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Transparency and Effectiveness Coherence of National Purchasing System

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Abstract: Institutional modernization of the system of Russian government and municipal procurement goal-oriented consistently to increase its transparency in recent years. The taken measures provided creation of the most transparent information system in the world presented by the All-Russian website of government procurements. (www.zakupki.gov.ru) However, it demands quantitative verification through an assessment of transparency influence on purchases efficiency. Processing of the survey results public who are studying in the Pilot center of government procurements of the Southern Federal University, with use of the SPSS program revealed strong dependence between efficiency of electronic auctions and receiving information on results of the held auction (i.e. transparency) by all interested persons and also other dependences

Key words: Government procurements · Transparency · Efficiency · Electronic auction · Contract system

INTRODUCTION

Eisner M. A. gives the following grounds for realization of new forms of state interference into market mechanism in current conditions of high global instability and imperfection of the market: “the state and economy do not evolve in isolation. Rather, the two are best viewed as evolving together” [1]. One of the “functional economic systems” which is able to harmoniously manage and regulate socio-economic processes, to provide sustainability of economy is the government procurement system which guarantees the fulfillment of most of state functions. However these effects, as well as increase in efficiency from the use of sequestered in 2014 state costs can be achieved only thanks to informational transparency of all stages of government procurement - planning, implementation, enforcement of government contracts and their realization.

Increase in efficiency from use of budgetary funds in the conditions of transparency of procurement procedures can be achieved through its direct influence on the procurement prices. How the transparency of information may influence the prices? On the one hand, making the information more transparent may lead to lower prices. Firstly, the availability of information makes it easier for firms to participate in the procedure raising the competition and hence lowering the prices. Secondly, information transparency decreases monitoring costs [3. P. 438; 4. P. 522] and “makes it easier for controlling parties to reveal the facts of opportunistic behavior of bidders and procurers. Consequently, information transparency will increase the participation of “honest” firms by signaling trust in the process” and result in lower price [3. P. 438]. "Proper level of transparency [5] of procurement is one of the key indicators of methodology of evaluation of EBRD procurement systems, included in its basic principles [6]. Updated Model Law on Procurement, which was renewed by UN Comission on international trade rights - UNCITRAL, side by side with stage-by-stage realization of basic principles of procurement organization (Open and effective competition, Accountability and due process, Fairness, stated in a number of international documents - the EU Treaty, the EU Procurement Directives, Multi-lateral Treaty on government procurement in the framework of WTO, documents of Asian-Pacific Economic Cooperation etc. specified the key principle of government procurement - transparency, pointing out to its contents-related elements: reveal of information and clarification of the rules of procurement realization, institutionalized in national law, publishing in proper time and beforehand of information in regard to procurement plans, preciseness in naming of procurement object and true-to-life requirements, transparent and fully corresponding to the law realization of procurement when officers must be enforced to implement it, availability of

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control system and opportunity to file a protest against the course and results of procurement [7]. All these structural components of transparency principle were embodied in the Federal law dated 5.04.2013 No 44-FZ "About contract system in the sphere of procurement of products, works and services to satisfy state and municipal needs" with little extension of them by engagement of the institutes of civil society, in other words - openness of government procurement system for public. It must be emphasized that public control becomes a common rule in different spheres of state management and regulation being implemented through different forms (institutes), which perform some functions: public or expert commissions cooperating with state bodies, public monitoring and debates on significant issues, public investigation, checks and surveys, activity of NCOs and others which correlate with open government (http://болъшоеправительство.Рф/).

Apart from mentioned above effects of government procurement as a market mechanism to satisfy social needs, in our opinion, openness in the sphere of government procurement, its transparency influence directly efficiency of government costs.

That is why the aim of this study is empirical analysis of dependency of efficiency of government costs on transparency of the government procurement market. Government procurement market as independent institution includes entities (society, power bodies, producers and NCOs), objects (products, works, services) and processes taking place in this system [9].

The importance of this study is also determined by mass spread of specific model of state officers' behaviour (Pussia) which has become total institutional practice and is called "concealment or distortion of information about procurement " (“blind procurement”) In estimates of 2012 their number was not less than 2500 and partially blind - 9000 which caused harm to the state in amount of 874 million roubles [10].

MATERIALS AND METHODS

Key method of the study is analysis of the results of regular sociological survey based on interview (performed through questionnaires) of state officers, which study in Pilot center of government procurement of SFU with the aid of SPSS program.

