The Cost of Social Public Procurement for Governments
The Case of Paris City

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Abstract

Public procurement represents a powerful legal instrument available to contracting authorities to ensure compliance with secondary or non-commercial goals. The possibility of integrating social concerns into public procurement is envisaged in the community directives on public procurement and has also been incorporated in the legal systems of various member states. However, if the use of public procurement to achieve social outcomes is widespread, detailed information about how efficient it is and how it operates is often sketchy and difficult to find. In this paper, we use a unique data set of more than 500 public procurement work contracts signed by the city of Paris between 2011 and 2013. We analyze the influence of introducing social objectives on final bids received by the city. Our results suggest that if, on average, there is no additional cost for the city, the impact will depend on the kind of work the city needs.

JEL codes: H57, H11.

1 Introduction

Public procurement represents 12% of the GDP of the European Union and 13% of the GDP of OECD countries on average (OECD (2013)). It represents a powerful legal instrument available to contracting authorities to ensure compliance with secondary or non-commercial goals, such as fostering innovation and SMEs' participation in public procurement contracts as well as following green or social objectives (Callender and Matthews (2002), Gordon Murray (2009)). The word "secondary" is used not as a way of denoting reduced importance but rather to signal that these objectives are in addition to the public procurement process.

Social procurement refers to the process through which public procurers use their purchasing power to generate positive social, economic, and environmental benefit. Using public procurement as a policy instrument to follow secondary objectives is a phenomenon that has a long history (McCrudden (2004), Qiao et al. (2009)) and that can be observed largely all around the world (Brammer and Walker (2011)). Moreover, this practice has a strong institutional framework in many countries. Among all examples, we can cite the Environmentally Preferable Purchasing Program or the small disadvantaged business preference programs in the USA, the Sustainable Public Procurement Program in the State of Sao Paulo (Brazil), the Aboriginal Participation in Construction Policy in the State of New South Wales (Australia) or the last European Directives on public procurement (Directive 2014/24/EU and Directive 2014/25/EU). Indeed, those directives strengthened a new step in the process, using the expression "policy strategy instrument" in order to qualify public procurement. Called sustainable, innovative, social, or green public procurement, depending on the country and the field concerned, the role of elected representatives and the presence of a strong political leadership seem to be the most important prerequisite to the instrumentalization of public procurement (Edler and Georghiou (2007), Raj et al. (2020)).

Despite the magnitude and controversial nature of social action programs in contracting (Saussier and Tirole (2020)), surprisingly little is known about the cost socially responsible public procurement may impose on the government (See Denny-Smith et al. (2020). Indeed, by following secondary objectives, public procurers might reduce the level of competition during the call for bids, hence increasing prices. Such strategy might also raise transaction costs during contract execution because social objectives are difficult to contract and may lead to particularly incomplete contracts (Hart (1995)).

In this paper, we shed light on these issues. We focus on potential costs during the call for bids and on one specific objective of social procurement, which is economic and social empowerment of marginalized population groups through employment. We investigate the cost of this social public procurement strategy using a unique data set of more than 500 public procurement con-

tracts signed by the city of Paris between 2011 and 2013. For some of its public procurement contracts, the city of Paris makes it mandatory for the winning firm to employ a percentage of unemployed workers from specific categories during the execution of the contract, what we call in the remaining part of this paper the "social clause." For others, the city is not following secondary objectives. We consider two channels through which costs might increase at the call-for-bids stage. The first channel is through increased costs for suppliers passed through their bidding offers; employing a specific population of workers is like adding an additional constraint that is costly for firms answering a call for bids (i.e., a cost effect). The second possible channel is through the reduction of competition; if firms that are bidding for procurement contracts are not able anymore to do so as soon as social clauses are included, this reduces the number of bidders (i.e., a competition effect).

Our results suggest that there is, on average, no additional cost for the city of Paris to introduce a social clause in their call for bids (i.e., winning bids are not inflated). However, we found a positive or negative effect that depends on which sector (i.e., CPV codes) is concerned. We suggest that this sector effect might be related to the skills of the working force that is needed to complete the contract and/or to the situation of the sectoral market conditions (i.e., difficulties to hire workers).

Our paper is contributing to the literature concerning the use of public procurement to follow secondary objectives by providing original new data and, to our knowledge, the first evaluation of the cost of adding social objectives in public procurement.

This paper is organized as follows. First, we go back to the previous literature and look at the potential cost of pursuing social objectives through public procurement. Then we present the case of the city of Paris and describe our previous data to present and discuss our results. Conclusions follow.

