ORIGINAL PAPER

DOI: 10.26794/2220-6469-2024-18-3-138-147
UDC 336.511(045)
JEL D44, D73, H57

The Efficiency of Preferential Treatment for Small-sized Businesses in Public Procurement

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ABSTRACT

This study analyzes the efficiency of preferential procurement regimes for small-sized businesses (SBs) in Russia by estimating the effects of increasing the rate of mandatory purchases from SBs. The results of statistical and econometric analysis show a rather moderate increase in SBs participation in procurement after increasing the mandatory rate. At the same time, the overall volume of purchases from SBs remains significantly lower than the mandatory rate. It also turns out that savings on purchases from SBs are greater than on other purchases, and this effect persists after increasing the standard, benefiting the state. In this context, it is necessary to strengthen control over the implementation of procurement standards for SBs and to expand the use of best practices in procurement procedures.

Keywords: public procurement; government purchases; small-sized business; preferential treatment; transparency; competition

For citation: **Matveev E.O. The Efficiency of Preferential Treatment for Small-sized Businesses in Public Procurement.** ***The World of the New Economy*****. 2024;18(3):138-147. DOI: 10.26794/2220-6469-2024-18-3-138-147**

INTRODUCTION

When participating in public procurement, small and medium-sized enterprises (SMEs) face a number of constraints, including:

- overregulation of the procurement process, high bureaucratic burden in the preparation of bids, procurement, and reporting documentation [1];
- stricter entry conditions and evaluation criteria for bids in tenders, related to reputation, qualifications, financial and material resources, provision of bank guarantees, etc. [2];
- low or insufficient qualification of officials conducting procurement procedures [1];
- customers' desire to avoid commercial risks [3];
- limits on the volume and duration of contracts [4].

Additionally, in many countries, there is an issue of favoritism in public procurement. When this occurs among SMEs, allocating resources to meet all the formal requirements of procurement legislation becomes even less advisable due to the low probability of securing a government contract [2].

The presence of these obstacles leads to a reduction in SME participation in public procurement, which in turn creates negative effects not only for the development of small businesses but also directly for the contracting system. Researchers note that SMEs sometimes offer lower prices in tender applications due to lower administrative costs compared to large enterprises and can exert competitive pressure on their supplies, weakening their market power [5]. Furthermore, involving SMEs in public procurement increases the diversity of offers, including innovative products [6], also in terms of contract performance quality.

The state contracting system, however, demonstrates significant potential for supporting SMEs that do not have established business connections, which creates risks for growth and development. In this case, public procurement acts as a source of stable demand [7–9]. Research literature indicates that government contracts are inherently associated with a more predictable sequence of payments from counterparties [10]. Another aspect of demand stability is the higher frequency of contract awards in the public sector compared to the private sector, which, again, is a serious advantage for SMEs, as it allows them to diversify their supplies [11]. Additionally, participation in government contracts provides SMEs with opportunities to build business reputations, which helps them secure future contracts [12].

In academic literature, two main approaches to supporting SME participation in national contracting systems are highlighted — the European and the American approaches. The first is based on providing easier access for relevant companies to procurement procedures and implementing best regulatory practices (such as expanding the use of electronic procurement procedures, ensuring timely payments, reducing the size of contracts, and dividing them into smaller lots that are more manageable for SMEs, etc.[1]).

The second approach is based on granting direct preferences to SMEs, creating conditions for a kind of discrimination in favor of these companies (targeted programs are implemented to place contracts among small and medium-sized enterprises, obligations are introduced to involve SMEs as subcontractors, etc.) [13].

Measures to support SMEs within the Russian contracting system are more aligned with the American approach. According to current legislation, all buyers are required to procure goods and services from SMEs and socially-oriented non-profit organizations in a certain minimum volume. This category may include contracts where SMEs act as subcontractors.

However, it should be noted that the presence of many barriers and the low level of SME participation may be objective in nature: mar-

[1] URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0024

ket uncertainty on the part of the buyer when procuring from SMEs is significantly higher than when procuring from large companies. Additionally, SMEs are sometimes less efficient than larger players and may not withstand price competition [14]. Under these conditions, granting them direct preferences could lead to reduced productivity in the functioning of the contracting system. The feasibility of such support measures needs to be assessed empirically, and current research does not provide a definitive answer. Researchers do indeed conclude that the costs for SMEs are higher than for large companies, and direct preferences in the style of the American approach result in losses for the state [15]. Moreover, factors such as a reduction in the number of large firms participating in auctions and inflated prices from those benefiting from preferences are observed [16]. However, there is also an intensification of competition from large companies, an increase in the number of participants in procurement procedures among SMEs, and the absence of preferences for large companies, which, on the contrary, leads to an increase in the efficiency of procurement procedures. Ultimately, nearly all studies report either a slight increase or even a reduction in government spending [15, 16].

