FAVORITISM IN PUBLIC PROCUREMENT: EVIDENCE FROM SWEDEN

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ABSTRACT. We study favoritism in public procurement of cleaning service contracts in Sweden 1990-1998. The lowest bid does not win 61% of the time, and municipalities pay on average 38% more than the lowest bid. Municipal behavior systematically correlates with the composition of the local council: The most right-wing or balanced councils are most likely to both procure cleaning services and to allow free entry. Councils with 1/3 and ½ share of left-wing councilors put the largest weight on price. Our findings demonstrate that favoritism may occur even in a non-corrupt society once the rules allow for it.

INTRODUCTION

Public procurement constitutes a large and increasing part of economic activity both in developed and developing economies. Intrigued by this development, economists have turned to study procurement mechanisms with new fervor during the last couple of decades. Favoritism and even corruption emerge as an equilibrium outcome in a large number of recent models of procurement auctions (e.g., McAfee and McMillan 1989, Laffont and Tirole 1991, and Vagstad 1995; Compte, Lambert and Verdier 2004, and Burguet and Che 2004). These insightful analyses are however backed only by anecdotal accounts and qualitative descriptions of a small number of alleged cases of favoritism. The existing empirical research on public procurement concentrates either on bidder (mis)behavior (e.g. Porter and Zona 1993) or the effects of procurement on production costs (e.g. Szymanski 1996), with some exceptions (Ingraham 2005 studies collusion between

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auctioneer and bidder). While recent research on corruption has provided evidence of the extent and mechanisms of graft in developing countries (e.g. Svensson 2003), systematic evidence on favoritism in public procurement in developed countries is scant. Equally little is known about whether favoritism, as it is practiced, is (in)efficient. The aim of this paper is deliver evidence that directly bears on these questions.

Nordic countries have traditionally excelled in international rankings on (lack of) corruption. As outright corruption is and ought to be less of a nuisance in developed than in developing countries (e.g. Shleifer and Vishny 1993), this should be no surprise. Yet, this paper is about favoritism in Sweden, a country that is one of the least corrupted countries in the world.[1] Using detailed data on procurement of internal cleaning contracts in Swedish municipalities during 1991-1998 we i) document the existence and extent of favoritism, ii) provide evidence that favoritism is systematically linked to the composition of the local council. Entry was restricted in 30% of cases, and in 61% of the cases, the lowest bid did *not* win. We look at several individual procurements and find that municipal behavior is not in line with either efficient favoritism, or with the assumption of ex-ante known quality differences. Our econometric evidence shows that the most right-wing and most evenly split municipal councils are the most likely to procure cleaning services and to allow free entry into bidding. Councils with 1/3 or ½ share of left-wing councilors put the most weight on price in choosing the winner. Left-wing councils elicit the lowest bids from both local and national bidders. We also show that favoritism may only be efficient in municipalities with "hung" councils.

The theoretical literature on procurement auctions has provided numerous insights, highlighting that the scope for favoritism in a procurement auction depends much on what is being procured and how the procurement is organized (see, e.g., Laffont and Tirole 1991). In the recent models of procurement auctions it is typically assumed i) that the object of bidding is very complex, ii) that there are at least potentially major quality differences in the bids, iii) that these qualities of bids are initially the bidders' private information, and iv) that delegation is

[1] Examples of these rankings are those provided by World Democracy Audit and Transparency International.

inevitable.[2] In contrast with the theoretical literature, we study a product - cleaning services - where both the production process and the procurement specifications leave little if any room for quality differences, i.e., differences in the quality of cleaning of a particular object for which firms are bidding. This choice is in line with some recent empirical work on public procurement (e.g. Szymanski 1993, 1996 who studies garbage collection in the UK) and frees us from the need to control for quality differences between the bids. Indeed, with no (ex-ante known) quality differences between bids there is little reason for a procurement officer to choose any other bid but the lowest, unless (s)he is engaged in favoritism of one type or the other.

In the following section, we survey the theoretical literature on biased procurement auctions and discuss which varieties of favoritism we ought to consider and how they come about. This literature informs us for example of the conditions under which favoritism is efficient. It also emphasizes the possibility that even if there were no ex ante quality differences in the bids, the permanent characteristics of firms, such as their probability of bankruptcy, may explain why the lowest bid does not always win. To take the implications of such fixed firm characteristic seriously, we control for them in the empirics in a number of ways, by for example conditioning our empirical tests on the types of firms.[3]

Fundamental for our study is that the Swedish law on public procurements in the 1990s had peculiar consequences, giving municipalities high degrees of freedom to choose how to procure the services, and whom of the bidders to pick. We describe the legal environment, the product and the bidding process in detail in section three. There, we also discuss the plausibility of our main assumption of no quality differences in bids and argue that the cleaning service

[2] The assumed non-price attributes of bids may be a choice variable of the suppliers, quite like in Che (1993) and Burguet and Che (2004), or exogenous, in which case they can (as e.g. in Armstrong 1996) but need not (Laffont and Tirole 1991, Vagstad 1995) remain the suppliers' private information.

[3] Some models of corruption furthermore suggest that corruption depends on how profitable firms are (i.e., corruption payoff is increasing in total profits; see e.g. Ades and Di Tella 1999). In Svensson's (2003) empirical study, a firm's "ability to pay" and "refusal power" are found to determine whether it has to pay briberies.

procurements in our data are best characterized as independent private value auctions.

The rest of the paper is organized so that in section four, we discuss the data in greater detail and present the results of descriptive analysis. Section five is devoted to our econometric analysis, and section six to robustness tests. We conclude in section seven.

FAVORITISM IN THEORETICAL MODELS OF PROCUREMENT

Favoritism is linked to the identity of bidding firms and can come in a number of varieties. As McAfee and McMillan (1989) show, an obvious case for favoritism emerges when each bidder is better informed about its own costs and the distribution of at least one bidder, say that of a local firm, compares unfavorably to the distribution of others. If these cost asymmetries are common knowledge, the buyer has an incentive to resort to a price-preference policy of not always purchasing from the lowest bidder. The policy forces cost-efficient non-local firms to bid more aggressively, allowing the buyer to minimize its expected procurement cost. This type of favoritism can be efficient, if efficiency is measured from the perspective of end-users. In our case, they would be the inhabitants of the Swedish municipalities.[4]

Another obvious case for favoritism emerges in the presence of preference asymmetries, i.e., if the procurement agent has a preference for one of the bidders. In Vagstad's (1995) model, the assignment of favor is exogenous, as the procurement agent has a preference for local firms that derives from the agent's interest in local firms' profits (and possibly other local positive externalities from production, such as income taxes and employment). There are no cost asymmetries ex ante, but the agent can discriminate against non-local firms in shadow of asymmetric information about quality. He does so by (i) choosing the non-local firms less often and (ii) leaving them with smaller profits when

[4] This view is different from that taken by Eklöf (2005), who considers the efficiency of first-price, sealed-bid procurement auctions of road painting from the perspective of the central government of Sweden. This paper documents that because the bidders were in the 1990s ex ante asymmetric in these auctions, the social costs implied by the inefficient allocation of contracts may have been substantial.

chosen. In Laffont and Tirole (1991), the preference asymmetry of the procurement agent is an outcome of collusion between him and a bidder. The preference asymmetry can also emerge endogenously, as it does in Celentani and Ganuza (2002) as a result of a bribe demand by the procurement agent and in Burguet and Che (2004) as an outcome of a bribery game.[5]

Whether favoritism *can* be efficient or desirable from the perspective of the inhabitants of the Swedish municipalities appears to depend on two mutually nonexclusive conditions: On the one hand, favoritism may reduce expected procurement costs if it enhances competition by providing an incentive for the group of non-favored firms to bid more aggressively (as it does in, e.g., McAfee and McMillan 1989, and Burguet and Che 2004).[6] On the other hand, favoritism can be

[5] In Celentani and Ganuza (2002) the main interest is in how bribery taking depends on the degree of competitiveness of the environment, whereas in Burguet and Che (2004) it is the reverse (i.e., how bribery taking influences competition). It is worth noting that in Burguet and Che favoritism benefits the buyer only if an out-bribed firm has an incentive to bid more aggressively, i.e., if bribery taking enhances competition. A recent paper by Compte, Lambert-Mogiliansky and Verdier (2005) is yet another study of how bribery taking influences competition. In their model, the preference of the procurement agent over a particular bidder is also a result of a bribery game. The bribery game takes place after bids have been submitted and one of the procurement agents doctors a bid in exchange for a bribe. This model belongs to the class of models of bidder-auctioneer collusion that is based on "magic number cheating" (so termed in Ingraham 2005), in which the auctioneer or his agent saves the bid from the dishonest bidder until last and doctors a new bid for this bidder just below the lowest bid of the other bidders. Other models in this spirit include Burguet and Perry (2002) and Menezes and Monteiro (2005). In these models, the lowest bid always wins, which is in stark contrast to what we observe in our data.

[6] This is not a uniform prediction, however: In yet another model of biased procurement auctions, Rezende (2004) considers a set up in which the preference of the buyer over one of the bidder is exogenous. Albeit the preference may initially be the buyer's private information, Rezende shows that a full disclosure of such preference is always optimal and, in particular, that it may be optimal for the buyer to bias the auction rules towards the preferred supplier. The motivation to introduce the bias is that it makes the preferred supplier more likely to win. As a result, the lowest bid does not always win. However, increasing the bias reduces in Rezende's model competition, as it makes the bidders more asymmetric. The effect of this is an increase in mark-

desirable, if the assignment of favor is systematically related to the identity of bidders and in congruence with the preferences of the inhabitants (Vagstad 1995, see also Rezende 2004).[7] In the municipal procurement auctions we study, such congruence would have to mean that the inhabitants prefer seeing internal cleaning service contracts awarded to local bidders, whose profits, income taxes and employment they may internalize. We present evidence that suggests that any quality differences between bidders must have been firm-specific, i.e., constant for a firm over all procurements. In the empirics, we test both whether differences in bidder (firm, as opposed to bid) quality explains our data, and whether our data supports the above type efficient favoritism.

DESCRIPTION OF THE LEGAL ENVIRONMENT, THE PROCUREMENTS AND BIDS

In this section, we first discuss the legal environment in which the municipalities and the firms in our data acted. We then provide support for our two maintained assumptions: That of no quality differences in bids, and that of these cleaning service contracts being independent private value objects. Under these assumptions all decisions to award a contract to anybody else than the lowest bidder and not allowing all potential bidders to bid both imply favoritism. We therefore conclude this section discussing why one might observe such behavior even under our maintained assumptions.

Environment

Our data come from the period 1991-1998 during most of which public procurement in Sweden was governed by a new law, the Public Procurement Act (LOU 1992:1528). While the law was not yet in force in 1990-1993, the first years of our data, the rules that were applied then were essentially the same as under the law. This law specified the environment in which municipalities and bidding firms acted. The law allowed five different procurement mechanisms for internal cleaning

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ups and in the cost of procurement. In Rezende's model, there is however no room for favoritism in the traditional sense, as the end-user runs the auction himself.

