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COSTS OF PROCUREMENT FOR RUSSIAN REGIONAL PUBLIC CUSTOMERS: ESTIMATION AND ANALYSIS

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Public procurement procedures prescribed by legislation not only enhance transparency and competition but also entail certain transaction costs for both customers and suppliers. These costs are important to the efficiency of the procurement system. However, very few previous studies have focused on estimating procurement costs. This paper proposes a methodology for public procurement cost evaluation. We show how procurement costs can be calculated using a formalized survey of public customers. This methodology was tested with a representative group of public customers operating in one region of the Russian Federation. We formulate the policy implications of our study as they relate to the improvement of public procurement regulations and argue that this methodological approach can be applied in other developing and transitioning economies.

Key words: public procurement; public customer; procurement costs; regulation; effectiveness

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Introduction

During the past decade, many countries have undertaken reforms of their public procurement systems with a view to reduce the level of corruption and increase procurement competition, transparency and efficiency (European Commission, 2014). At the same time, the ultimate goal of public procurement regulations is to increase the socioeconomic efficiency of public procurements. This means not only decreasing budgetary expenses as a result of bidding price reductions but also ensuring the supply of high-quality goods, works and services within established timelines.

The use of public procurement procedures prescribed by legislation not only enhances transparency and competition but also entails certain transaction costs (Williamson, 1979) for both customers and suppliers. The amount of these costs may exceed the positive effects expected from the regulation of public procurement procedures. Thus, taking these costs into account and providing measures for their mitigation are important elements of optimizing the procurement process.

The significance of procurement costs as a public procurement efficiency factor was confirmed by a PwC study conducted for the European Commission in 2011 (PwC, 2011) that used a large dataset. The study showed that the average aggregate procurement cost represented approximately 1.4% of the total procurement value within the European Union (EU), as applied to contracts whose value exceeded 125,000 euro and fell under the EU directives. Approximately 0.4% of this amount was customers' costs, and 1% was suppliers' costs (including unsuccessful bidders). Simultaneously, the costs of procurement procedures and follow-up contract monitoring measured in person-hours did not correlate with the values of the contracts (with the exception of the largest purchases). The overall customer and supplier costs for contracts with the "threshold" value of 125,000 euro accounted for 18–29% of the contract value and for 6–9% of the contract value for median-value contracts (approximately 390,000 euro).

The PwC study is one of the few studies that have evaluated public procurement costs at the macro level (see also, e.g., (Singer et al., 2009)). It is worth mentioning that few studies have been devoted to public procurement costs. Most of those publications evaluated costs at the local (micro) level – the level of an individual organization or project (for example, see (Costantino et al., 2012; Gardenal, 2013; Jasko et al., 2015).

It is not always possible to conduct large-scale studies of public procurement costs such as the PwC study in all countries and regions as these types of studies require well-developed public

procurement mechanisms, relevant institutions, data collection techniques, a sufficiently high level of competence level among procurement specialists, etc. These factors are not always in place in many developing countries. This is why we believe that simpler cost analysis methods may be required; methods that are applicable not only to national regulators but also to particular customers or the local authorities.

The purpose of this study is to develop a public procurement cost evaluation methodology for a large group of public customers operating in one region that is based on the approach proposed by PwC (PwC, 2011) and takes into account the Russian-specific method for evaluating the public procurement costs of a single public procurement customer (Balaeva & Yakovlev, 2015).

The regional public procurement cost evaluation methodology we propose was piloted in one Russian region – the Kaluga region. Most of the typical public customers operate at the regional level, and the evaluation of their costs – particularly in relation to various procurement procedures and procurements of various values – can provide insight into the measures needed to optimize public procurement regulation. We believe that our approach can be applied to other developing countries at the organizational, regional and national levels. The findings of this study prompt several conclusions concerning the effectiveness of procurement procedures, types of procurers and possible regulatory changes to the procurement system.

Literature Review

Public procurement regulation is an extremely important issue for legislation because public procurement constitutes a significant component of public bodies' activities. Moreover, public procurement plays an important role in the national economies of both developed (European Commission, 2008; Klemperer, 2002) and developing countries (Dlamini & Ambe, 2012). It accounts for 10–15% of the GDP in developed countries and even more in developing nations (Lewis & Bajari, 2011; Ohashi, 2009).