The aim of this study is to determine the effectiveness of applying the American approach and the feasibility of certain European measures [17–19].

METHODOLOGY

To assess the effectiveness of applying preferential regimes in public procurement, some studies use a counterfactual method based on the calibration of parametric models [14–16]. However, the reliability of this method critically depends on the realism of the assumptions in the theoretical model and access to detailed characteristics of public procurement data.

More universal methods are impact assessment techniques [17, 18]. The main issue here is separating the effects of government policy from other factors. One solution is to use experimental and quasi-experimental econometric methods. In this study, the following quasi-experiment is considered.

As of January 1, 2022, amendments were made to Article 30 of Federal Law No. 44-FZ dated April 5, 2013, stating that "customers must carry out procurement from SMEs and socially oriented non-profit organizations in an amount no less than 25% of the total annual procurement volume.[2]" In the previous version, the threshold for procurement from SMEs was set at 15%.

Thus, by considering procurement before and after the introduction of these changes, it can be assumed that other unaccounted factors will not have a significant impact on the variables of interest, and the effect of the policy change can be identified. This means that a "discontinuity design" method can be used.

Since the requirement for the minimum volume of procurement from SMEs must be adhered to by customers over the course of a year, it is reasonable to consider procurement data for the period 2021–2022 — one year before and one year after the changes in legislation.

The first hypothesis is that as a result of the increase in the procurement threshold for SMEs, their participation in public procurement will increase. This will indicate the effectiveness of the policy in supporting SMEs.

To test this hypothesis, a logit model of the following form will be evaluated:

$$P_i = 1 - \left(\frac{1}{1 + \exp(z_i)} \right),$$

$$z_i = \alpha * T_i + X_i \beta, \quad (1)$$

where P_i is probability of SME participation (binary variable equal to 1 if the supplier under the contract is an SME); T_i is a binary vari-

[2] URL: https://www.consultant.ru/document/cons_doc_LAW_144624/3cd4512b8c634f543d68d0da993c1bcb17a24bb8/

able equal to 1 if the contract is concluded in 2022.; X_i is vector of other explanatory variables; α is interest coefficient; β is vector of coefficients for other explanatory variables

It is also necessary to determine the losses to the state when providing preferential regimes to SMEs, in terms of savings during contract conclusion. As mentioned earlier, SMEs have higher contract execution costs, so they have fewer opportunities for competition and for reducing the contract price relative to the initial maximum contract price (IMCP). On the other hand, in the case of smaller contracts, the differences in costs may be insignificant, and a lower final price may be achieved by increasing the number of SMEs and a higher level of competition.

To assess this effect, the following model will be considered:

$$Ec_i = \alpha P_i + X_i \beta, \quad (2)$$

where Ec_i is savings in a government contract (reduction of the final contract price relative to the initial maximum contract price); P_i – binary variable, equal to 1 if the supplier under the contract is SMP; X_i — vector of other explanatory variables; α is interest coefficient; β is vector of coefficients for other explanatory variables

To test the hypothesis about the feasibility of applying the European approach, the model uses the following control variables: contract volume and procurement procedure transparency. The first variable represents the normalized contract volume (final contract price minus the average price in the sample, divided by the standard deviation). Transparency is determined using a binary variable, which takes the value of "1" if the procurement was carried out in the form of an auction (it is assumed that an electronic auction is the most competitive and transparent procurement procedure). Additionally, the concentration of the buyer is measured using the Herfindahl-Hirschman Index (*HHI*):

$$HHI_i = \sum_{j=1}^{N} s_{ij}^2, \quad (3)$$

where s_{ij} is the share of supplier *j* in the contracts of customer *i*.

The considered index is higher the fewer suppliers there are for a given buyer. Sometimes, concentration is associated with the likelihood of favoritism in the awarding of government contracts [20]. Thus, the buyer's concentration index should correlate with the transparency and the level of development of the contracting system.

DATA DESCRIPTION

The following data were collected from the Unified Information System in the Procurement Sphere (EIS Procurement[3]) for the 10 largest buyers under Federal Law 44-FZ. The total volume of the data dump amounted to 4111 contracts. The data were collected for the period 2021–2022 and include the following indicators:

- Buyer's INN (Taxpayer Identification Number)
- Supplier's INN
- Contract signing date
- Information on contract conclusion with SMEs
- Supplier selection method
- Initial maximum contract price (NMP)
- Final contract price
- Information about the document — the basis for contract conclusion

The savings indicator is calculated as follows:

$$\frac{\text{IMCP} - \text{Final contract price}}{\text{IMCP}}.$$

The information from the document — the basis for the contract conclusion — was used to identify procurements where only one supplier participated, with whom the contract was subsequently concluded.