[7] In Rose-Ackerman (1975), firms face different bribery costs. In her model, favoritism is never efficient, as it leads to inflated procurement costs.

service contracts[8] which we label Simplified, Direct, Open, Restricted and Negotiated. The law includes a threshold value of procurement (200 000€), below which Simplified and Direct are allowed, and above which Open, Restricted or Negotiated are required.[9] It suffices to note that i) Direct involves no bidding and is only allowed in exceptional circumstances; ii) Simplified and Open are for all practical purposes identical, the main feature being that participation is free for all potential bidders; and iii) that Restricted and Negotiated, too, are identical for all practical purposes, their main distinguishing feature being that the municipality invites bids from selected firms. Negotiations with potential suppliers after the bids have been submitted are allowed under Simplified and Negotiated.[10] In our data the use of negotiations is however nonexistent and we therefore view this possibility as unimportant. Table 1 shortly describes each of the mechanisms.

[TABLE 1 HERE]

From our point of view the following features of the law are central: First, only sealed bids were allowed. Second, the lowest bidder should win. The exception to this rule is if the municipality deems that some other bid is "most advantageous economically" when quality, environmental aspects, service and maintenance etc. were taken into account in addition to price. These criteria should have been posted in advance of the bidding but the weight attached to each criterion in the evaluation is in the procurements studied here in general unknown to the

[8] The Public Procurement Act stipulates different rules depending on what is being purchased: Supplies, works or services.

[9] The question if entry restricted procurement mechanisms can be empirically motivated with high implementation costs is analyzed in Lundberg (2005). Using the same data as in the present paper Lundberg find no evidence of such relation.

[10] The Public Procurement Act (LOU 1992:1528), states that negotiations are exceptional and only allowed if the terms of the contract are of such a nature that they cannot be specified before the auction. Further, the law also states that the first choice of procurement procedure in procurements above the threshold value should be the open procedure, followed by the restricted and negotiated procedures. There are other specific circumstances in which the law regulates the use of the negotiated procedure. However, these are legal details and not relevant for the analysis in this study. For further details, see chapter 5, "Procurement of services", in the Public Procurement Act (LOU 1992:1528).

bidders prior to the bidding.[11] In other words, municipalities did not (have to) use any explicit scoring rules during our observation period. It is of interest to note that this changed after our observation period, partly because of EU wide directives that dictate that explicit scoring has to be used. However, it is important to keep in mind that the clear purpose of the Public Procurement Act of 1992 was that if the lowest bidder is not awarded the contract, this has to be because along some well-specified (and ex ante notified) dimensions, some higher bid is "more economically advantageous". The law does not explicitly mention locality of the bidder as an allowable dimension, but seems not to rule it out either. Under the current rules, it is illegal. Third, while the law allows municipalities to arrange simultaneous procurement auctions, combinatorial bidding was not applied, and the municipality made decisions object by object.

In the described environment, the municipalities could make three decisions: First, to procure or to produce in-house. Second, conditional on deciding to procure, the municipality had to decide whether to allow open entry or not. And finally, the municipality had to choose one of the bids. We take the number of objects for which cleaning services are being procured, as well as their characteristics, as given. It is of course entirely possible that some municipalities decided to procure cleaning services for, say, some of their schools while keeping the cleaning of others in-house. However, the fact that in several of the municipalities in our data in-house production participates in the bidding (see below) suggests to us that the decision of whether to procure internal cleaning services or not is not made piece-meal, but is a discrete decision.

It is illustrative of the atmosphere in which the law was written that the freedom allowed by the law to deviate from choosing the lowest bid was actually seen as beneficial. The following quote from a book by a public sector lawyer – which the municipalities, judging by our data, took to heart - testifies to this (Löfving 1994, pp. 65. Our italics): "The tender having the lowest price offered should be accepted. If it has been stated in the advertisement that the most economically advantageous tender will be accepted, factors specified therein can be taken into consideration in the assessment of tenders. The factors can be stated according to a degree of priority (LOU 1 ch. 22§), *however this is not a requirement. On the contrary, it can be advantageous to state in the*

[11] An example of a typical contract notice is found in Figure 1B in Appendix B.

advertisement that such factors are non-prioritized, since this increases the possibility of being able to choose the contractor."

The procurements and the bids

Central to our investigation are two maintained assumptions: First, that there are no ex ante discernible quality differences between bids. Second, these "procurement auctions" fall into the independent private value (IPV) category. Our first claim for why these two assumptions are plausible in our data is the type of service we are studying. The literature on the relative merit of negotiation versus auctions (e.g. Bajari, McMillan and Tadelis 2003 and the literature cited therein) is – for good reasons - mainly interested in "customized goods such as new buildings, fighter jets or consulting services" (Bajari, McMillan and Tadelis 2002, pp. 1). We take a completely opposite track by studying internal cleaning services. Our, admittedly layperson[12] view of (good or bad) cleaning could be described along the lines of the popular definition of pornography: "you cannot describe it, but you know it when you see it". Cleaning is a labor-intensive, low-tech service, the quality of which is easily monitored, for which the requisite skills are relatively easily acquired and are wide-spread, and cleaning services is an industry in which barriers to entry are relatively low.

Additional support for the assumption of no quality differences is provided by procurement instructions. In the process of compiling the data, we obtained the procurement instructions of all the 758 objects for which internal cleaning services were procured in our data. These are in general very detailed. Besides including a detailed description of the premises to be cleaned, the frequency of cleaning, cleaning method, cleaning substances that are allowed/preferred, and cleaning equipment that is to be employed, they also go into much more minute detail. For example, it is common to state requirements as to the professional education of cleaning staff to be used. Similarly, the monitoring of cleaning is often specified in detail, and it is standard to require the firm to inform the municipality on several features of the working process, and to provide records of hours of work, workforce and machinery employed etc.. As if this wasn't enough, in several instances the procurement instructions go into great detail as to how each space (e.g. classroom, toilet) is to be cleaned. All this suggests that it is very hard to

[12] Although one of us, in the distant past, has worked for a cleaning company.

differentiate one-self quality-wise. A illustrative example of a typical technical specification is found in Figures 2B and 3B in Appendix B.

The material available to us provides further evidence of no ex ante quality differences: In addition to the procurement instructions, we obtained copies of the bids. The bids, almost without exception (see the Appendix for an example) only detail i) the object for which the firm is bidding, ii) the name and contact information of the bidder, iii) and the price, despite the forms providing space for additional information (a typical bid is illustrated in Figure 4B in Appendix B). If such information is provided, it is invariably uninformative as to potential quality differences. A typical piece of extra information is that the firm A plans to use substance Y in cleaning, say, school Z. The procurement instructions however always dictate in detail the environmental aspects of the substances to be used, and the extra information provided by firm A is that substance Y fulfills these criteria. This naturally leaves open the question of quality differences between bidders (e.g. different bankruptcy probabilities). We return to such differences later.

Further supporting evidence comes from our interviews with both a (former) civil servant who used to be in charge of such procurements, and three industry representatives. While the former civil servant maintained that local firms provide higher quality through better local presence, he also mentioned a nationally operating firm as providing similar quality. The three firm representatives were unanimous in stating that all firms provide equal quality in public procurements.[13] They also mentioned that procurement instructions in public procurement are so well-defined that there is no room for (large) quality-differences.

Our main support for the IPV assumption come from the i) type of service we study, ii) the detailed procurement instructions, and iii) the fact that all interviewed industry representatives claimed that the policy of their firm is to always visit a site before calculating a bid. Cleaning services are very different from the standard example of a common value object - oil drilling. While in oil drilling there is substantial uncertainty as to how much oil there is in a given tract and what its value is when sold, in cleaning there is no such uncertainty attached to the value of the object. As long as there is no common uncertainty as to what inputs a

[13] One of them, a local operator, maintained that they provide higher quality in private procurement.

given object requires, the uncertainty associated with it is very likely rooted in firm-specific factors on e.g. distance to the object, possible capacity constraints, shocks in employee turnover etc. Points ii) and iii) ensure that there is very little uncertainty as to what the object requires in terms inputs. In our interviews, firm representatives suggested that there are cost differences between firms that depend on the object for which cleaning services are procured. These can stem from the local organization of the firm and e.g. distance from firm offices to the object.

No quality difference, IPV and favoritism

As noted above, our maintained assumptions imply favoritism at each instance when a contract is awarded to any other bidder but the lowest, and every time entry is restricted. Such occurrences are frequent in our data. One might wonder whether this implication doesn't mean that our maintained assumptions must be wrong as how would the generally uncorrupt Swedish civil servants / municipal decision makers engage in favoritism in such circumstances? We offer two explanations.

First, and most plausible, even if our maintained assumptions implied favoritism, is that decision makers could counter that while this is true, they still act in the best interest of the their principals, the inhabitants of the municipality. This is so as they could claim to be engaged in efficient favoritism (McAfee and McMillan 1989, Vagstad 1994) that maximizes the rents of the municipality by eliciting lower bids from firms residing outside the municipality in question. For this to work, they sometimes want/need to award the contract to a local firm not bidding lowest. Indeed, there is qualitative evidence from neighboring (and equally, if not more, free-of-corruption) Finland that municipal decision makers in similar circumstances claim to have made decisions exactly along the lines suggested by models of efficient favoritism.[14]

Second, even if the municipal decision makers knowingly engaged in inefficient favoritism, they could still – if accused of wrong-doing –

[14] The main Finnish daily newspaper, Helsingin Sanomat, Monday May 16th, 2005, pp. A6, ran a story on (problems in the court cases - the number of cases that have been taken to court has exploded in absolute terms while staying low in relative terms - relating to) municipal public procurement. A loose translation: "Some municipalities have tried to justify the choice of a local firm by tax income and employment effects. Such justifications are however illegal under current law".

claim either that there are genuine, but for a non-expert hard to verify quality differences between bidders, and/or that they were engaged in efficient, not inefficient, favoritism. Even if one could prove that on average the observed favoritism is inefficient, proving it in a particular case beyond reasonable doubt is certainly much harder.

THE DATA

In this section, we first describe the data collection process and data sources and then discuss the main descriptive statistics while providing more detail in the Appendix. In sub-section B we provide a preliminary analysis of municipal behavior.

Data collection and descriptive statistics

Our bidding and procurement data come from a survey, administered to all Swedish municipalities asking them for procurement documents regarding internal cleaning services. The documents are contracts notice, technical specification, list of bidders, bids, and the decision protocol stating the winner of the contract. We don't know if all the Swedish municipalities that organized procurement auctions in cleaning services are in our data. We have supplemented this data with municipality characteristics, obtained from Statistics Sweden (SCB). All in all, we have data on 228 out of a total of 289 municipalities. 59 of the municipalities we have data for have organized at least one procurement in cleaning services during 1990-98 and the remaining 169 organized none.

[TABLES 2 AND 3 HERE]

We have data on 758 objects for which cleaning services were procured (see Table 2). The vast majority of these are schools or daycare centers. The objects vary according to the characteristics we observe: size (in square meters), contract length, prolongation period, and required cleaning frequency. The contract length is the stated contract period and the prolongation period states the period that the contract will be extended with if the current holder of the contract has performed well after the contract period has expired. The prolongation period is normally one or two years. The cleaning frequency is the number of days during a year the object should be cleaned. As detailed in Table 3, the way procurement was organized varies a great deal. We call a "procurement"

an instance where cleaning services were procured for one or more "objects". The objects are the premises to be cleaned. A procurement consists of one or more "auctions". The number of objects varies from one (single-unit) to 74, and the number of bids from one to 37.