Two important features of public procurements in both developed and developing countries are very strict regulations and a tendency to encourage competition during the procurement process compared to private sector procurements (see, e.g., (Tadelis, 2012; Yakovlev et al., 2010). Open auctions invite potential suppliers from many venues, resulting in fair market price discovery. These popular award mechanisms are also known for their transparency, making it easier to prevent corruption in the public sector. These features, as well as arguments for equal opportunity favor the use of auctions. In contrast, the private sector makes

widespread use of other procurement mechanisms. In particular, it uses cost-plus contracts that are negotiated with one potential supplier. For example, from 1995 to 2000, forty-four percent of private sector non-residential building construction projects in Northern California were procured using negotiations, while only eighteen percent was procured using open auctions (Bajari et al., 2009). Such procurement arrangements are also common in high-tech and software procurement contracts, but they are seldom used in the public sector, with the exception of some defense procurement contracts (Tadelis, 2012). In addition, some studies have highlighted the failures of auction procedures and have identified the conditions under which negotiation is more efficient (Bajari et al., 2009; Chong et al., 2014; Estache et al., 2009). In particular, they showed that auctions perform poorly when projects are complex. Excessively rigid regulations and a propensity for promoting open auctions are unavoidable consequences of increased risk of corruption among public organizations' officials (Büchner et al., 2008), favoritism (Laffont & Tirole, 1991), and third-party opportunism (Moszoro & Spiller, 2012).

Simultaneously, such rigid regulations may raise the transaction costs of procurements and reduce the benefits of competitive procedures. The transaction costs incurred by public customers, suppliers and regulators constitute a considerable part of the value of public procurements (PwC, 2011). Transaction costs currently include search costs, information costs, negotiation costs and monitoring and enforcement costs (Groth, 2008) or the costs of researching suppliers, negotiation costs, the costs of approving and drafting the contract, quality control costs and enforcement costs (Costantino et al., 2006). Butter (2012) divides transaction costs into 'hard' and 'soft' costs: "Hard transaction costs include observable costs such as transport costs, import duties and customs tariffs. Soft transaction costs comprise all costs of making and monitoring contracts, information costs, costs due to cultural differences and miscommunication, unwritten laws, trust building, networking, risk costs, costs due to safety regulations and provisions, etc." (Williams, 2014) asserts that it is important to take into account non-price factors such as vendor experience and vendor location and within vendor demographics, such as size and scope.

Throughout the late 1980's and 1990's, formal economic analysis described procurement as a mechanism design or agency problem with the following characteristics. The supplier has information about production costs that the buyer does not have. The buyer must design a mechanism (or contract) to infer the supplier's costs, such as offering the supplier several potential projects to choose from, each with an associated price. The supplier then selects the one that will be produced, thus revealing his costs (Laffont & Tirole, 1993). In practice, however, the procurement problem seems to involve more challenges than just revealing a supplier's cost

function. A series of papers beginning with (Bajari & Tadelis, 2001) have followed an approach that combines agency theory with transaction cost economics as advocated by (Williamson, 1979). This approach focuses attention on adaptation costs when contractual specifications are incomplete, e.g., in construction management. The authors argue that the central problem in procurement is not that suppliers know so much more than buyers at the onset of the project, but that instead, both buyers and suppliers share uncertainty about many important design changes that occur after the contract is signed and production begins. These changes are usually a consequence of design failures, unanticipated conditions, and changes in regulatory requirements (Tadelis, 2012).