2 Pursuing Social Objectives Through Public Procurement

2.1 Regulation versus Social Public Procurement

Governments participate in the market as consumers. Facing market failures, governments might then be tempted to use the marketplace rather than the regulation in order to achieve goals that are not naturally pursued by the markets. Using the public demand side of the marketplace rather than regulation to achieve positive change would then offer a powerful tool, the upside of social good without the downside of increased regulatory burden. Moreover, using public

procurement as a policy instrument to follow secondary objectives has other advantages, such as its big impact due to public procurement's financial weight and potential spillover effects, which make some consider public procurement as a relevant tool to fight against market failures (Mupanemunda (2020)).

Nevertheless, social public procurement strategy raises the question of its efficiency. Indeed, such instruments might reduce the competition level and develop favoritism. The economic theory suggests that those questions are difficult ones and generally does not support the premise that exercising buyer power is a more efficient mechanism than (adequate) regulation when it comes to the pursuit of social (or any other) regulatory goals (Saussier and Tirole (2020)). Imposing regulatory requirements through the back door of public procurement decisions significantly muddles the efficiency of the market, raising transaction costs.

2.2 The Cost of Social Public Procurement

Few quantitative empirical studies have tried to investigate the cost of pursuing other goals than cost-effectiveness in public procurement in order to assess the extent to which public procurement can be used as a public policy tool to reach social targets. The main empirical literature on this subject comes from analysis of American bid preference programs. Among them, the analysis of (Marion (2009)) shows that the suppression of a measure favoring minority-owned firms and women-owned firms in California lowered the procurement cost by 5.6%. Another study on bid preference programs favoring SMEs in California highway procurement auctions show an increase in cost of 3.8% on auctions using preferences (Marion (2007)). According to the author, this result is mainly explained by a decrease in participation of large firms that have lower costs. Those results suggest that the inclusion of secondary objectives in public procurement contracts might change the pool of firms responding to calls for tenders by excluding efficient firms that are not able to meet social targets at reasonable costs.

3 Social Public Procurement - the Case of Paris

3.1 Social clauses: institutional details

One secondary objective often followed by local governments is the economic and social empowerment of marginalized population groups through employment. One way to follow this objective is by including social clauses in public procurement contracts that oblige suppliers to engage in

employment for disadvantaged job seekers.

Implementing social clauses in public contracts has been legal in the French Public Procurement Code since 2001. Nevertheless, it became a major political objective in Paris in 2008, when the Mayor of Paris decided to make social clauses one of the objectives of the city's 2008–2014 mandates (Inspection-Generale (2013)). The creation of one centralized procurement directive in 2009, instead of purchasing committees decentralized as separate operational directives, boosted this measure. Such a social strategy is not specific to Paris and has been followed by many cities all over the world (Mupanemunda (2020).

In this paper we focus on public work procurement contracts from the Paris procurement directive between 2011 and 2013. We collected more than 500 work contracts. The choice of work contracts is intentional, with social clauses being implemented in those contracts first due to its large workforce. Some social clauses are now being introduced in service contracts, whereas it is quite impossible to implement social clauses in supply contracts.

Concerning the public tender procedure, the city of Paris strictly follows the steps of the French Public Procurement Code (see Figure 1 for a description of the process). In a first step, the need is established by operational directives. In a second step, buyers helped by engineers make a cost estimation of the contract according to elements such as the expected duration of the contract, its complexity, its technical inquiries, its localization, etc. Thus, the public estimation includes all contract specificities. It is only in the third step of the process, after the public estimation, that buyers decide or not to include a social clause in the tender.

Figure 1: Timeline of Public Work Procurement Contracts
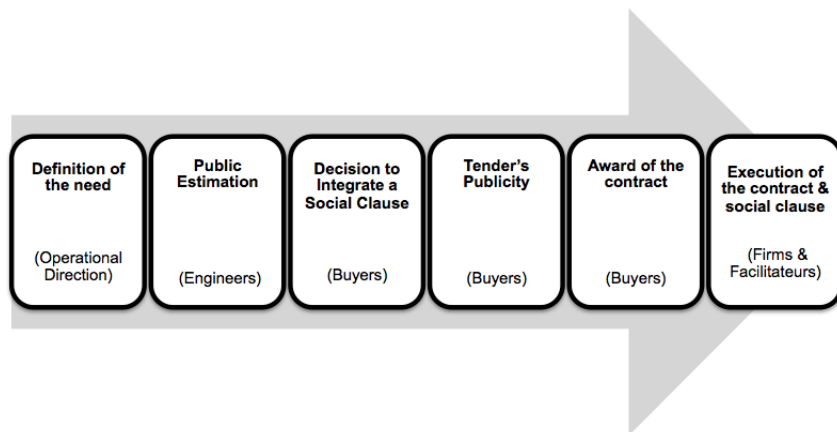
A social clause has been implemented in 20% of the contracts studied; it gives the number of hours of work the award firm will have to implement during the execution of the contract. According to the city of Paris, the number of hours that have to be executed under the social clause represents between 1% to 10% of the whole number of contract work hours, depending on its specificities.