Firms in our data can be divided roughly into four categories. First, there are a few firms that operate nationally. This group includes the largest, and some medium sized firms. Second, there are mid-size firms that are active regionally. The third group consists of small local firms that only bid in one or a couple of municipalities. The final group consists of firms that used to be the cleaning department of the municipality, but have at some point been transformed into a company that still is owned by the municipality ("In-house" production). There are in total 322 firms. 27.5% of these firms are local, 70.5% regional. For confidentiality reasons we have labeled the national firms "Ni", i = A,… The largest national firms "Nb" and "Na" submit bids for most objects. "Nc" and "Nd", two other national firms, submit bids for 6-10% of objects. There are several firms that bid for 10-25% of objects. In-house municipal production participates in bidding for almost 40% of objects.

[TABLE 4 HERE]

We observe a total of 5926 bids (Table 4). We know the bid, the identity of the bidder, and whether or not the bid won. The fact that the winning bid on average is 37.5% higher than the lowest bid testifies that municipalities forego substantial cost savings by engaging in favoritism.

Preliminary analysis

We now turn the attention to how the raw data reflects municipal behavior. First note that in 92 of the 131 procurements, the municipalities chose to allow all potential bidders to participate (Simplified and Open). The proportion of objects in these procurements was 59% ((129+315)/758). Thus for 41% of objects, municipalities chose to restrict entry, implying favoritism. Out of the 59 municipalities in our data that procure cleaning services, 11 use only open entry whereas 29 only use restricted entry. Similarly, 11 municipalities always award the objects to the lowest bidder, and there are four municipalities that never award an object to the lowest bidder. In almost 61% of the 758 cases, the municipalities did not choose the lowest bidder. The lowest bid won in 51% of open entry auctions, and only in 25% of auctions with restricted entry. Thus two of the municipal decisions, form of entry, and choice of

winner, are interlinked. In an interesting recent paper, Eklof (2005) studied Swedish road painting procurements during the roughly the same period. A major difference between his data and ours is that in his there was just one decision maker, the central government. From Eklof's's data description it seems that in his data the lowest bid always won.

[TABLE 5 HERE]

Let us take a first look at how firms are treated by contrasting against each other the few national firms, in-house production and small local firms. In Table 5 we have depicted the participation probabilities of these (groups of) firms when entry is free, and when entry has been restricted. As one can see, there are two firms that seem to be discriminated against, one heavily: "Nb"'s participation probability in open entry auctions is close to 100, but less than 85 in restricted entry auctions. "Nc" only participates in 1% of restricted entry auctions. Of our three interviewed industry representatives, one came from each of these firms. While the "Nb" representative claimed that they preferred restricted entry auctions, the "Nc" representative said that they are discriminated against. There seem to be four (groups of) firms that experience positive discrimination: "Na", "Nd", In-house (though to a lesser extent) and local small firms. For the latter, the relative increase in participation is 40%.

THE EMPIRICAL EVIDENCE

We study the following municipal decisions: First, whether or not to procure cleaning services and second, which bid to choose. We then estimate the determinants of bids to study how the composition of the council affects individual bids..

Determinants of procurement

Starting from the procurement decision, we estimate a standard discrete choice logit equation where municipal characteristics are used to explain whether or not municipality m procured cleaning services in 1991-1998 or not. Swedish municipalities had the choice of producing these services themselves instead of procuring them, and we know that in our data the majority (169 out of 228) chose to do so. We know whether or not a municipality procured cleaning services, but do not necessarily have data on all procurements from those municipalities who organized at least one procurement and participated in the survey. We therefore

cannot seek to explain e.g. the number of procurements. Thus the first estimation equation is

(1) $y_i = 1[x_i\beta + \varepsilon_i]$

Where y_i is an indicator variable taking the value one if municipality i procured cleaning services at least once during 1990-1998.

Our main variables of interest in all equations are variables characterizing the composition of the municipal council. We use two variables and their interaction in all our estimation equations: the share of left-wing parties in the municipal council, and an indicator for left-wing parties having a majority. This set-up allows the effect of left-wing parties' share on the outcome to vary depending on whether or not they have the majority. We will also include various powers of the proportion of left-wing councilors, and interactions between them and the left-wing majority indicator. For the procurement estimation, we use council composition in 1988. As controls of municipal characteristics we include the unemployment rate and population density (measured in 1991). The unemployment rate might affect municipal decision making by leading to heavier pressure to not procure, or (conditional on procuring, see below) to favor local firms if own production by the municipality, or local firms use more labor-intensive production technologies and/or employ more locals. These tendencies could then show up in choice of whether or not to procure (entry form). Population density is an important control as Swedish municipalities are divided into densely populated urban centers and sparsely populated rural areas.

[TABLE 6 HERE]

In column (1) of Table 6 we present the results from our base specification. None of the political variables' coefficients are statistically significant. The pattern of coefficients suggests that the probability of procurement increases first as a function of the proportion of left-wing councilors, peaks at a 50/50 share, and thereafter declines. The unemployment rate has no effect, but the more densely populated the municipality, the likelier it is to procure. In column (2) we add the squared proportion of left-wing councilors to the specification. Now all the political composition variables carry significant coefficients while those on the municipal characteristics remain close to their column (1) values. As it is not straight forward to deduce the effect of council

composition on the probability of procurement from the coefficients in column (2), we depict the effect for a municipality with average 1991 unemployment and population density in Figure 1 for the empirical support of the proportion of left-wing councilors, measured in 1988.

[FIGURE 1 HERE]

As Figure 1 shows, the probability of procuring is highest for the most right-wing councils. This is not entirely surprising. However, one should keep in mind that less than 10% of our observations (municipalities) have councils with less than 1/3 left-wing councilors. More surprising is the strong peak at and around 50/50. On both sides of a hung council, the probability of procuring decreases fast. Noteworthy is also the increase at the high end of the support. The most left-wing councils seem to have been slightly more likely to procure than councils with a moderate left-wing majority.

We did experiment with including up to 3rd powers of the proportion of left-wing councilors, and squares of the municipal characteristics. Including more political variables always lead to the new variables' coefficients being insignificant (along with some of those in that are significant in column(2)), and the squares of municipal characteristics had no effect on political variables' coefficients while obtaining insignificant coefficients themselves.

Determinants of entry policy

We then condition the data on municipality i procuring cleaning services, and seek to answer the question of what determines whether or not the municipality allows open entry when procuring cleaning for a particular object (e.g. a school). We estimate a standard discrete choice logit equation. We do not control for selection into the sample as we are interested in the determinants of the conditional probability of procurement form. While our main interest is in the variables measuring the composition of the municipal council, we control for the type of the object, its characteristics (size in sq.m, # cleaning days specified in the contract and frequency of cleaning), time (by year dummies) and the number of objects in the procurement. Our "base" object is a school in 1990-1991.[15] Our explanatory variables are now measured in the year in which the cleaning services for a given object were procured.

[15] We pool the years 1990 and 1991 as we have very few observations in 1990.

[TABLE 7 HERE]

As Table 7 reveals, we find that child care centers, health care centers and offices are more likely to have open entry than schools; that larger objects are less likely to have open entry; that objects that are cleaned more times and more frequently are more likely to have open entry; and that the larger the number of objects in the procurement, the lower the probability of allowing open entry. Most interestingly we find that the proportion of left-wing councilors has a positive effect on the probability of entry being open as long as there is a right-wing majority. The coefficient of the left-wing majority indicator is positive and significant implying that there is a jump in the probability of open entry when the left-wing parties have a majority. However, the interaction between these two variables has a large negative coefficient. These results imply that the probability of open entry reaches its maximum for a hung (50/50 split) council.

In column (2) we add as controls the unemployment rate and the population density and their squares. All these variables obtain significant coefficients. While they significantly increase the absolute values of the individual political variables' coefficients, the qualitative results remain unaltered. In column (3) we add the squared proportion of left-wing councilors, and its interaction with the left-wing majority indicator. While some of the political composition variables' coefficients are no longer statistically significant, we can reject the null against the specification of column (2).

In Figure 2 we have depicted the development of the probability of open entry when the object is a school in 1990 with the sample average size, number of cleaning days and cleaning frequency when the number of objects in the procurement is at the sample median (20). We present the estimated probability of open entry using results from columns (2) and (3). Figure 2 shows that the linear specification of the effect of council composition leads to a very flat function: essentially only at the ends of the empirical support is the probability clearly less than one. Adding the squared terms changes this picture: Now the most right-wing councils and the most evenly split councils are the likeliest to have open entry. For other council compositions, the probability can be very low. The minima are reached when the share of left-wing councilors is at its empirical maximum, 67% (.0003). For right-wing majorities, the minimum is .010 when the proportion of left-wing councilors is 31%.

The composition of the council thus has an economically important effect on choice of entry mode.

[FIGURE 2 HERE]

Choosing the winner

To study the determinants of the winning bid, we use the conditional logit model of McFadden (1973).[16] The conditional logit equation takes the form

$$\Pr[i] = \frac{\exp(X_{ij}\beta)}{\sum_{k=1}^{K}\exp(X_{ik}\beta)}. \quad (2)$$

We explain the probability of bid i winning object j by using bid(der) characteristics X_{ij} as explanatory variables such as price (bid) and firm dummies. Equation (2) can be motivated by the standard random utility argument where the procurement officer's utility from choosing bid i for object j is given by

$$U_{ij} = X_{ij}\beta + Z_i\theta + \varepsilon_{ij} + \xi_j . \quad (3)$$

In (3), Z_j are characteristics of the procurement officer/municipality/object. They thus do not vary over bids. The unobservables are ξ_j and ε_{ij}. The former are unobservable procurement officer/municipality characteristics that affect the utility derived from any bid in the same fashion. The latter is i.i.d extreme value distributed bid- and procurement officer/municipality/object specific unobservable effect. In contrast to the burgeoning empirical literature on auctions, our interest is not in uncovering the type (distribution) of bidders, but rather to estimate the determinants of buyer behaviour, something usually assumed to be cost minimization in procurement auctions.

The conditional logit model seems particularly well suited for our purposes as it allows us to condition out everything that is particular for a

[16] We also estimated logit models of the determinants of choosing the lowest bidder. As these suffer from problems in controlling e.g. for the level of competing bids etc., we do not report them here. However, the evidence both from these logit estimations and bivariate probit estimations where the other dependent variable was form of entry support the reported results.

specific object (e.g. school) such as size, cleaning frequency, location, etc. Thus, and potentially as important, it allows us also to condition out all municipal characteristics that might affect the choice in a linearly separable way. One implication of this is that the conditional logit should be relatively immune to sample selection bias. This would be the case as long as the choice of i) procuring the cleaning service, ii) choice of entry mode, iii) all other choices related to the particular object are independent of individual bids. This should be the case to a large extent as many of those choices are made prior to firms submitting their bids. In other words, the conditional logit allows us to concentrate on features of bids that vary within bids for a given object, most notably price. To introduce our political variables into the conditional logit framework we interact them with the (log) bids.