In order to establish link between these variables in the process of mathematical processing of experiments performed by I. we considered the vectors:

$X\{x_1,x_2,x_3\,x_4\}$ and $Y\{y_1,y_2,y_3\,y_4\}$,

Where components $x_i, i=\overline{1,4}$ of the variable X describe answers to the question:

What is efficiency of electronic auctions?

x_1= high, x_2=low, x_3=average, x_4=can not say

Components $y_i, i=\overline{1,4}$ form answers to the question 2:

What is degree of openness of information about bidding?

y_1 = Opened fully,
y_2 = Rather opened but there some reserves to increase this openness
y_3 = Low openness
y_4 = Information inaccessible

The results of observations over *n* state officers were put into Table 1

In Table 1 variable n_{ij} denotes the frequency of simultaneous happening of events x_i and y_i, in other words, event $x_iy_j, \sqrt{i=1,4}, \sqrt{j=1,4}$. Thus, n_{11}- is a number of state officers participating in the interview who together chose the answer x_i, содержащийся в “Question 1”, and answer y_1, which was in “Question 2”.

Let us put forward zero hypothesis H_0 about absence of dependency between attributes *X* and *Y* in regard to alternative hypothesis относительно H_1 about availability of such dependency. It is obvious that attributes *X* and *Y* are dependable if condition $P(x_i \cdot y_j) = P(x_i) \cdot P(y_j)$, $P(x_i / y_j) = P(x_i)$ is true for all pairs of x_i,y_i. Frequency of attribute x_i is equal to $N_i = \sum_{j=1}^{4} n_{ij}$ and attribute y_i is equal to $N_j = \sum_{i=1}^{4} n_{ij}$. Number of state officers participating in interview is equal to $N = \sum_{i=1}^{4}\sum_{j=1}^{4} n_{ij}$.

Probability of choosing attributes x_i and y_i:

$$P(x_i) = P(x_{i1}) + P(x_{i2}) + ... + P(x_{i4}) = \frac{\sum_{j=1}^{4} n_{ij}}{N},$$

$$P(y_j) = P(y_{1j}) + P(y_{2j}) + ...P(y) = \frac{\sum_{i=1}^{4} n_{ij}}{N}$$

Table 1: Correlation of attributes

	y_1	y_2	y_3	y_4
x_1	n_{11}	n_{11}	n_{13}	n_{14}
x_2	n_{21}	n_{22}	n_{23}	n_{24}
x_3	n_{31}	n_{32}	n_{33}	n_{34}
x_4	n_{41}	n_{42}	n_{43}	n_{44}

The last value of the variable $x_{i\alpha}, \sqrt{\alpha = 1,4}$, denotes the following event: respondent will choose attributes x_i and x_a simultaneously. As it was mentioned above we denoted the number of such choices through x_{xa} and gave them in Table 1. Variable $y_{j\beta}, \beta = \overline{1,4}$ denotes event of simultaneous choice of attributes y_j and x_β. Their number is denoted in the table 1 through $n_{j\beta}$. The product of probabilities $P(x_i) \cdot P(y_j)$ is expected relative frequency. Observed relative frequency of simultaneous happening of events x_i and y_j is probability of the product $P(x_i \cdot y_j)$ and must be found in the table by formula $P(x_i \cdot y_j) = \frac{n_{ij}}{N_i N_j}$. As we mentioned above in case of refusal of zero hypothesis H_0 about absence of dependency between attributes x_i, y_j and choosing alternative hypothesis H_1 about existence of stochastic relationship the condition $P(x_i \cdot y_j) = P(x_i) \cdot P(y_j)$ must be true, in accordance with which observed n_{ij} and expected $\sum_{i=1}^{3} n_{ij} \cdot \sum_{j=1}^{6} n_{ij}$ must be equal to each other: $n_{ij} = \sum_{i=1}^{3} n_{ij} \cdot \sum_{j=1}^{6} n_{ij}$.

Main Part: Results of interview were aggregated by us into cross-tables which were built with the aid of the program SPSS Statistics (“*Statistical Package for the Social Sciences”)* and this allowed to show the degree (strength) of relationship between analyzed parameters [11]. The first question to 200 state officers in the first half of 2013 of the questionnaire about efficiency of government procurement “What is efficiency of electronic auctions?” the answers were distributed as it is depicted in Figure 1.

The correlation of the answers with the answers to the question "Does current system of budgetary government procurement allow all stakeholders to get information on auction's results?" (this question characterizes transparency of government and municipal procurement system) was analyzed: Figure 2.