The collected data allow for the analysis of the dynamics of the main characteristics

[3] URL: https://zakupki.gov.ru/

Table 1

Dynamics of volume and prices in public procurement contracts for the 10 largest buyers according to the 44th Federal Law for 2021–2022, million rubbles

Supplier category	Total volume of contracts	Average contract price	Standard deviation of the contract price	Number of contracts
2021 г				
Non- SME	677 483	417.4	2377. 4	1623
SME	1493	3.9	4.8	387
2022 г				
Non-SME	733 280	442.8	2466.4	1656
SME	1665.6	3.7	4.5	445
Increase of 2022 to 2021 г				
Non-SME	8%	6%	4%	2%
SME	12%	–3%	–7%	15%

Source: calculated by the author.

of public procurement during the year before and the year after the changes in procurement legislation related to the minimum share of procurements from SMEs. *Table 1* shows the dynamics of the volume and prices of public contracts in 2021 and 2022.

According to the data obtained, in 2022 there was a nominal increase in the volume of procurements from selected customers. For SMEs, the growth rate is higher (12% versus 8%). Additionally, the growth rate of SME procurements in 2022 compared to 2021 was 15%, while for non-SMEs it was 2%. This preliminary analysis suggests that SME participation in public procurement did indeed increase in 2022.

Regarding the dynamics of average prices, there is a trend of contract size expansion in non-SME procurements. The growing standard deviation indicates an increasing gap between smaller and larger procurements.

On the other hand, in SME procurements, the average contract price is decreasing. The reduction in the standard deviation suggests a narrowing gap between smaller and larger procurements.

Now, let us consider the significance of SME procurements in the overall volume of procurements (*Table 2*).

Table 2 shows both the share of procurement allocated to SMEs (preferential procurements) and the final share of contracts awarded to SMEs. Overall, the proportion of public orders related to SMEs in the analyzed procurements and contracts remains quite low throughout the period and is significantly below the legislatively established minimum of 15–25%. This suggests that the legal requirement is not strictly enforced, and buyers are able to deviate from it when necessary.

Thus, despite the increase in the volume of contracts awarded to SMEs in 2022, their share in the total volume of contracts remains insignificant. Furthermore, during the period of 2021–2022, there was a decrease in the volume

Table 2

Dynamics of the share of SMEs in purchases (at the initial maximum contract price) and contracts (at the contract price)

Indicator/ Year	2021, %	2022, %
Share of SMEs in procurement	0.37	0.26
Share of SMEs in contracts	0.22	0.23

Source: calculated by the author.

Table 3

Savings in public procurement for the 10 largest buyers, according to the 44th federal law, for the period of 2021–2022

Company's type	Indicator	2021, %	2022, %
Non-SME	Average	7.38	3.43
	Average weighted savings by contract volume	3.81	0.92
	Median savings	0.50	0.01
	Standard deviation of savings	15.45	9.91
SME	Average	15.21	19.34
	Average weighted savings by contract volume	12.2	16.45
	Median savings	5.48	5.65
	Standard deviation of savings	20.89	24.38

Source: calculated by the author.

Note: Standard errors are given in parentheses; the symbols "*", "**", "***" mark estimates that are significant at the 10, 5 and 1% levels, respectively.

of preferential procurements. This indicates that other factors (apart from the legislative changes) play an important role in explaining the dynamics of SME participation and procurement volumes.

Let's now review the statistics on savings in public contracts (*Table 3*).

In the case of non-SME procurements, there is a significant decrease in the savings indicators: the average value, the weighted average by contract volume, and the median value.

For SMEs, the situation is the opposite, which can be explained by the more lenient requirements for securing bids, including in cases where the price is reduced by more than 25% of the initial maximum contract price (anti-dumping measures are not applied).

RESULTS OF THE ASSESSMENT

Table 4 presents the results of the assessment of the SME participation model, where the dependent variable is binary, equal to "1" if the supplier in the procurement is an SME.