A problem that remains within this modeling framework is that individual bids for a given object may be correlated with the error term. This would be the case if bidders knew that they are (dis)favored. The favored firms might submit higher bids than otherwise, and disfavored firms lower bids than otherwise. This type of behavior occurs in equilibrium in models of efficient favoritism, for example. While we present results from specifications where the assumption is that bids are independent of the error terms, we also resort to two remedies. First, we include firm- and firm-type dummy vectors of varying length. While these control for firm-specific unobservables (like possible quality differences), they do not necessarily correct problems arising from a given municipality favoring a given firm when procuring cleaning of a given object. To solve this problem, we resort to Nevo (2000) type instruments. That is, we assume that the firm-specific error terms are independent over municipalities (not objects), and use firm i's bids in other municipalities to generate instruments for firm i's bid in municipality m. This we do by estimating reduced form (log of) bid functions, excluding data from municipality m, and using the thus generated expected bid as the instrument for bids in municipality m. As we operate in a discrete choice framework, we employ a control function approach and bootstrap the standard errors (following e.g. Blundell and Powell 2004).

[TABLE 8 HERE]

We exclude 552 observations from "auctions" where there were more than one winner, and one observation from an "auction" with only

one participant. In column one of Table 8 we present our simplest specification where only the log of bids and its interactions with political variables are included. The bid coefficient is negative and marginally significant, but none of the political variable-bid interactions carries a significant coefficient. Adding squared political variables in column (2) improves the situation, and now two of the interaction coefficients are significant. The composition of the council has a negative effect on the price coefficient indicating that an increase in the proportion of left-wing councilors increases the price sensitivity of the procurement officer. The squared proportion – bid interaction has a positive and significant coefficient implying the converse. In columns (3)-(5) we present a the results from 4^{th} order polynomial specification estimated in three ways. In column (3) we do not include firm dummies, and do not correct for possible endogeneity bias; in column (4) we use the control function approach to correct for endogeneity, and in column (5) present results from a specification including 16 firm dummies and an indicator for inhouse production. All the political variable- bid interactions carry significant coefficients. As the total effect is hard to gauge from the coefficients, we present in Figure 3 the effect of council composition on the effect price has on the probability of winning. We have scaled the effect to be -1 for a hung council. The effect is highly nonlinear, reaching its minimum for a council with 1/3 left-wing councilors. When the share of left-wing councilors increases further, the effect of price increases (decreases in absolute value) fast. Councils with a close to 50/50 share of seats are markedly more price sensitive than those with (locally) clearer majorities. Councils with left-wing majorities are less price-sensitive than hung councils.

[FIGURE 3 HERE]

Is favoritism efficient?

Our evidence on whether the observed favoritism is efficient consists of an analysis of conditional winning probabilities, and of an econometric analysis. Starting with the first, recall that an underlying assumption behind many models of efficient favoritism such as that of McMillan and McAfee (1989) is that the municipality favors local firms because it internalizes their rents to some degree. Thus, observing that national firms are awarded an object despite not being the lowest bidder

provides evidence against this type of efficient favoritism.[17] Against this background, our raw data speak loudly against efficient favoritism: the probability that a national (i.e., non-local) firm wins an auction where the object is not awarded to the lowest bidder is 49%. Thus, in half the cases where the lowest bidder does not win, the identity of the winner is such that it provides evidence against this form of efficient favoritism.

Turning then to econometric evidence, we ran reduced form regressions of the log of normalized bids on i) object characteristics, ii) time dummies, iii) the political variables used above, and iv) an indicator for a firm being a national firm, and interactions between this indicator and the political variables. Efficient favoritism would imply that national firms bid lower. The difficulty we face is how to disentangle different bidding strategies of national firms from their possible cost advantages. The interactions between the indicator for being a national firm and the political variables are designed to circumvent this problem. The indicator should pick up the (average) cost advantage of the large national firms. If their bidding behavior varies with the composition of the municipal council, then this is most likely due to differences in bidding strategies.

[TABLE 9 HERE]

Table 9 reports our results. With a within specification we find that the type of premises affect costs; that there are slight diseconomies of scale both in terms of size of the premise to be cleaned (coefficient of sq. meters positive and significant), and in terms of the cleaning frequency (coefficient of cleaning frequency less than unity). While national firms bid higher in open entry auctions (-.118+.121), other firms bid more aggressively. More interestingly for us, we find that the composition of the municipal council has an effect on all bidders' bids. Again we resort to a figure to display the results. In Figure 4 we display the effects of council composition on the bids of a national and "non-national" firm when they bid in an open entry "auction" for a school in 1990 that has the average size, cleaning days and frequency. Starting from the empirical minimum we find that both national and non-national firms' bids increase when the proportion of left-wing councilors increases. The bid of a non-national firm jumps downwards when the council is hung, while the national firm's bid is monotonically decreasing in the

[17] Turning to our theme of section II.C, local authorities could justify such choices by hard to observe quality differences.

proportion of left-wing councilors. We thus find that councils where neither political side has a clear majority are the ones that elicit the lowest bids from the non-local (national) firms.

[FIGURE 4 HERE]

Overall these results are difficult to reconcile with efficient favoritism. One might however be able to interpret the evidence as suggesting that the most left-wing councils are practicing efficient favoritism as they elicit low(est) bids from all types of firms while being unlikely to allow open entry, and putting a small weight on price in determining the winner.

ROBUSTNESS TESTS

In this section we first provide auxiliary evidence against the alternative hypothesis that there nonetheless are quality differences between bidders that explain the observed behavior. We then explore further whether our results are robust to taking into account that in choosing which bidder to award a given object municipalities might – against the law – take into consideration those other auctions organized at that were organized simultaneously.

Of course, the lowest bid not winning does not constitute evidence of favoritism *per se*, even if it were true that there are no ex ante quality differences in the quality of cleaning of a particular object for which firms are bidding. If the civil servants act in the interest of the inhabitants of their municipality, they may well care about the identity of the supplier, as that can convey information about a dimension of the quality that is relevant for the choice but that is not specific to the particular object for which firms are bidding. Examples of such attributes of firms are probability of bankruptcy, reputation for fairness, or standard for corporate integrity and responsibility. To some extent both industry and civil servant testimonies indicate that if such differences existed, they were not significant. The econometric results include controls for firm identity (the conditional logit and bid estimations), and thereby are robust to any variation in quality over firms, such as the probability of bankruptcy.

A. Are there quality differences nonetheless?

One might wonder whether favoritism could take place on such large scale. An alternative explanation is that our evidence notwithstanding, there are ex ante quality differences, and municipalities choose the best price-quality weighted bids. In addition to the econometric evidence, in particular the conditional logit estimates with firm dummies, we have two further pieces of evidence that suggest this is not the case.

First, national firms win 36% of the all the objects. This would suggest that they must provide adequate quality. If one is willing to believe that there is only minor variation in quality within each of the national firms, the implication would be that municipalities should not choose a bid that is higher than that of a national firm. We find in our data however 747 bids by national firms that are lower than the winning bid in the same auction. These constitute 25% of those bids that are lower than the winning bid. This evidence is in contrast with the fact that the national firms win 36% of all objects.

Second, having looked into some individual auctions we have found cases where a given national firm, say, A, is awarded one object in a given procurement, and loses with a lower bid against another (national) firm in bidding for another object in the same procurement. An example of this type of an outcome is given below. For this kind of behavior to be consistent with quality differences, it would have to be that i) some national firms are good at cleaning schools but not kindergartens and ii) the municipalities being aware of such quality differences. We find these requirements implausible.

Simultaneous procurements

A major feature of our data is that in most instances when a municipality procures cleaning services, it does so for several objects simultaneously. Thus, there are 131 procurements in our data, and in these 131 procurements, firms can bid for 758 objects. While combinatorial bids are illegal, the data suggests that despite the law requiring that municipalities decide the winning bid object by object, in a large number of procurements, a firm wins several objects. A rationale for this could be that there are transaction costs in dealing with each new contractor, and by awarding the contracts to just a few bidders the municipality is actually minimizing costs. In our conditional logit estimations we found some evidence that the procurement bid affects the probability of winning. This results was however not robust to the

inclusion of firm and firm-type dummies. In this section we study further whether this hypothesis is supported by our data.

We engaged in some case studies by looking at procurements where the number of objects was greater than one, but low. Consider the procurement in municipality A with four objects. A small firm called "a" is awarded one object, the second object being awarded to another small firm despite "a" being the lowest bidder on that object. The national firm "Na" is awarded the other two objects despite "a" being the lowest bidder on one of the objects awarded to "Na". Also, "a"'s aggregate bid on the two objects that "Na" won is lower than "Na"'s, the difference being of the order of 9000€. In municipality B, a procurement with two objects was held. National firm "Nb" wins one object with the lowest bid. "Na" wins another despite "Nb" bidding lower than "Na". A third example comes from municipality C's procurement with three objects. Local firm "c" wins one object with the lowest bid and another with the 2nd lowest bid. In-house production wins another despite "c" being the 2nd lowest bidder. In-house's bid on this last object is 55% higher than that of "c". A local firm, "d" is the 2nd lowest bidder for the object where "c" submitted the lowest bid, and the lowest bidder on the other two objects. If one takes the fact that the municipality chose a given firm for at least one object to mean that that firm's quality is sufficiently high for it not to be a "fly-by-night" operator, then all these three cases provide evidence against the hypothesis that municipalities are minimizing total costs, including transaction costs arising from having to deal with (multiple) firms. This is so as in each of the three cases, the municipality in question would have saved on both transaction costs and procurement costs by making different choices. In the case of "A", money would have been saved by awarding all four objects to "a"; in the case of "B", by giving both objects to "Nb"; and in the case of "C", by giving all the objects to "c". In the last case, one may suspect that "d" was a fly-by-night operator, as these three objects are the only ones it bids for in our data. Note also that the case of municipality "B" speaks against efficient favoritism, as "Na" is a national, not a local, firm.

CONCLUSIONS

In this paper, we utilize a peculiar period in Sweden, one of the world's supposedly least corrupt countries, to study favoritism in public procurement. Concentrating on internal cleaning service contracts allows

us arguably to circumvent many problems faced by researchers studying favoritism. Cleaning services are low-tech, with a well-known production technology and low capital costs. We provide evidence that there are no ex ante quality differences between bids, and that internal cleaning service contracts are within the independent private value category. We provide evidence that quality differences between bidders (e.g. probability of bankruptcy) are unlikely to explain the observed behavior, and control for such differences in our estimations. During the period we study, Swedish municipalities were required to organize sealed bid "auctions", but were given high degrees of freedom to choose the bidder they want on "economically most advantageous grounds".

Our data are quite striking: Despite the above features, Swedish municipalities seem to engage in favoritism on a grand scale. In 40% of the cases, municipalities restricted entry by allowing only bids by invitation. When they did so, in 3 cases out of 4 they did not choose the lowest bidder. The winning (chosen) bid was on average 37.5% higher than the lowest bid. In half the cases when the lowest bid did not win, a national firm was chosen. These facts suggest that favoritism was frequent, costly, and unlikely of the efficient form advocated by theoretical analyses of the type of McAfee and McMillan (1989).

Our econometric analysis shows that i) municipalities are the likelier to organize procurement of cleaning services instead of relying on in-house production, the closer to 50/50 is the composition of the municipal council, ii) the more even the composition of the municipal council between right- and left-wing parties, the higher the probability that entry is open and iii) councils with 1/3 and ½ share of left-wing councilors put the highest weight on price, iv) left-wing councils elicit the lowest bids from national firms, and hung councils from other firms. These results are difficult to reconcile with efficient favoritism with the possible exception of very left-wing councils. Overall, councils with an even share of right- and left-wing councilors seem to perform best.