The above papers focused on supplier procurement costs. In addition, a number of studies have reviewed the costs incurred by customers. One such study (Jasko et al., 2015) analyzed the cost efficiency of the public procurement process at the local level. Efficiency was measured in hours per public procurement on the basis of directly invested hours in public Serbian enterprises. However, the authors did not describe the methodology used for their quantitative estimates. (Costantino et al., 2006; 2009; 2012) have proposed a method for estimating additional costs at different stages of the procurement process. In this method, additional costs include ex ante costs and ex post costs. The ex ante costs of purchasing consist of the following components: the costs of researching and contacting suppliers, negotiation costs and the costs of drafting and approving the contract with the supplier that proposed the best price. Ex post costs are a function of quality control costs and enforcement costs. This method also assumes that all the ex ante costs take into account the buyer's time and hourly cost. Such costs are probabilistic in nature and depend on the experience of the buyer. All these ex ante cost components can be obtained using a Gaussian distribution. The quality control time of each bidding supplier exhibits a Beta probabilistic distribution, while its enforcement time is expressed by an exponential distribution (Costantino et al., 2009). To calculate the additional costs of purchasing, these researchers used a decision support system (DSS). By way of a Monte Carlo approach, the DSS performs a simulation of the generic exchange of a new product or service between a buyer and a set of potential sellers and evaluates the total cost of the purchase. (Costantino et al., 2012) developed and elaborated the above model to consider the additional costs associated with a larger number of participants in the procurement process and compared these costs against the possible benefits. The authors tested the proposed model for measuring the additional costs of purchasing using data from a large construction firm in Italy. Balaeva and Yakovlev (2015) used a case study of one organization to evaluate the costs of a public customer throughout the full procurement cycle.

The authors showed that the customer's costs vary strongly depending on the type of procedure. In addition, the paper presented a cost evaluation algorithm at the organizational level.

The above-mentioned studies explored customers' micro-level costs. Few studies have evaluated costs at the macro level. A paper by Singer et al. (Singer et al., 2009) reviews the effectiveness of a newly introduced electronic system for public purchasing in Chile at the macro level. The authors measured the administrative cost savings using macro-level data on costs incurred by the e-procurement agency to provide services to state agencies and the number of times that such services were used by the state agencies.

The most comprehensive study of the costs of purchasing at the macro level was conducted by (PwC, 2011). The purpose of this study was to explore how the EU's directives[1] affect the public procurement system. The authors measured both customers' and suppliers' costs (including unsuccessful bidders) for each procurement procedure type. According to the PwC study, procurement costs account for approximately 1.4% of the total procurement volume within the EU. Customers' costs account for approximately 25% of the total procurement costs, and suppliers' (including losing bidders') costs represent approximately 75%. Procurement costs did not correlate with the values of the contracts (with the exception of the largest purchases); therefore, the share of these costs for small purchases was much higher. In contracts with a value close to the threshold of 125,000 euro (the minimal value of contracts for which the EU demands competitive public purchasing), overall customer and supplier costs accounted for 18–29% of the contract value and for 6–9% of the contract value for median-value contracts (approximately 390,000 euro).

It should be mentioned that the PwC study assumes the existence of well-developed public procurement mechanisms, relevant institutions, data collection techniques, a sufficiently high competence level of procurement specialists, etc. These factors are not always in place in many developing countries. In our opinion, simpler cost evaluation methods may be required. In addition, these methods should be applicable at both the micro and macro levels.

(Balaeva & Yakovlev, 2015) have proposed a method for estimating the public procurement costs of a Russian public organization. This paper extends their methodology for use with a large group of public customers operating in one region.

[1] The EU directives are the Public Sector Directive 2004/18/EC and the Utilities Directive 2004/17/EC.

Data and Methods

We developed the methodologies for estimating public procurement costs at the regional level on the basis of the approach used in the PwC study (PwC, 2011). We also took into account the experience of piloting a cost estimation methodology for an individual public customer using a case study of the Voronezh State University (Balaeva & Yakovlev, 2015).

According to PwC approach (PwC, 2011), public procurement costs should be evaluated on the basis of the labor costs criterion (person-days) of the individual stages of the procurement process:

1. Pre-award (pre-proposal for firms)
2. Award (Proposal for firms)
3. Post-award
4. Litigation and complaint (if applicable).

The average labor costs of each stage are evaluated for all competing suppliers and for the public customer. The labor cost is then expressed in value terms based on information regarding compensation for the specialists involved in the process. After that, aggregate procurement costs and the costs of each type of procurement procedure are calculated.