When all tenders' documents are written, the legal publicity is made. At the end of the publicity delay, accepted offers (based on legal requirements) are marked according to previously determined award criteria with specific weightings. Public buyers can decide to use only the price criteria or to use the economically most advantageous offer criteria, which combine price and quality/technical criteria. Each offer receives a mark and the firm receiving the best mark wins the auction. After the awarding of the contract, the award firm has the obligation to complete the clauses during the execution of the contract. If the contract has a social clause, the award firm has to employ workers from specific categories for a specific number of hours, as detailed in the tender's documents.

3.2   Our Data at First Glance

We had access to contracts from the procurement directive, that is to say work contracts established by the city of Paris. For all operational directives except one, each of the contracts above the European threshold of formalized procedure (90 000 euros) is handled by the procurement directive. The directive of architecture has a different procedure; it only transfers 50 contracts per year to the procurement directive. The reason for this specificity is that the procurement directive could not integrate all contracts at the same time. Thus, we had access to every work contract signed by the city between 2011 and 2013 (as soon as their amount was above 90 000 euros) with the exception of those contracts coming from the directive of architecture.[1]

Our data set consists of 502 work contracts associated with 2 117 bids made by 276 firms over the period 2011–2013. Interestingly, firms differ in their willingness to bid for auctions with and without social clause launched by the city. Looking at Figure 2, which presents the number of bidders per call for bids, we can see that a majority of calls for bids only received 1 to 5 bids and that the average number of bids per auction is higher when a social clause is included. This suggests that competition is not necessarily negatively affected.

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[1]We potentially face a selection bias in our database. However, we believe this will not be the case because the decision to transfer contracts to the procurement directive is totally independent from the social clause issue.

Figure 2: Decomposition of the full sample: Number of bids placed by firms on auctions with social clauses – 50 firms, 89 contracts and 424 bids over the period – and without social clause – 248 firms, 413 contracts and 1693 bids

Graphs by social_clause
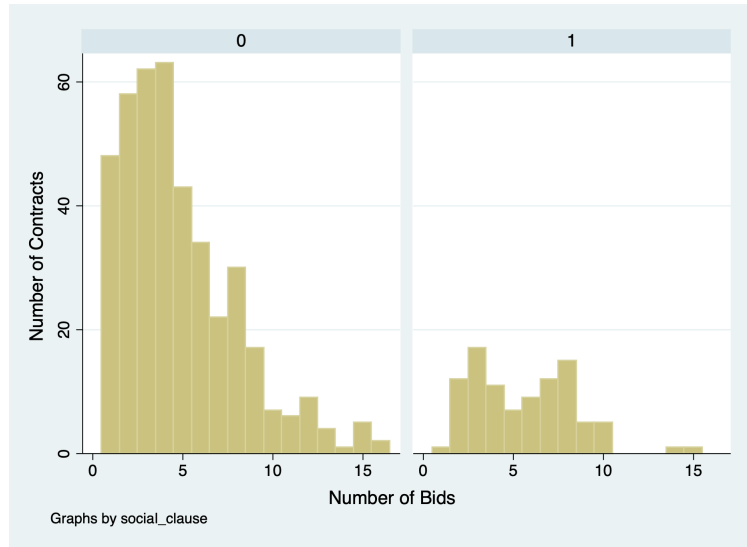
One important question concerns the identity of the winning firms. Because the pool of responding firms might change when considering calls for bids with and without social clauses (Marion (2007)). Are those firms bidding for contracts that include a social clause the same as those bidding for contracts without such a clause?

Table 1: Proportion of contracts that do include and do not include social clause won by specialized and non-specialized firms. Specialized firms are defined as firms that won only one type of contract, with or without social clause, but not both.

	Contracts without Social Clause (N=413)	Contracts with Social Clause (N=89)
Specialized Firms	80,7%	32,9%
Non-Specialized Firms	19,3%	67,1%

Looking at our data, Table 1 shows that more than 80% of contracts that do not include a social clause are won by firms that did not win any contract that includes a social clause. Only 67% of contracts including a social clause are won by non-specialized firms, defined as firms that won at least one contract with a social clause and one without it. This suggests that the inclusion of a social clause in auctions influences the identity of the winners.