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Appendix A. Tables and Figures

Table 1. Procurement mechanisms for internal cleaning service contracts

Procurement procedure	Description
THE VOLUME OF THE PROCUREMENT IS BELOW THE THRESHOLD VALUE	
Simplified	All potential suppliers are allowed to bid. The contracting entity can invite some or all bidders to a negotiation after the auction.
Direct	No bidding process. Not an auction.
THE VOLUME OF THE PROCUREMENT EXCEEDS THE THRESHOLD VALUE	
Open	All potential suppliers are allowed to bid.
Restricted	Only potential suppliers invited by the contracting entity are allowed to bid.
Negotiated	As restricted, but the contracting entity can invite some or all bidders to a negotiation after the auction.

Table 2. Objects

Type	Frequency	Percent	N
Schools	319	42.1	757
Day care centers	302	39.9	757
Medical health centers	27	3.6	757
Purifying plants	2	0.3	757
Office	65	8.6	757
Sport centers	16	2.1	757
Libraries	16	2.1	757
Others	12	1.6	757

Table 3. Descriptive statistics and frequencies

		Allocation mechanism				
		Simplified	Open	Restrictive	Negotiated	All
# procurements		60	32	24	15	131
# objects		129	315	255	59	758
Variable	Statistic					
# objects	Mean	2.2	9.8	10.6	4.5	5.9
	Stand. dev.	3.9	10.7	16.3	8.1	10.1
	Maximum	27	37	74	29	74
	Minimum	1	1	1	1	1
# bids	Mean	7.1	8.9	7.4	5.5	7.8

on each	Stand. dev.	3.9	4.3	3.3	2.5	3.9
object	Maximum	37	25	16	22	37
	Minimum	1	1	2	2	1
# bids	Mean	6.1	8.1	7.8	6.3	6.9
in each	Stand. dev.	4.6	5.4	4.0	4.9	4.8
procurement	Maximum	37	25	16	22	37
	Minimum	1	1	2	2	1
Contract	Mean	1.5	2.0	1.6	1.7	1.7
period	Stand. dev.	0.6	0.6	0.6	0.8	0.7
	Maximum	3.0	4.0	3.0	3.0	4.0
	Minimum	0.2	0.5	0.8	0.5	0.2
Prolongation	Mean	0.7	0.8	0.8	0.3	0.7
period	Stand. dev.	0.6	0.5	0.7	0.5	0.6
	Maximum	2.0	2.0	2.0	1.0	2.0
	Minimum	0	0	0	0	0
Density	Mean	204.73	243.61	681.46	846.25	375.02
	Stand. dev.	441.85	666.69	616.39	1228.22	696.32
	Maximum	2808.0	2783.1	2796.4	2749.69	2808.0
	Minimum	4.6	8.8	60.5	16.29	4.6
Red	Mean	0.48	0.47	0.47	0.43	0.46
	Stand. dev.	0.01	0.01	0.16	0.12	0.11
	Maximum	0.61	0.63	0.66	0.67	0.67
	Minimum	0.29	0.27	0.21	0.18	0.18

Table 4 Bid level descriptive statistics

Variable	Mean	Std. dev.	Min	Max
Bid/sq. m.				
Swedish krona	158.3511	93.78475	2.76705	2174.019
Open	0.473507	0.49934	0	1
Restricted	0.317584	0.465576	0	1
Negotiated	0.055518	0.229008	0	1
Simplified	0.153392	0.360395	0	1
Winner	0.140398	0.347429	0	1
Lowest bid wins	0.043368	0.203702	0	1
Inhouse	0.07273	0.259715	0	1
National	0.288053	0.452894	0	1
t91	0.002869	0.053488	0	1
t92	0.006412	0.079827	0	1
t93	0.049949	0.217859	0	1
t94	0.129936	0.336261	0	1
t95	0.38002	0.485432	0	1
t96	0.323152	0.46772	0	1
t97	0.089436	0.285397	0	1
t98	0.017887	0.132553	0	1

TABLE 5 MISSING – TO BE PRODUCED

Table 6. Determinants of who procures

Variable	(1)	(2)
Red	1.965	-36.442**
	(2.703)	(17.415)
Red-majority	2.138	15.072**
	(2.765)	(6.305)
Interaction	-4.763	-31.452***
	(5.162)	(12.766)
Red sq.	-	54.298**
		(24.091)
Population density	-.170***	-.208**
	(.160)	(.165)
Unemployment	.002	.002
	(.001)	(.001)
Const.	-1.454	4.997*
	(1.093)	(3.122)
Nobs.	226	226
Logl.	-119.276	-116.411
T1	.002	.000

Notes: numbers are coefficient and (standard error). ***, **, and * denote significance at 1, 5, and 10% level.
T1 = p-value of a LR-test of joint significance of all RHS variables.

Table 7. Determinants of open entry

Variable	(1)	(2)	(3)
Red	13.326***	29.628***	-232.366***
	(1.517)	(6.061)	(47.338)
Red-majority	15.593***	48.387***	-12.151
	(3.116)	(6.433)	(64.793)
Interaction	-32.289***	-92.663***	215.708
	(5.423)	(12.073)	(221.524)
Red squared	-	-	334.506***
			(62.521)
Interaction	-	-	-379.034**
			(192.003)
Childcare	1.010***	.601	.746
	(.287)	(.482)	(.531)
Healthcare	1.104*	.642	.413
	(.628)	(1.004)	(1.093)
Office	.950**	-.069	-.152
	(.415)	(.622)	(.734)
Sports facility	.309	-2.112	-.678
	(.825)	(2.625)	(2.469)
Library	.784	.118	.194
	(.858)	(1.242)	(1.517)
Other	.982	1.072	1.103
	(.763)	(1.372)	(1.221)
Sq. m.	-.00006*	-.00003	-.00004
	(.00003)	(.00005)	(.00004)
Days	.591***	.431***	.511***
	(.086)	(.121)	(.111)
Frequency	106.765***	72.327***	91.980***
	(15.556)	(21.133)	(19.503)
#objects	-.041***	-.154***	-.209***
	(.007)	(.020)	(.026)
Population density	-	-.018***	-.024
		(.002)	(.003)
Sq.	-	6.0E-06***	7.8E-06***
		(8.2E-07)	(9.4E-07)
Unemployment	-	-8.047***	-5.182***
		(1.457)	(1.150)

Sq.	-	.453***	.285***
		(.090)	(.071)
Const.	-262.098	-176.124***	-172.211***
		(51.869)	(46.041)
Nobs.	758	758	758
Logl.	-296.461	-130.681	-116.397
T1		.000	.000

Notes: numbers are coefficient and (standard error). ***, **, and * denote significance at 1, 5, and 10% level. All specifications include year dummies.
T1 = p-value of a LR-test of joint significance of all RHS variables.

Table 8. Determinants of winning bid

Variable	(1)	(2)	(3)	(4)	(5)
Log price	-1.057*	12.681***	-154.366***	-629.901**	-117.717
	(.621)	(2.951)	(68.366)	(373.428)	(74.754)
Red	-1.235	-90.027***	2202.033***	8878.419**	1812.765**
	(1.467)	(18.767)	(860.713)	(4329.121)	(937.116)
Red-majority	2.631	17.860	-	-1703.694	-
	(1.939)	(29.295)	2070.519***	(1043.227)	1980.134***
			(558.232)		(580.257)
Interaction	-3.167	-14.023	10676.55***	12766.03***	10266.17***
	(3.581)	(101.790)	(2751.959)	(5244.243)	(2876.652)
Red squared	-	125.587***	-	-	-
		(26.431)	11146.54***	44519.64***	9729.164***
			(3928.656)	(18239.96)	(4262.051)
Interaction	-	-40.472	15705.77***	-	-
		(89.329)	(3912.101)	24703.66***	15078.65***
				(7988.632)	(4114.701)
Red^3	-	-	23425.55***	93455.49***	21257.39***
			(7700.684)	(33506.03)	(8332.431)
Interaction	-	-	-	-	-
Red^4	-	-	-	-	-
			17442.87***	69856.92***	16247.02***
			(5481.758)	(22722.36)	(5920.286)
Interaction	-	-	10520.65***	24170.02***	10167.39***
			(2556.137)	(6436.105)	(2719.019)
Nobs.	5373	5373	5373	5373	5373
LogL.	-1559.388	-1546.5478	-1535.018	-	-1410.948
Firm dummies	no	no	no	no	yes
T1	.000	.000	.000	.000	.000

Notes: numbers are coefficient and (standard error). ***, **, and * denote significance at 1, 5, and 10% level.
T1 = p-value of a LR-test of joint significance of all RHS variables.

Table 9. Reduced form bid regressions

Variable	(1)
Childcare	-.486***
	(.025)
Healthcare	-.568***
	(.053)
Office	-.769***
	(.037)
Purifying	-.734***
plants	(.151)
Sports	-.227***
facility	(.064)
Library	-1.134***
	(.071)
Other	-.889***
	(.073)
Sq. m.	.0002***
	(2.97e-06)
Days	.005***
	(.002)
Frequency	.633***
	(.241)
Red	.206
	(1.891)
Red majority	-27.429***
	(6.030)
Interaction	92.788***
	(20.736)
Red^2	-.590
	(2.670)
Interaction	-78.048***
	(17.803)
Red *	
national	.135
	(2.750)
Red majority	29.935***
* national	(7.886)
Interaction	-102.081***
	(27.153)

Red^2 *	-1.213
national	(3.907)
Interaction	86.719***
	(23.378)
Open entry	-.118***
	(.037)
Open entry *	.121**
national	(.051)
	9.890***
Constant	(.761)
Nobs	5373
R^2	.707
T1	.000

Notes: numbers are coefficient and (standard error). ***, **, and * denote significance at 1, 5, and 10% level.
T1 = p-value of a LR-test of joint significance of all RHS variables.