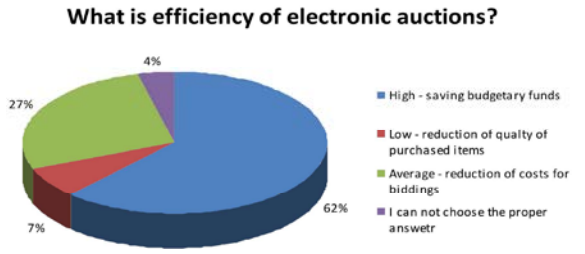

Fig. 1: Distribution of answers of state officers to the question 1 “What is efficiency of electronic auctions?”.

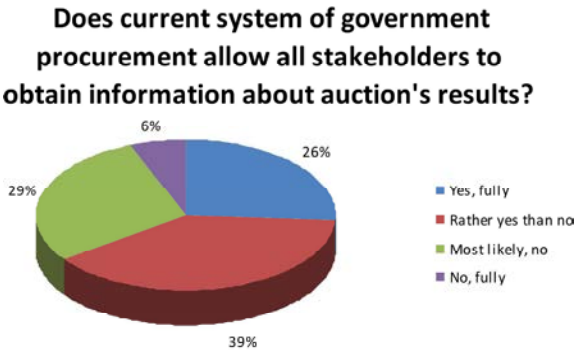

Fig. 2: Distribution of answers of state officers to the question “Does current system of budgetary government procurement allow all stakeholders to get information on auction's results?".

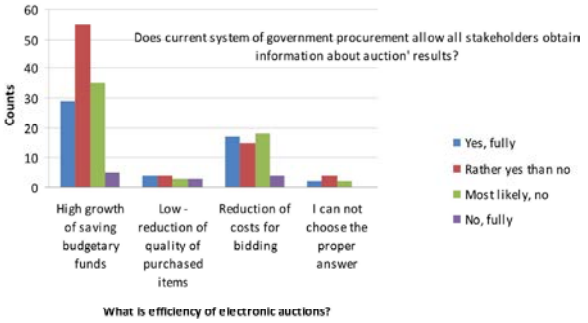

Fig. 3: Relationship between openness and efficiency of electronic auctions.

Performed analysis of dependency between efficiency of electronic bidding and getting by all stakeholders information about auction's results proved the thesis about high efficiency determined by transparency of this procedure and reduction of costs (Figure 3). In accordance with our hypothesis it was necessary to identify fact of dependency between variables “Question 1” and variables “Question 2”. Because these are nominal variables the pure

logit-analysis can not be used but we can use cross-tables in which observed frequencies (Count) are compared with expected frequencies (Expected count) and the "unstandarted residual" is evaluated. The value "unstanarted residence" which is calculated as difference between expected frequency and observed frequency is of special significance for this analysis.

The higher unstandarted residence is the stronger is dependency between values. Sign before unstandarted residence does not matter (only "module value" is important) and the strength of dependency is estimated by the expert. Residence value=5, as the threshold from which the relationship between chosen indicators is beginning to be observed, is chosen by us to optimize the results The higher unstandarted residence is the stronger relationship between questions and it is considered by module, it means that every question is considered and the value of unstandarted residence which is more than 5 by its module is chosen.

Availability of dependency demands that observed frequencies must significantly differ from expected ones, this is shown by unstandarted residuals - difference between observed frequencies and expected frequencies. These residuals are evaluated by expert on the base of his experience.

Using method of cross-tables the questions from the blocks "Efficiency" and "Transparency" are compared with each other which allowed to obtain corresponding dependencies. We used equal number of answers (100%) to determine dependency. Analysis of the results shows that efficiency of electronic auctions greatly depends on transparency of the bidding's results (Table 2)

The next step of our study is testing of dependency between answers to the question about efficiency of electronic auction and their evaluation of the opportunity for all stakeholders to participate in bidding and get the orders. In our opinion this reflects the relationship between saving of funds spent on carrying out of auctions (their efficiency) with transparency in the context of access to biddings. Thanks to it growth in saving budgetary funds will occure which characterizes the efficiency of this way of placing order. By this a strong dependency between efficiency of electronic auctions and their role in increase of transparency of the system of government procurement was found because most of respondents pointed out to big saving and substantial increase in transparency of procurement procedures (Table 3).

Table 2: Correlation of answers to the question "What is efficiency of electronic auctions?" with answers to the question "Does current system of government procurement allow all stakeholders to get information about bidding's results?"