7

4 Empirical strategy

4.1 Baseline equation

Our goal is to analyze the impact of incorporating a social clause in public procurement auctions on bids that are received by the city. One natural way to proceed is to relate the final prices (i.e., winning bids) with the inclusion of a social clause in auctions. A simple empirical approach to identify the effect of the presence of a social clause on the city's procurement costs would be to estimate the following equation:

$$Price_{kt} = \beta 0 + \beta 1 Social_k + B\prime X_k + C\prime Y_k + \vartheta_t + \varepsilon_{kt} \tag{1}$$

Where we explain the price bid for contract k at date t with a vector of explaining variables X and a set of control variables Y as well as time-fixed effects and the presence or not of a social clause.

4.2 Explained Variables

For our empirical analysis, we collected information concerning bids (i.e., prices) received by the city. It consists of the final winning prices for every call for bids made by the city (variable **Price**).

4.3 Explaining Variables

We created a dummy variable to capture the inclusion or not of a social clause, making it mandatory for the winner to engage in employment for disadvantaged job seekers (variable **clause**).

For every call for bids, we had access to the engineer's price estimation (see Figure 1) made previously to launch calls for bids and previously to decide to include or not a social clause (variable **Public Estimate**). Taking into account the initial price estimation made by the city's engineers helps us to take into account characteristics of the project we do not observe but that the city valorizes in its estimation. This will be one way to incorporate unobserved heterogeneity between calls for bids that do and do not include social clauses and that might impact received bids. Hence, we consider that the variable **Public Estimate** takes into account all project

specificities that we do not capture in other independent variables.

In addition, we have information concerning the number of bidders (variable **Nb Bidders**) and their identity. This information lets us distinguish firms according to whether they won only one kind of auction (with or without any social clause) (variable **Specialized Firm**) (variable **Non-Specialized Firm**).

Last, we use **CPV** codes that help us sort contracts.[2] CPV codes help us distinguish contracts according to the complexity of the work needed. CPV1 auctions are those involving labor force in order to prepare a work site. This activity typically does not involve specialized skills from workers. This is not the case for other contracts that belong to other CPV codes (other CPV codes includes building work (CPV2), equipment work (CPV3), and elaboration work (CPV4), as well as hiring construction and civil engineering machinery and equipment with operators (CPV5), all of them involving specialized skills, especially the last two, CPV4 and CPV5.

4.4 Control Variables

In addition, we have a set of control variables. We control for the **Year** of signatures and for the presence of an environmental clause in the contract (variable **Environmental clause**) as well as the type of procedure used in the call for bids that can include a last round of negotiation or not (variable **Negotiated proc**). We also control for the weight attributed in the auction to the price criteria (variable **Weight Price Crit.**); indeed, price might be the only one among other criteria that will be used by the city to select offers that strengthen efforts made by suppliers to offer a good price. As described before, other criteria, such as technical specifications of the offer, training of workers, respect of delays, or quality of materials can also be used. Last, we control for the interdiction, sometimes made by public authorities, for a firm to win all or some lots of an auction, most often because of feasibility questions during the execution of the aforesaid lots (variable **No Cumul** that takes value one when the interdiction is in force).

Tables 2 and 3 provide summary statistics for all our variables (variables **Nb_Downloads** and **Nb_days_to_answer Downloads** will be defined later in the discussion part of the paper), looking at all winning bids included in our data set and distinguishing auctions, including social clauses and those that do not include such clause. We observe that on average, prices are higher when bids concern projects with social clauses. However, those projects are also those for which the city of Paris estimates a higher price, meaning they are bigger projects (Montalban-

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[2]The common procurement vocabulary (CPV) establishes, at the European level, a single classification system for public procurement aimed at standardizing the references used by contracting authorities and entities to describe the subject of procurement contracts.

Table 2: Summary Statistics - Auctions without Social Clause

Variable	Mean	Std. Dev.	Min.	Max.	N
Price	444734.073	612557.417	4796.5	5500000	409
public_estimate	526246.101	750512.915	6340	6689000	409
nb_bidders	4.868	3.188	1	16	409
weight_price_crit	54.132	10.118	25	100	409
social_clause	0	0	0	0	409
CPV0	0.098	0.297	0	1	409
CPV1	0.112	0.316	0	1	409
CPV2	0.406	0.492	0	1	409
CPV3	0.125	0.331	0	1	409
CPV4	0.259	0.439	0	1	409
Year2011	0.242	0.429	0	1	409
Year2012	0.335	0.473	0	1	409
Year2013	0.421	0.494	0	1	409
Environmental_clause	0.543	0.499	0	1	409
NoCumul	0.208	0.407	0	1	403
Negotiated_Proc	0.731	0.444	0	1	409
Non-Spec. Firm	0.176	0.381	0	1	409
Nb_days_to_answer	42.545	13.261	7	93	409
nb_downloads	40.389	31.475	1	164	409