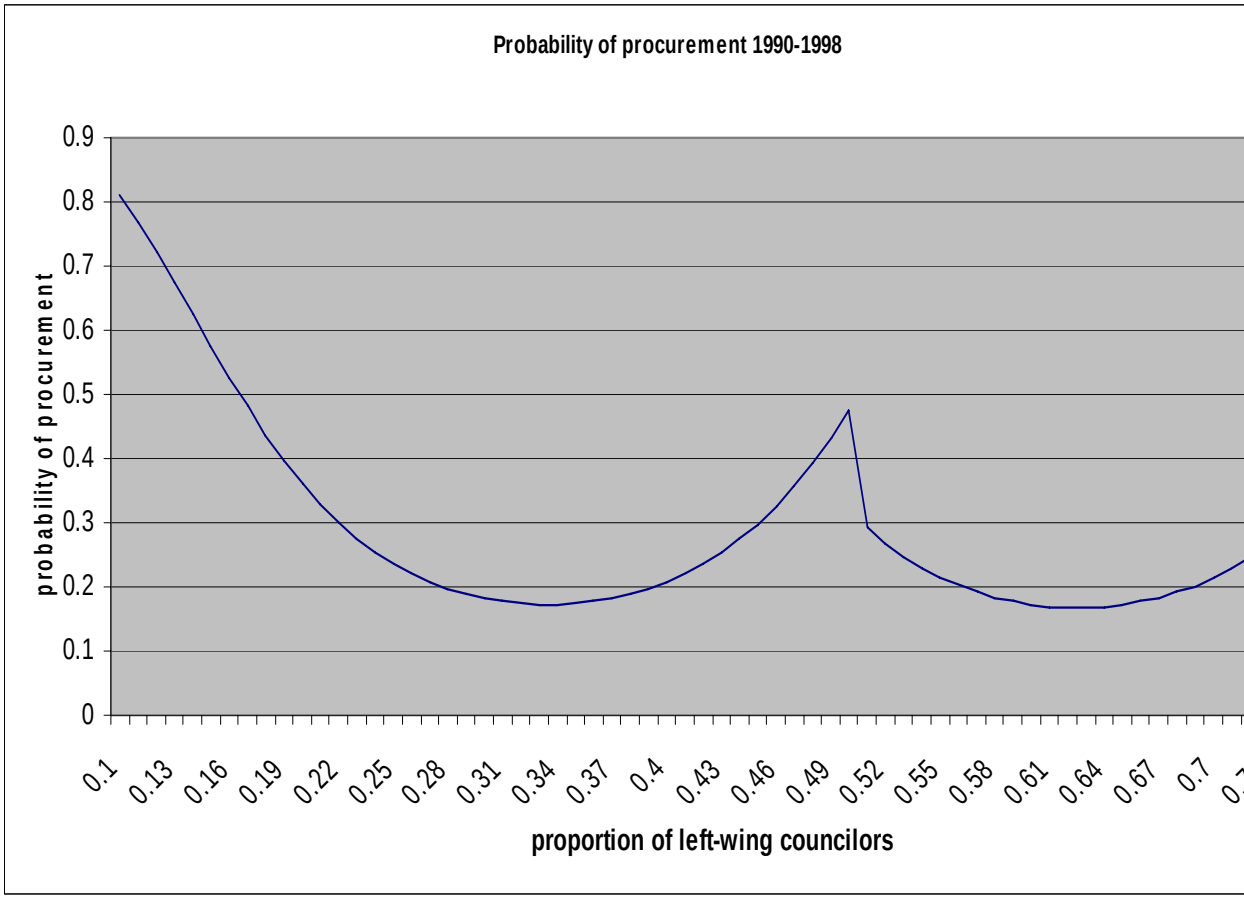


Figure 1. Probability of procurement as a function of council composition.

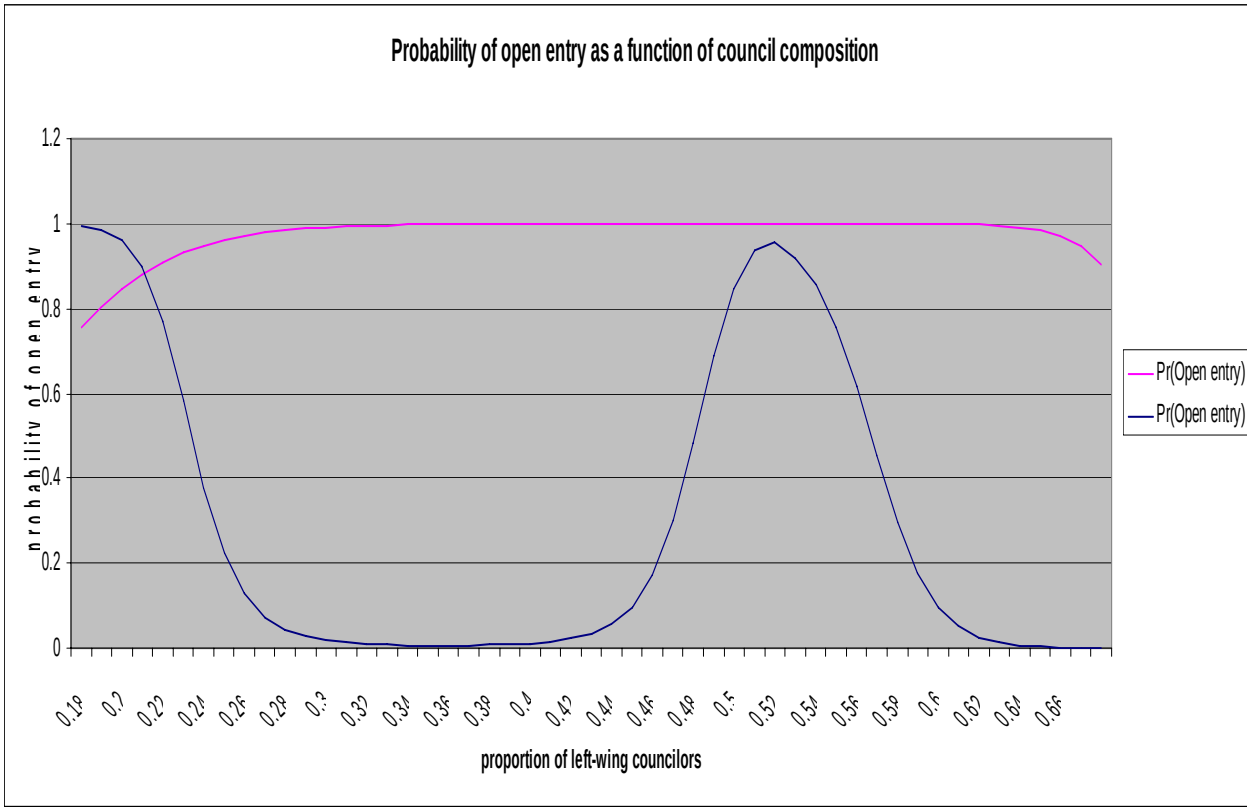


Figure 2. Probability of open entry as a function of council composition

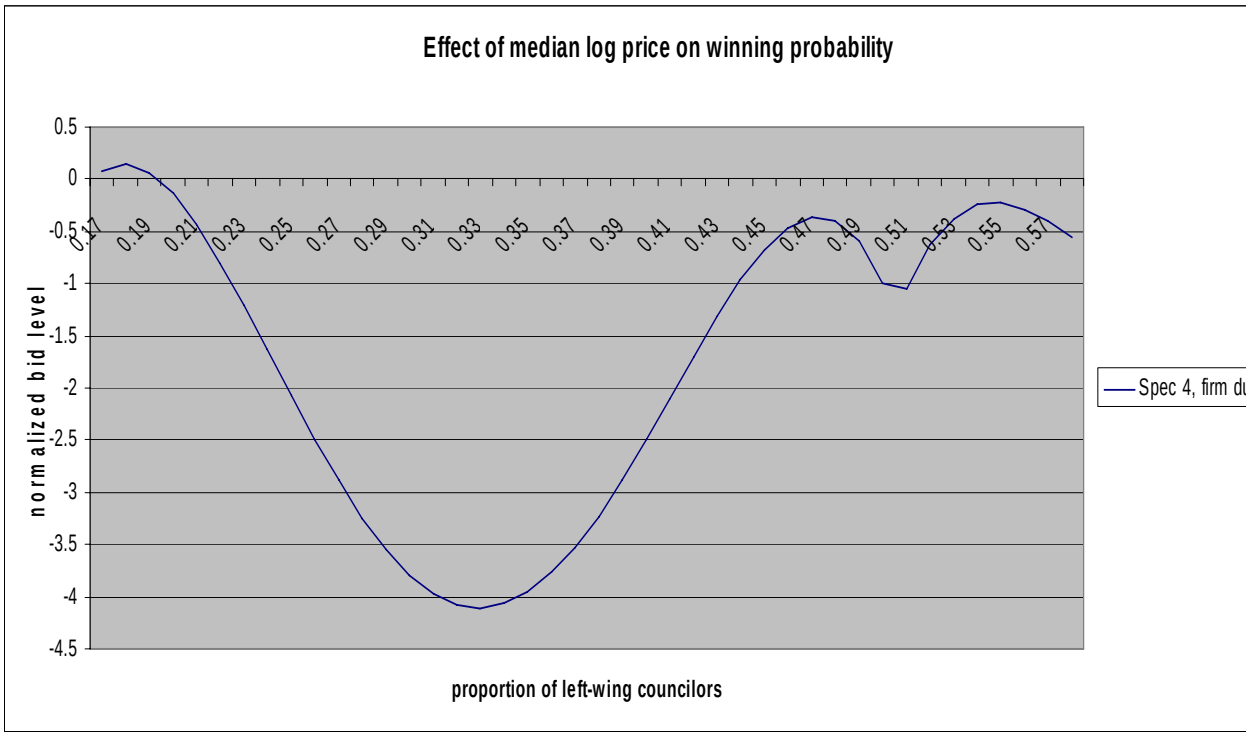


Figure 3. The effect of council composition on the coefficient of log(bid). Effect at 50/50 normalized t -1.

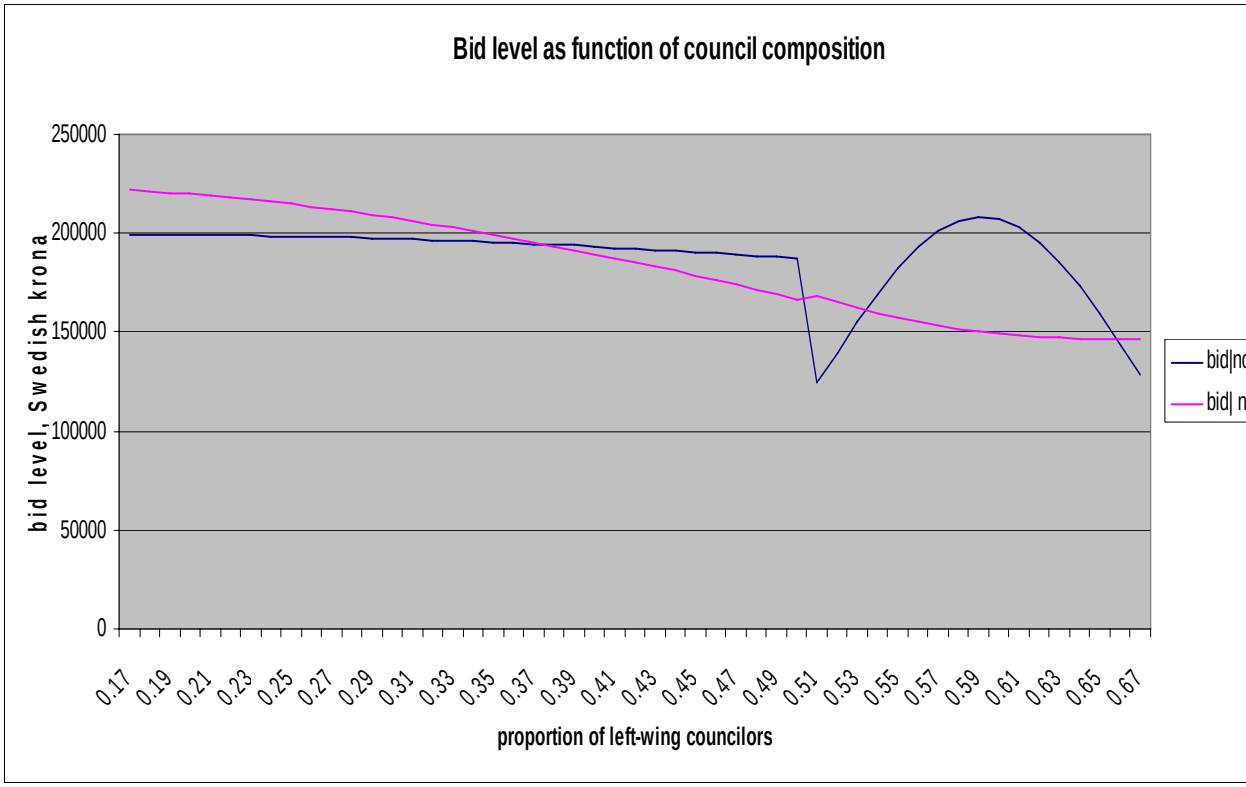


Figure 4. Bid level as function of council composition.

