies find that these policies lead to increased procurement costs (particularly for set-asides), these discriminating policies could still be considered as potential solutions.

Second, there have been repeated pleas, in both the economic and the management literature, for decreasing the extent of procedural rules in public procurement (Greenstein [1993]; Kelman [1990, 2005]; Spagnolo [2012]; Tadelis [2012]). In particular, the NPM literature argues that the high degree of formalism observed in public procurement leads contracting officers to focus on implementing the rules rather than targeting more efficient outcomes. According to these authors, decreasing the number of rules should enable them to target higher outcomes. The results of this paper are in line with this prediction.

Indeed, the lower formalism did enable public buyers to speed up procurement and allowed broader access of SMEs to the bidding stage while not deteriorating *ex ante* efficiency.

This paper, along with other recent empirical contributions (Coviello et al. [2011]; Chever et al. [2011]; Chever and Moore [2013]), underlines the positive effects of policies aiming at increasing the discretionary power of public buyers in developed countries, where the degrees of transparency and accountability of contracting officers are already likely to be high. Though we believe that similar reforms may lead to equally positive outcomes in other developed countries, their applicability to developing countries is debatable. Thus, we believe that future work should focus on assessing the effects of similar reforms that might have occurred in different institutional frameworks.

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