Table 3: Summary Statistics - Auctions with Social Clause

Variable	Mean	Std. Dev.	Min.	Max.	N
Price	2686390.107	2937923.562	67815.45	15980000	91
public_estimate	3014641.729	3322805.218	84000	18872885.71	91
nb_bidders	5.462	2.81	1	15	91
weight_price_crit	55.967	8.048	40	70	91
social_clause	1	0	1	1	91
CPV0	0.099	0.3	0	1	91
CPV1	0.231	0.424	0	1	91
CPV2	0.44	0.499	0	1	91
CPV3	0.154	0.363	0	1	91
CPV4	0.077	0.268	0	1	91
Year2011	0.231	0.424	0	1	91
Year2012	0.571	0.498	0	1	91
Year2013	0.198	0.401	0	1	91
Environmental_clause	0.736	0.443	0	1	91
NoCumul	0.461	0.501	0	1	89
Negotiated_Proc	0.253	0.437	0	1	91
Non-Spec. Firm	0.626	0.486	0	1	91
Nb_days_to_answer	53.659	10.435	30	80	91
nb_downloads	76.505	36.309	2	164	91

Domingo et al. (2019) analyzed 451 tendering documents from 10 countries to assess the influence of procurement procedures and delivery methods on the inclusion on social criteria in public construction contract. They found out, in line with us that contract size was the most influential variable).

5 Results and Discussion

5.1 Social Clause and Prices

As stated above, a simple empirical approach to identify the effect of the presence of a social clause on the city's procurement costs would be to estimate equation (1). We estimated this equation on the sub-sample of winning bids.

Results of this specification are shown in Table 4. The equation could be estimated with or without including the number of bidders in the vector Xk. Excluding the number of bidders allows the coefficient $\beta1$ to incorporate the correlation between the presence of social clauses and firms' participation. Column (1) displays the results without controlling for the number of bidders. The winning bid is found to be 7 percent higher for auctions with a social clause than in similar auctions without any social clause. The specification shown in column (2) controls for the number of bidders. The influence of the presence of a social clause in winning bids disappeared, suggesting that the procurement cost effect of the inclusion of a social clause is due to fewer bidders participating in such auctions. Columns (3) and (4) add years and CPV codes fixed effects. The results are unchanged.

Column (5) combines CPV codes with the presence of a social clause in the auction. It turns out that the impact of a social clause in one auction in the winning bids depends greatly on the type of activity that the auction is concerned with. Column (6) refines this result that includes interacting terms between CPV codes and years. We also, in column (7), include interacting terms between social clauses and years. Results show that contracts with social clauses that specify different CPVs actually differ from contracts without a social clause that specifies the same CPVs. Contracts with a social clause in CPV1 or CPV2 are less expensive than CPV1 and CPV2 contracts without a social clause. Contracts with a social clause in CPV 5 are more expensive than contracts with same CPV requirements and without a social clause.

Table 4: Winning Bids and Social Clauses - Whole Sample

	(1) Price	(2) Price	(3) Price	(4) Price	(5) Price	(6) Price	(7) Price
Public_estimate	0.984***	0.987***	0.986***	0.984***	0.984***	0.981***	0.979***
	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)
Social_clause	0.072*	0.053	0.053	0.059	0.173***	0.185***	0.154*
	(0.040)	(0.041)	(0.040)	(0.042)	(0.061)	(0.071)	(0.080)
Weight_price_crit	-0.060	-0.046	-0.041	-0.040	-0.030	-0.028	-0.030
	(0.075)	(0.073)	(0.072)	(0.072)	(0.073)	(0.074)	(0.075)
NoCumul	0.072**	0.133***	0.110***	0.117***	0.118***	0.119***	0.116***
	(0.029)	(0.031)	(0.031)	(0.032)	(0.032)	(0.033)	(0.033)
Negotiated_Proc	0.062*	0.035	0.028	0.039	0.042	0.045	0.041
	(0.034)	(0.032)	(0.032)	(0.033)	(0.033)	(0.035)	(0.035)
Non-Spec. Firm	-0.019	-0.018	-0.009	-0.014	-0.018	-0.015	-0.014
	(0.031)	(0.029)	(0.030)	(0.030)	(0.031)	(0.031)	(0.032)
Non-Spec. Firms*Clause	-0.003	0.006	0.001	-0.002	0.008	0.003	-0.000
	(0.051)	(0.049)	(0.049)	(0.050)	(0.052)	(0.052)	(0.051)
Environmental_clause	-0.020	-0.026	-0.028	-0.031	-0.032	-0.042*	-0.040*
	(0.024)	(0.023)	(0.023)	(0.024)	(0.024)	(0.024)	(0.024)
Nb_bidders		-0.107***	-0.101***	-0.101***	-0.100***	-0.099***	-0.099***
		(0.016)	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)
CPV1*clause					-0.231***	-0.236***	-0.249***
					(0.081)	(0.087)	(0.087)
CPV2*clause					-0.116*	-0.121+	-0.139*
					(0.069)	(0.076)	(0.077)
CPV3*clause					-0.065	-0.064	-0.116
					(0.074)	(0.077)	(0.081)
CPV4*clause					-0.087	-0.032	-0.047
					(0.084)	(0.100)	(0.101)
Constant	0.237	0.289	0.228	0.233	0.167	0.139	0.183
	(0.369)	(0.364)	(0.363)	(0.366)	(0.372)	(0.379)	(0.388)
Years F.E.	No	No	Yes	Yes	Yes	Yes	Yes
CPV F.E.	No	No	No	Yes	Yes	Yes	Yes
Interact Years/CPV	No	No	No	No	No	Yes	Yes
Interact Years/clause	No	No	No	No	No	No	Yes
r2	0.970	0.972	0.972	0.973	0.973	0.974	0.974
N	492	492	492	492	492	492	492