Appendix B. Copy of relevant examples of procurement documents

Figure 1B. Example of a typical contract notice providing evidence of quality monitoring and evaluation criteria. In Swedish with relevant text from the paper cited in the boxes.

Förbrukningsmaterial	Förbrukningsmaterial enligt V00–V02 (toapapper, pappershanddukar, tvål, engångsmuggar etc) anskaffas och betalas av B.
Kompletterande förfrågningsunderlag	Finner anbudsgivare att förfrågningsunderlaget i något avseende är oklart, ska eventuell förfrågan ställas till B:s ombud under anbudstiden. Endast skriftlig kompletterande uppgift, lämnad av B:s ombud under anbudstiden, är bindande för både B och anbudsgivare. B förutsätter att anbudsgivare skaffar kompletterande uppgifter på platsen, för bedömning av arbetets omfattning för komplett anbud.
Ändringar eller tilläggsarbeten	Ändrings- eller tilläggsarbeten ska anses beordrade först sedan de skriftligt beställts av B:s ombud under entreprenadtiden.
Ersättning för ändrings- eller tilläggsarbeten	Avgående eller tillkommande arbeten ska i första hand prissättas enligt avtalat timpris. I andra hand genom förhandlingar.
Kvalitetskontroll	*Kvalitetskontroll, där representanter för* B och E deltar, ska på E:s initiativ ske en gång per månad varvid protokoll ska föras.
Anbudets form och innehåll	Anbud ska för att gälla vara lämnat enligt bifogat anbudsformulär. Avgivet anbud ska avse år 1 (12 månader) med rätt till indexuppräkning för resterande del av avtalstiden.
Indexreglering	Entreprenads *juni* månad 1996 *man* förändras m *till* juni1997.
Kontraktshandling	Kontrakt ska tecknas före entreprenadtidens början.
Ansvarig arbetsledning	E ska tillhandahålla fullt yrkeskunnig arbetsledning.
Skada	*grund*
Betalningsplan	
Beställarens rätt att häva	*ättande d som E brista i itt*
Städutrymmen	Tillhandahålles av Arvika kommun.
Referenser	Referensobjekt anges i anbudet.
Anbudsbedömning	Arvika kommun kommer att anta det anbud som är totalekonomiskt mest fördelaktigt med hänsyn till pris, kvalitet, kompetens och seriositet. Kriterierna är inte rangordnade. Anbud kan komma att antas utan föregående förhandling.

Quality Monitoring:

"Similarly, the monitoring of cleaning is soften specified in detail..."

Evaluation criteria:

"Second, the lowest bid should win. The exception is if the municipality deems that some other bid is "most advantageous economically" when quality, environmental aspects, service and maintenance etc. were taken into account in addition to price. These criteria should have been posted in advance of the bidding but the weight attached to each criterion in the evaluation is in the procurements studied here in general unknown to the bidders prior to the bidding.

Figure 2B. Extract from a typical technical specification. Description of different cleaning methods providing evidence of the assumption of difficulties in quality differentiation and assumption of private costs.

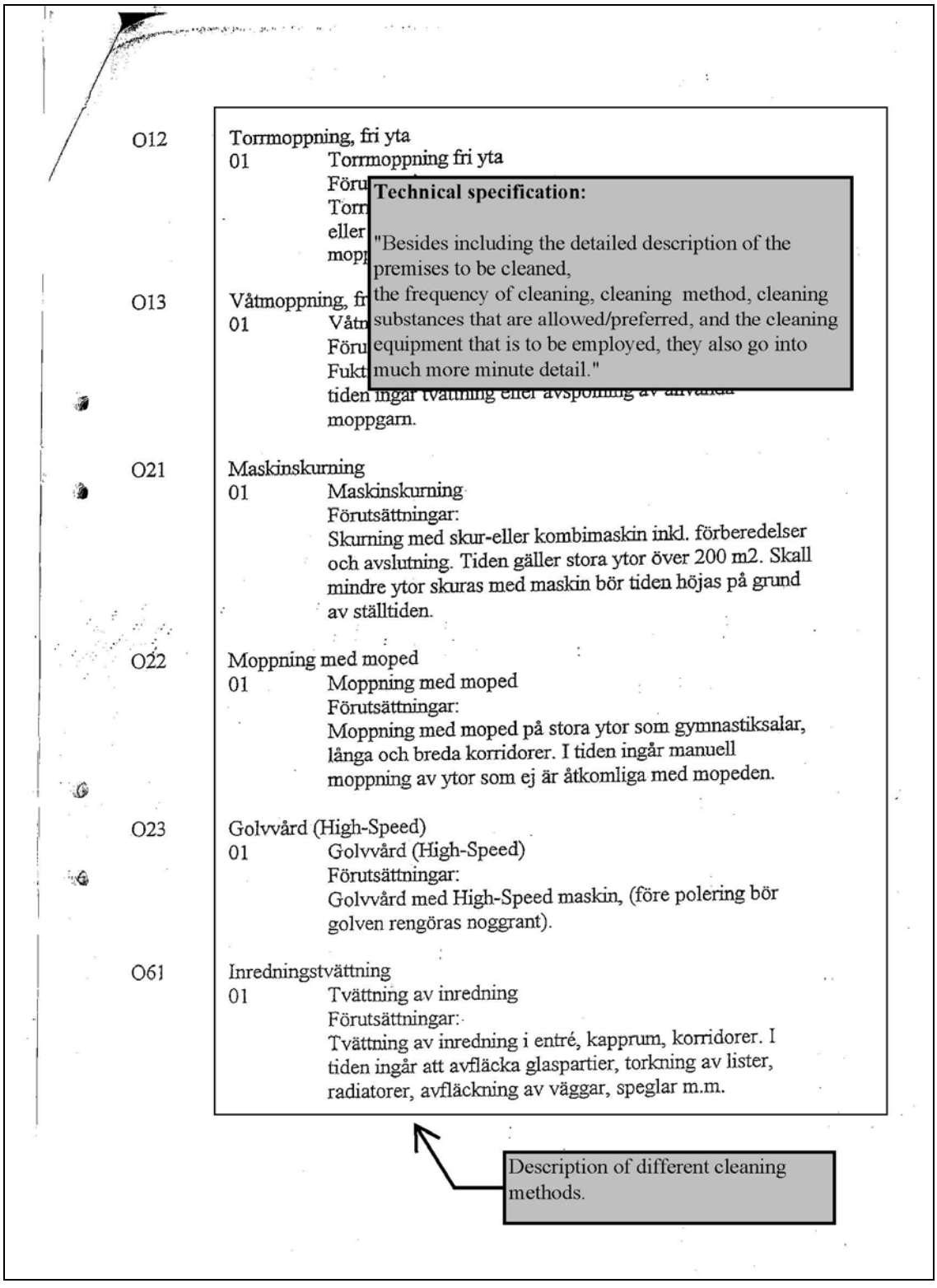
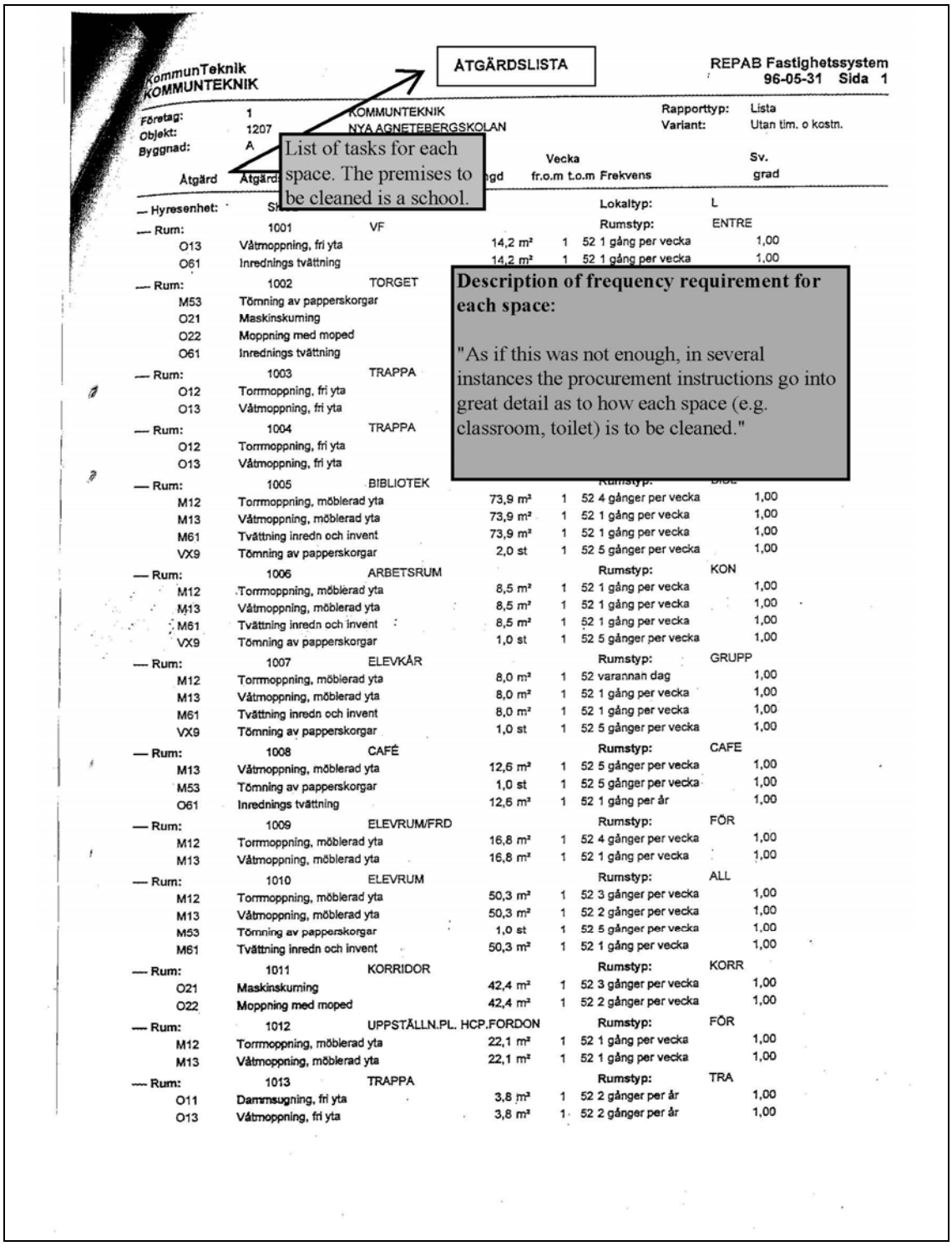

O12
Torrmoppning, fri yta
01 Torrmoppning fri yta
Föru
Torr
eller
mopp
O13
Våtmoppning, fr
01 Våtm
Föru
Fukt
tiden ingår tvättning eller avspolning av använda
moppgarn.
O21
Maskinskurning
01 Maskinskurning
Förutsättningar:
Skurning med skur-eller kombimaskin inkl. förberedelser och avslutning. Tiden gäller stora ytor över 200 m2. Skall mindre ytor skuras med maskin bör tiden höjas på grund av ställtiden.
O22
Moppning med moped
01 Moppning med moped
Förutsättningar:
Moppning med moped på stora ytor som gymnastiksalar, långa och breda korridorer. I tiden ingår manuell moppning av ytor som ej är åtkomliga med mopeden.
O23
Golvvård (High-Speed)
01 Golvvård (High-Speed)
Förutsättningar:
Golvvård med High-Speed maskin, (före polering bör golven rengöras noggrant).
O61
Inredningstvättning
01 Tvättning av inredning
Förutsättningar:
Tvättning av inredning i entré, kapprum, korridorer. I tiden ingår att avfläcka glaspartier, torkning av lister, radiatorer, avfläckning av väggar, speglar m.m.
Technical specification:
"Besides including the detailed description of the premises to be cleaned, the frequency of cleaning, cleaning method, cleaning substances that are allowed/preferred, and the cleaning equipment that is to be employed, they also go into much more minute detail."
Description of different cleaning methods.