			"Does current system of government procurement allow all stakeholders to get information about bidding's results?"				
			Yes, fully	Rather yes than no	Most likely, no	No, fully	Total
"What is efficiency of electronic auctions?	High – increase in saving budgetary funds	Count	29	55	35	5	124
		Expected count	32,2	48,4	36,0	7,4	124,0
		Residual	-3,2	6,6	-1,0	-2,4	
		Standart residual	-,6	1,0	-,2	-,9	
	Low – reduction of quality of purchased items	Count	4	4	3	3	14
		Expected count	3,6	5,5	4,1	,8	14,0
		Residual	,4	-1,5	-1,1	2,2	
		Standart residual	,2	-,6	-,5	2,4	
	Average, reduction of costs for keeping the auction	Count	17	15	18	4	54
		Expected count	14,0	21,1	15,7	3,2	54,0
		Residual	3,0	-6,1	2,3	,8	
		Standart residual	,8	-1,3	,6	,4	
	Can not answer	Count	2	4	2	0	8
		Expected count	2,1	3,1	2,3	,5	8,0
		Residual	-,1	,9	-,3	-,5	
		Standart residual	-,1	,5	-,2	-,7	
Total		Count	52	78	58	12	200
		Expected count	52,0	78,0	58,0	12,0	200,0

Table 3: Correlation between answers to the question " Did most electronic auctions save budgetary funds?" and answers to the question "Does current system of government procurement allow all stakeholders to take part in bidding and win the right to get orders?"

			"Does current system of government procurement allow all stakeholders to take part in bidding and win the right to get orders?"				
			Yes, fully	Rather yes than no	Most likely, no	No, fully	Total
"Did most electronic auctions save budgetary funds?"	Yes, for 5%	Count	33	24	17	0	74
		Expected count	33,3	20,7	17,8	2,2	74,0
		Residual	-,3	3,3	-,8	-2,2	
		Standart residual	-,1	,7	-,2	-1,5	
	Yes, for 10%	Count	49	25	19	3	96
		Expected count	43,2	26,9	23,0	2,9	96,0
		Residual	5,8	-1,9	-4,0	,1	
		Standart residual	,9	-,4	-,8	,1	
	Did not	Count	6	1	8	3	18
		Expected count	8,1	5,0	4,3	,5	18,0
		Residual	-2,1	-4,0	3,7	2,5	
		Standart residual	-,7	-1,8	1,8	3,3	
	Can not answer	Count	2	6	4	0	12
		Expected count	5,4	3,4	,9	,4	12,0
		Residual	-3,4	2,6	1,1	-,4	
		Standart residual	-1,5	1,4	,7	-,6	
Total		Count	90	56	48	6	200
		Expected count	90,0	56,0	48,0	6,0	200,0

This thesis is also proved by strong relationship between answers to the question about economy of budgetary funds and agreement of respondents with high degree of openness of information about budgetary procurement. Thus, interview demonstrated that there is dependency between saving and obtaining information about the results of realization of contracts. But in this case relationship is not strong, multi-directional, which shows difference in opinions of state officers in regard to this question.

Thus most respondents considered the open auction the most efficient and transparency way to place the order (dependency is shown in cross-tables). But some respondents believe that transparency in procurement is absent at all and open auction in electronic form as the most common and efficient way of procurement determines this non-transparency. The others believe that open auction in electronic form is not only efficient but increases transparency and saves budgetary funds. This dependency is confirmed by the answers to the question "Did most open auctions in electronic form save money of your organization?" Such answers dominated: "Use of open auction and electronic bidding increase transparency in the sphere of government procurement and increase efficiency of spending of budgetary funds in the framework of government procurement".

Inference: Formed system of state and municipal procurement provides increase in efficiency of spending of budgetary funds but only if all stakeholders obtain information about bidding even partially. This determined broadening of information component in the framework of formation of contract system. Thus, if in correspondence with 94-FZ only information about the contents of the order was placed in Russian website, in accordance with 44-FZ full access to information about government procurement will be granted - about implementation and the result. In our opinion, the result of it is “through”(complete) informational follow-up of the procurement in unified information system. But conceptual principles of such system have not been found yet, first of all, how this system will correlate with already functioning Russian website which includes more than 200 customers which participate with the use of electronic signature, key widgets, which are oriented to consumers groups: general statistics, statistics of procurement group, questions to suppliers, prices. In 2011 procurement in electronic form amounted to 223 billion roubles, in 2012 - 224 billion roubles, for 8 months of 2013 – to 202 billion roubles. [12]. Efficiency and transparency of functioning of the Russian government and municipal procurement website allow to conclude that the unified information system of

government procurement must not be started from scratch, but it must use current website as a base to which other systems will be connected.

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