The sample comprises contracts for which the estimated value is more than 84 000 euros and less than 6 689 000 euros and that correspond respectively to the smallest contract value for contracts that include a social clause and to the highest value for contracts that do not include a social clause. Every variable, with the exception of dummies and Nb_bidders, is transformed in the log. *** Significance level at 1%; ** Significance level at 5%; * Significance level at 10%; + Significance level at 15%

5.2 Robustness Checks and Discussion

5.2.1 Limiting the Value Range of Contracts

One issue with the previous estimations is that social clauses are implemented in large contract amounts, for which the city's engineers have more difficulties evaluating ex ante the value of the contract. That is not the case for contracts without any social clause that are never implemented for contract amounts over 5 500 000 euros (see Tables 2 and 3). However, social clauses also concern small contract amounts. The smallest contract that includes such a clause is less than 100 000 euros in value. This suggests that the decision to include or not a social clause is partly based on a contract amount that is anticipated by the city.

In order to take into account the fact that contracts with or without any social clause are not concerned by the same contract amounts, we make our estimates on the whole sample of winning bids but on a reduced-size sample that includes contracts in a range of values in which both types of contracts are coexisting. More precisely, the reduced sample comprises auctions for which the estimated value is more than 84 000 euros and less than 6 689 000 euros and correspond respectively to the smallest auction estimated value for auctions that include a social clause and to the highest auction estimated value for auctions that do not include a social clause.

Results are shown in Table 5 for the reduced sample that comprises auctions for which the estimated value is more than 84 000 euros and less than 6 689 000 euros. Qualitative results are unchanged with the exception of the fact that the competition effect of including a social clause (i.e., the reduction of the number of bidders and its impact on price) disappears, even without including the number of bidders as an explaining variable (Column (1)). We still find that contracts with social clauses that specify different CPVs actually differ from contracts without social clauses that specify the same CPVs. More precisely, contracts with social clauses in CPV1 or CPV2 are less expensive than CPV1 and CPV2 contracts without social clauses. Contracts with social clauses in CPV 5 are more expensive than contracts with same CPV requirements and without social clauses.

5.2.2 Endogeneity Issues

Our estimates only identified $\beta 1$ whether there is no unobserved component of Xk correlated with the clause. This is the assumption we made by considering that the evaluation made by the city's engineers before the auction incorporates heterogeneity between contracts that we do not observe. Whether they were not perfectly known and valorized by the city in the ex-ante contract