Figure 3B. Extract from a typical technical specification. Description of frequency requirements for each space providing evidence of the assumption of difficulties in quality differentiation and assumption of private costs.



KommunTeknik
KOMMUNTEKNIK

ÅTGÄRDSLISTA

REPAB Fastighetssystem
96-05-31 Sida 1

Företag: 1 KOMMUNTEKNIK
Objekt: 1207 NYA AGNETEBERGSKOLAN
Byggnad: A
Rapporttyp: Lista
Variant: Utan tim. o kostn.

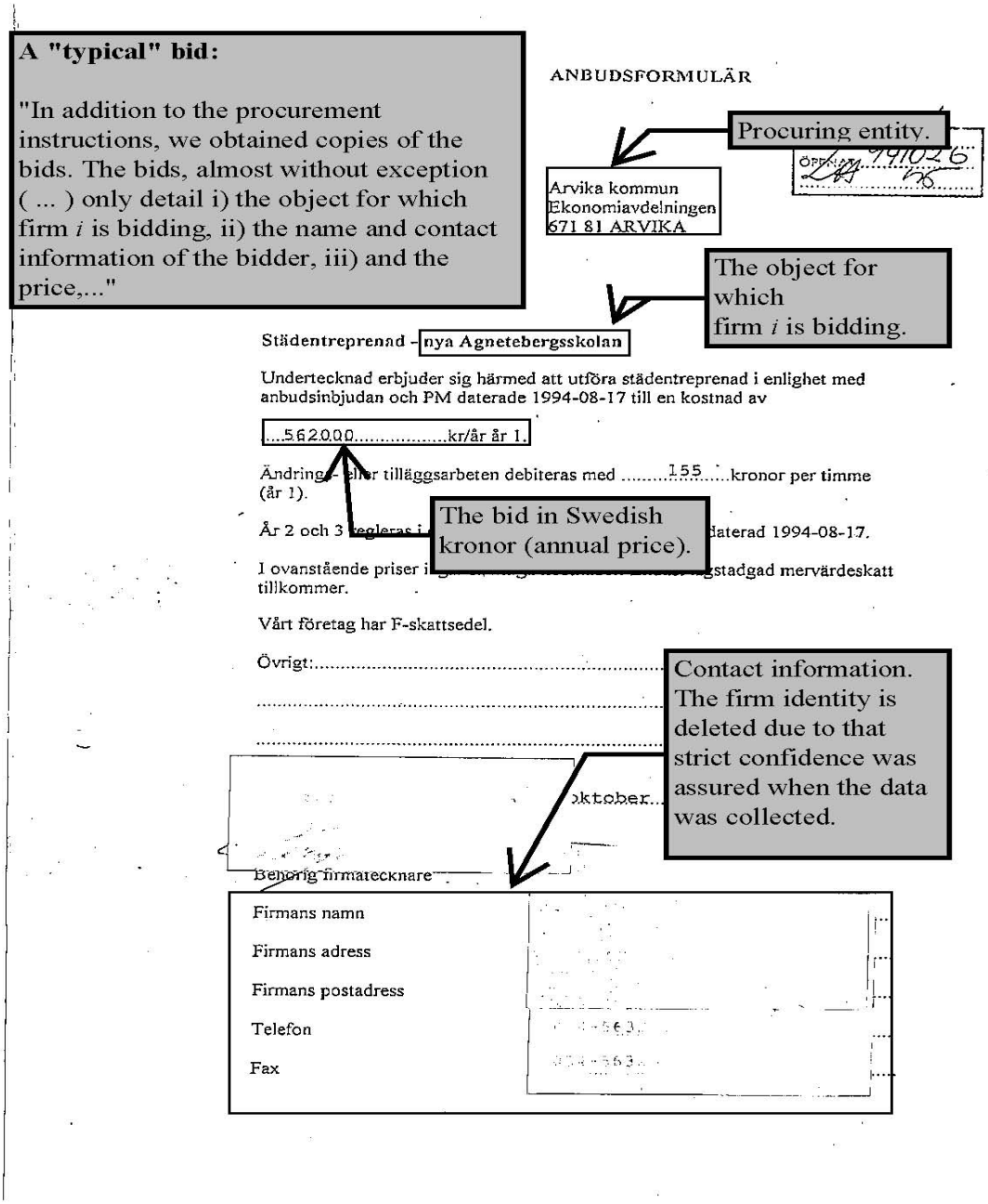
List of tasks for each space. The premises to be cleaned is a school.

Åtgärd	Åtgärd	ggd	Vecka fr.o.m	t.o.m	Frekvens	Sv. grad
Hyresenhet:	SK				Lokaltyp: L	
Rum:	1001 VF				Rumstyp: ENTRE	
O13	Våtmoppning, fri yta	14,2 m²	1	52	1 gång per vecka	1,00
O61	Inrednings tvättning	14,2 m²	1	52	1 gång per vecka	1,00
Rum:	1002 TORGET					
M53	Tömning av papperskorgar					
O21	Maskinskuming					
O22	Moppning med moped					
O61	Inrednings tvättning					
Rum:	1003 TRAPPA					
O12	Torrmoppning, fri yta					
O13	Våtmoppning, fri yta					
Rum:	1004 TRAPPA					
O12	Torrmoppning, fri yta					
O13	Våtmoppning, fri yta					
Rum:	1005 BIBLIOTEK				Rumstyp: BIBL	
M12	Torrmoppning, möblerad yta	73,9 m²	1	52	4 gånger per vecka	1,00
M13	Våtmoppning, möblerad yta	73,9 m²	1	52	1 gång per vecka	1,00
M61	Tvättning inredn och invent	73,9 m²	1	52	1 gång per vecka	1,00
VX9	Tömning av papperskorgar	2,0 st	1	52	5 gånger per vecka	1,00
Rum:	1006 ARBETSRUM				Rumstyp: KON	
M12	Torrmoppning, möblerad yta	8,5 m²	1	52	1 gång per vecka	1,00
M13	Våtmoppning, möblerad yta	8,5 m²	1	52	1 gång per vecka	1,00
M61	Tvättning inredn och invent	8,5 m²	1	52	1 gång per vecka	1,00
VX9	Tömning av papperskorgar	1,0 st	1	52	5 gånger per vecka	1,00
Rum:	1007 ELEVKÅR				Rumstyp: GRUPP	
M12	Torrmoppning, möblerad yta	8,0 m²	1	52	varannan dag	1,00
M13	Våtmoppning, möblerad yta	8,0 m²	1	52	1 gång per vecka	1,00
M61	Tvättning inredn och invent	8,0 m²	1	52	1 gång per vecka	1,00
VX9	Tömning av papperskorgar	1,0 st	1	52	5 gånger per vecka	1,00
Rum:	1008 CAFÉ				Rumstyp: CAFE	
M13	Våtmoppning, möblerad yta	12,6 m²	1	52	5 gånger per vecka	1,00
M53	Tömning av papperskorgar	1,0 st	1	52	5 gånger per vecka	1,00
O61	Inrednings tvättning	12,6 m²	1	52	1 gång per år	1,00
Rum:	1009 ELEVRUM/FRD				Rumstyp: FÖR	
M12	Torrmoppning, möblerad yta	16,8 m²	1	52	4 gånger per vecka	1,00
M13	Våtmoppning, möblerad yta	16,8 m²	1	52	1 gång per vecka	1,00
Rum:	1010 ELEVRUM				Rumstyp: ALL	
M12	Torrmoppning, möblerad yta	50,3 m²	1	52	3 gånger per vecka	1,00
M13	Våtmoppning, möblerad yta	50,3 m²	1	52	2 gånger per vecka	1,00
M53	Tömning av papperskorgar	1,0 st	1	52	5 gånger per vecka	1,00
M61	Tvättning inredn och invent	50,3 m²	1	52	1 gång per vecka	1,00
Rum:	1011 KORRIDOR				Rumstyp: KORR	
O21	Maskinskuming	42,4 m²	1	52	3 gånger per vecka	1,00
O22	Moppning med moped	42,4 m²	1	52	2 gånger per vecka	1,00
Rum:	1012 UPPSTÄLLN.PL. HCP.FORDON				Rumstyp: FÖR	
M12	Torrmoppning, möblerad yta	22,1 m²	1	52	1 gång per vecka	1,00
M13	Våtmoppning, möblerad yta	22,1 m²	1	52	1 gång per vecka	1,00
Rum:	1013 TRAPPA				Rumstyp: TRA	
O11	Dammsugning, fri yta	3,8 m²	1	52	2 gånger per år	1,00
O13	Våtmoppning, fri yta	3,8 m²	1	52	2 gånger per år	1,00

Description of frequency requirement for each space:

"As if this was not enough, in several instances the procurement instructions go into great detail as to how each space (e.g. classroom, toilet) is to be cleaned."

Figure 4B. Example of a typical bid providing evidence of the assumption of no ex ante quality differences. In Swedish with relevant text from the paper cited in the box without arrow and relevant translations in additional boxes


A "typical" bid:
"In addition to the procurement instructions, we obtained copies of the bids. The bids, almost without exception (...) only detail i) the object for which firm i is bidding, ii) the name and contact information of the bidder, iii) and the price,..."
ANBUDSFORMULÄR
Procuring entity.
Arvika kommun
Ekonomiavdelningen
671 81 ARVIKA
The object for which firm i is bidding.
Städentreprenad - nya Agnetebergsskolan
Undertecknad erbjuder sig härmed att utföra städentreprenad i enlighet med anbudsinbjudan och PM daterade 1994-08-17 till en kostnad av
562000 kr/år år 1.
Ändrings- eller tilläggsarbeten debiteras med 155 kronor per timme (år 1).
The bid in Swedish kronor (annual price).
daterad 1994-08-17.
tillkommer.
Vårt företag har F-skattsedel.
Övrigt:
Contact information. The firm identity is deleted due to that strict confidence was assured when the data was collected.
oktober
Behörig firmatecknare
Firmans namn
Firmans adress
Firmans postadress
Telefon
Fax