Two model specifications were considered. The first includes the normalized contract vol-

Table 4

Estimation result of SBs participation empirical model (dependent variable — probability of SBs participation)

Evaluation method	OLS	Logit	
Model number	1	2	3
Normalized contract volume	−0.032*** (0.006)	−78.209*** (8.251)	−124.150*** (11.762)
Procurements in 2022	0.019 (0.012)	0.234*** (0.081)	0.231** (0.101)
Auction	–	–	2.349*** (0.115)
Buyer concentration	–	–	−17.237*** (1.274)
Number of observations	4111	4111	4111
Adjusted R2	0.006	–	–
Logarithm of the likelihood function	–	−1851	−1261

Source: calculated by the author.

ume and a binary variable equal to "1" if the procurement was made in 2022. This specification was estimated separately using the ordinary least squares (OLS) method and the logit approach, which was also applied to evaluate a more complete specification that includes a binary variable equal to "1" if the procurement was conducted through an auction and a measure of buyer concentration.

According to the log-likelihood function, the best model is (3), which demonstrates that SME participation in 2022, compared to 2021, is indeed growing. However, the average marginal effect is not very significant — only 2.2%. The procurement volume has a substantial impact: the larger the procurement, the less likely it is that an SME will participate. More concentrated buyers are less likely to contract with SMEs and more often participate in auctions.

Thus, the hypotheses put forward are confirmed by the calculations. Additionally, the SME support measures related to the European approach — reducing the size of individual procurements and increasing procedural transparency — do indeed contribute to the growth of SME participation in procurement.

Now, let's move on to the consideration of the savings model in public procurement (*Table 5*).

In Table 5, two specifications are estimated using the OLS method. The first considers only procurements involving SMEs and those conducted in 2022. The second includes all other explanatory variables, including binary ones: "procurement with a single participant," "tender," and "2022 procurement involving SMEs." According to the adjusted R^2 indicator, the results of model (2) should be trusted. In this case, participation by SMEs leads, on average, to a 10.6 percentage point increase in savings, all else being equal. This result is robust [in model (1), the corresponding coefficient is also statistically significant and comparable in absolute value]

Table 5

Estimation result of savings in public procurement empirical model (dependent variable — savings)

Model number	1	2
Procurements involving SMEs	0.137*** (0.013)	0.106*** (0.013)
Procurement of 2022	0.017 (0.011)	0.005 (0.011)
Normalized contract volume	–	–0.010*** (0.003)
Procurement with a single participant	–	–0.149*** (0.015)
Auction	–	0.117*** (0.020)
Tender	–	0.030 (0.020)
Buyer concentration	–	–0.287** (0.114)
2022 procurement involving SMEs.	0.031* (0.018)	0.022 (0.017)
Number of observation	2054	2054
Adjusted R2	0.131	0.194

Source: calculated by the author.

Note: Standard errors are given in parentheses; the symbols *, **, *** mark estimates that are significant at the 10, 5 and 1% levels, respectively.

and does not depend on the period (the coefficient for the variable "2022 procurement involving SMEs" is not statistically significant). Thus, the effect associated with increased competition from SME participation in procurements proves to be more important than potential high costs, and the public procurement system benefits from the growth in their participation.

Additionally, larger procurements, those with a single participant, and those with a higher concentration of contracting authorities tend to result in lower savings, which aligns with earlier hypotheses. Savings are also higher in auctions, whereas tenders do not contribute to an increase in savings.

CONCLUSION

Based on the analysis, the following conclusions can be drawn:

- The legally established minimum volume of procurement from SBs is not a strict requirement, and the overall volume of procurement from SBs remains insignificant.
- Competition and savings in SBs procurements in 2022 compared to 2021 have strengthened more intensively than in other procurements.
- Econometric analysis confirms the increased participation of SBs after the increase in the minimum procurement volume threshold, but the effect is relatively mod-

est—an average increase in participation is about 2.2%. In other words, the preferential procurement regime for SBs, although increasing their role in this process, does not operate at full capacity, indicating a need for stricter enforcement of the legal norms for SBs procurement.

• Empirical estimates indicate greater savings in SBs procurements (on average 10.6 percentage points). This suggests a higher level of participation and competition in this type of procurement. Moreover, the savings indicator in SBs procurements does not change after the expansion of the preferential regime, implying that the preferential regime does not attract less efficient suppliers.

• SBs participation in procurements can be stimulated not only through preferential regimes but also by reducing the volume of individual procurements, splitting them into lots, and so on.

• Stimulation of SBs participation is possible through the improvement of best practices in organizing procurement procedures, such as easing access to contract information, simplifying, standardizing, and reducing requirements for small contracts, enhancing the qualifications of relevant officials, ensuring payments are made on time, and fostering communication between the government and SBs on issues related to participation in these procedures.

ACKNOWLEDGEMENTS

The article is based on the results of research carried out at the expense of budgetary funds under the state assignment to the Russian Presidential Academy of National Economy and Public Administration.

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Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was received on 11.04.2024; revised on 15.05.2024 and accepted for publication on 02.06.2024. The author read and approved the final version of the manuscript.