13

Table 5: Winning Bids and Social Clauses - Limited Sample

	(1) Price	(2) Price	(3) Price	(4) Price	(5) Price	(6) Price	(7) Price
Public_estimate	1.005***	1.011***	1.007***	1.008***	1.007***	1.002***	1.000***
	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)	(0.017)
Social_clause	0.044	0.019	0.025	0.016	0.129**	0.160**	0.134*
	(0.045)	(0.045)	(0.045)	(0.045)	(0.065)	(0.067)	(0.078)
Weight_price_crit	-0.063	-0.027	-0.026	-0.022	-0.012	-0.016	-0.017
	(0.076)	(0.073)	(0.073)	(0.073)	(0.073)	(0.076)	(0.077)
NoCumul	0.076**	0.138***	0.122***	0.129***	0.126***	0.131***	0.129***
	(0.034)	(0.035)	(0.035)	(0.037)	(0.037)	(0.038)	(0.039)
Negotiated_Proc	0.064*	0.041	0.036	0.046	0.048	0.042	0.039
	(0.037)	(0.035)	(0.035)	(0.037)	(0.037)	(0.040)	(0.040)
Non-Spec. Firm	-0.021	-0.024	-0.016	-0.023	-0.024	-0.015	-0.015
	(0.033)	(0.030)	(0.031)	(0.032)	(0.032)	(0.033)	(0.034)
Non-Spec. Firms*Clause	0.001	0.019	0.012	0.016	0.017	0.014	0.010
	(0.055)	(0.054)	(0.054)	(0.055)	(0.059)	(0.058)	(0.056)
Environmental_clause	0.002	-0.011	-0.011	-0.012	-0.012	-0.024	-0.022
	(0.025)	(0.024)	(0.024)	(0.025)	(0.025)	(0.026)	(0.026)
Nb_bidders		-0.110***	-0.106***	-0.105***	-0.101***	-0.102***	-0.102***
		(0.017)	(0.018)	(0.019)	(0.019)	(0.020)	(0.020)
CPV1*clause					-0.232***	-0.257***	-0.257***
					(0.088)	(0.087)	(0.089)
CPV2*clause					-0.104	-0.124*	-0.125+
					(0.074)	(0.072)	(0.077)
CPV3*clause					-0.060	-0.077	-0.108
					(0.077)	(0.070)	(0.076)
CPV4*clause					-0.081	-0.057	-0.059
					(0.088)	(0.096)	(0.100)
Constant	-0.044	-0.102	-0.107	-0.090	-0.176	-0.190	-0.149
	(0.388)	(0.369)	(0.372)	(0.380)	(0.386)	(0.390)	(0.406)
Years F.E.	No	No	Yes	Yes	Yes	Yes	Yes
CPV F.E.	No	No	No	Yes	Yes	Yes	Yes
Interact Years/CPV	No	No	No	No	No	Yes	Yes
Interact Years/clause	No	No	No	No	No	No	Yes
r2	0.957	0.960	0.961	0.961	0.962	0.963	0.963
N	419	419	419	419	419	419	419

The sample comprises a contract for which the estimated value is more than 84 000 euros and less than 6 689 000 euros and that correspond respectively to the smallest contract value for contracts that include a social clause and to the highest value for contracts that do not include a social clause. Every variable, with the exception of dummies and Nb_bidders, is transformed in the log. *** Significance level at 1%; ** Significance level at 5%; * Significance level at 10%; + Significance level at 15%

estimation or they they were known by the city but not taken into account in the ex-ante cost estimation would raise endogeneity issues for our estimates.

As far as we know, after conducing several interviews at the city of Paris, contracts that are most probably chosen in order to include a social clause are those that stay for a long period, necessitating general skills and a lot of workforce for social clauses to be easily implemented and to have a real impact. All those elements are taken into account during the estimation phase performed by the city previously to decide to include or not a social clause and previously to launch the call for tenders. Hence, we are confident that the assumption that no unobserved heterogeneity generates an endogeneity issue with our variable **clause** is not too strong because all the heterogeneity that we do not observe is observed by the city and included in our variable **Public Estimate**.

However, the presence of social clauses might increase prices received by the city because some firms may exclude themselves from the competition, knowing they are not able or not efficient enough to meet this additional constraint. We then could expect a decrease in the number of bidders with the inclusion of a social clause (i.e., a competition effect). Our results indeed suggest that the procurement cost effect of the inclusion of a social clause might be due to fewer bidders participating in such auctions. The number of bidders participating in the call for bids might be endogenous; some elements we do not observe might be correlated with the number of bidders as well as with final bids.

In order to deal with this issue, we use two instruments. Our first instrument is the number of times the call for tenders file has been downloaded, i.e., our variable **Nbdownloads**. It is important to keep in mind that competitors do not know beforehand to download this file if the call for tenders includes a social clause or not. This variable thus reflects how attractive the project put to the tender is *a priori* independently of the presence or the absence of a social clause. It is thus a good instrument, correlated with the number of bidders but not correlated with the final bids' amounts.

Our second instrument is the number of days needed in order to respond to the call for bid. The city cannot decide to reduce this number below a mandatory minimum, but it can decide to extend the period for competitors to bid. And there is indeed a large variation, with calls for bids that stand from 7 to 93 days (see summary statistics in Tables 2 and 3).

This boils down to the estimate of the following equation:

$$\begin{cases} Price_{kt} = \beta 0 + \beta 1 Social_k + B\prime X_k + C\prime Y_k + \vartheta_t + \varepsilon_{kt} \\ Nb\_Bidders\_kt = \alpha 0 + \alpha 1 Social_k + D\prime X_k + E\prime Y_k + \alpha 2 Nb\_Downloads_k \\ \qquad\qquad + \alpha 3 Nb\_Days_k + \varepsilon 1_{kt} \end{cases} \qquad (2)$$

Table 6 displays the estimates for the whole and the limited amounts set of bids in our sample. Results suggest that social auctions reduce the number of bidders for activities that belong to CPV code 5 but not in other CPV codes. Taking into account the endogeneity problems of the number of bidders, this variable does not further influence final prices received by the city. The positive impact on price of including a social clause in auctions stands only for activities that belong to CPV code 4. Results are not qualitatively different according to results on our limited amounts set of auctions.

5.3 Conclusion

In the aftermath of the COVID-19 pandemic, social procurement represents a significant strategy through which governments can help tackle some of the employment-related exclusion issues they face. By using contractual obligations as a way of incentivizing employers to take on jobseekers who experience disadvantage, public bodies can help create employment opportunities through their goods, services, and infrastructure contracts Mupanemunda (2020). One question that is still unresolved is at what additional cost?

In this paper we explored the cost of including social clauses in auctions for public contracts. Looking at a sample of auctions organized by the city of Paris, our results suggest that there is, on average, no additional cost for the city of introducing social clauses in their auctions. This is good news. In addition, the effect of social clauses depends greatly on which sector (i.e., CPV codes) is concerned. It suggests that, depending on characteristics of concerned sectors (i.e., level of competition, needed skills, etc.), public procurers might follow secondary objectives without any additional costs.

However, it is fair to say that we looked at only a small part of potential cost increase for the city (i.e., winning bids). However, additional costs might also occur during the contract execution stage. This is expected because adding secondary objectives in public contracts increases their complexity and their incompleteness. Social objectives are difficult to measure and control. Contract incompleteness might give rise to frequent and costly renegotiations. On the other hand, social clauses also generate positive value for society that would be interesting to measure and to include for a more global evaluation of the impact of social clauses in public procurement. Those questions are open avenues for future research.

Table 6: Winning Bids and Social Clauses - Whole Sample

	(1) Price	(2) Nb_Bidders	(3) Price	(4) Nb_Bidders
Nb_bidders	-0.048		-0.056	
	(0.045)		(0.065)	
Public_estimate	0.973***	0.012	0.996***	0.042
	(0.013)	(0.024)	(0.017)	(0.033)
Non-Spec. Firm	-0.016	0.003	-0.014	-0.035
	(0.032)	(0.074)	(0.034)	(0.078)
Non-Spec. Firms*Clause	-0.002	0.050	0.004	0.144
	(0.050)	(0.131)	(0.056)	(0.143)
Social_clause	0.162*	-0.605**	0.169*	-0.964***
	(0.083)	(0.246)	(0.090)	(0.236)
Weight_price_crit	-0.023	0.226	-0.017	0.294+
	(0.073)	(0.157)	(0.073)	(0.179)
NoCumul	0.082**	0.502***	0.108**	0.473***
	(0.042)	(0.072)	(0.053)	(0.081)
Negotiated_Proc	0.046	-0.036	0.057	-0.061
	(0.036)	(0.080)	(0.040)	(0.090)
Environmental_clause	-0.044*	-0.121**	-0.022	-0.117*
	(0.024)	(0.059)	(0.025)	(0.066)
CPV1*clause	-0.277***	0.508**	-0.309***	0.833***
	(0.087)	(0.256)	(0.099)	(0.255)
CPV2*clause	-0.137*	0.260	-0.144*	0.487*
	(0.078)	(0.254)	(0.075)	(0.259)
CPV3*clause	-0.135*	0.616**	-0.144*	0.827***
	(0.081)	(0.282)	(0.084)	(0.267)
CPV4*clause	-0.066	0.689**	-0.094	0.928***
	(0.101)	(0.327)	(0.108)	(0.312)
Nb_download		0.176***		0.149***
		(0.041)		(0.047)
Nb_days_to_answer		0.451***		0.424***
		(0.127)		(0.151)
Constant	0.153	-1.923**	-0.183	-2.027*
	(0.380)	(0.830)	(0.399)	(1.037)
years F.E.	Yes	Yes	Yes	Yes
CPV F.E.	Yes	Yes	Yes	Yes
Interact Years/CPV	Yes	Yes	Yes	Yes
Interact Years/clause	Yes	Yes	Yes	Yes
r2	0.973	0.434	0.962	0.428
N	494	494	420	420

Every variable, with the exception of dummies and Nb_bidders, is transformed in the log. In columns (3) and (4) the sample comprises contracts for which the estimated value is more than 84 000 euros and less than 6 689 000 euros and that correspond respectively to the smallest contract value for contracts that include a social clause and to the highest value for contracts that do not include a social clause. *** Significance level at 1%; ** Significance level at 5%; * Significance level at 10%; + Significance level at 15%

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