However, according to our findings, the approach used by PwC is fully applicable mainly for developed countries and regions that have high-functioning public procurement mechanisms, relevant institutions, established data collection techniques, and a sufficiently high competence level among procurement specialists. The PwC approach must be adjusted for use in regions with economic insecurity, poorly functioning public procurement systems, constantly changing public procurement legislation, and less-qualified public procurement specialists. This is connected, first, with the high heterogeneity of the procurement process. The paper (Balaeva & Yakovlev, 2015) revealed that specialists find it difficult to make accurate estimations of the labor costs at some stages of the procurement process.

Therefore, we have modified the PwC approach based on a cost evaluation of each individual stage of the procurement process, and we have developed an alternative public procurement cost evaluation methodology for the public customers of one region. Our methodology is sufficiently universal and can be applied in any region with minor adjustments to adapt to an organization's operating conditions and the specifics of the relevant national public procurement system.

Regional procurement costs[2] are calculated on the basis of a formalized survey of regional public customers. The questionnaire includes questions regarding the number of each organization's public procurement employees and the approximate share of the time those employees spend on procurement activities. The employees may include the personnel of the procurement department and the legal department (if they are engaged in legal support of the procurement process), members of the tender committee, senior managers who oversee purchasing, in-house accountants, employees of customer departments that participate in planning purchases and in drawing up terms of reference, and outsourced experts.

This way, we have an opportunity to evaluate the overall labor costs of an organization's staff in the public procurement process during a certain period of time. Based on the average amount of compensation received by these specialists, we can assess the total labor costs of public procurement administration in monetary terms. Other cost components connected with the use of other resources, such as premises, equipment, and software, were not included in our calculations as the previous study (Balaeva & Yakovlev, 2015) showed those costs to be immeasurably small.

The costs of each procurement procedure were calculated using information regarding the relative labor intensity of different procurement procedures.[3] This question was also included in the questionnaire.

Therefore, the data obtained from the completed questionnaires can be used to calculate the following parameters for each public customer and for the region as a whole (Balaeva & Yakovlev, 2015):

- Total procurement costs (in person-hours and monetary measures);
- Costs for each type of procedure (in person-hours and monetary measures);
- Share of costs within the overall procurement value and other derived figures.

In the absence of the ability to conduct a large-scale survey of public customers in the region, it is still possible to conduct a survey of a limited number of public customers that constitutes a representative sample. These public customers should represent different sectors that are regarded as typical. In addition, to increase information reliability, it is advisable to have an

[2] We will hereinafter address the costs of public customers. The public procurement administrative costs incurred by suppliers and regulators are not covered by this study.

[3] For purposes of this survey, labor intensity shall mean the total time spent on the procurement procedure by all involved employees.

experienced specialist in charge of procurements for these organizations who is capable of providing complete responses to the questionnaire.

The following parameters are proposed as proxies to characterize the procurement activities of public customers with the aim of determining each customer's "typical" nature:

- Average contract value;
- Share of competitive procedures;
- Share of auctions.

The results of these parameters for each customer are compared to those of other organizations operating in the same sector during a similar period. A determination is then made regarding the use of each specific public customer for the purposes of the survey.

Institutional Context and Description of the Region Selected for the Case Study

Public Procurements in the Russian Federation

Before 1 January 2014, most public procurements in the Russian Federation were regulated by the provisions of Federal Law No.94-FL: "On the placement of orders to supply goods, carry out works, and render services for meeting state and municipal needs" (hereinafter – 94-FL). This law was designed, first and foremost, to aid in the fight against corruption, ensure the transparency of procurements and create a competitive environment for tenders. To guarantee the transparency of public procurements, a Russian national website was also launched to share public procurement information: http://zakupki.gov.ru/.

To fight corruption create competitive conditions, the law prescribed simple, integrated procurement procedures that strictly limited a customer's opportunities to influence the choice of supplier. Conditions were created for free access to participate in public procurements for all economic agents, particularly for small and medium size enterprises (SMEs). To foster SME entrance into the public procurement market, 94-FL set very low thresholds for making competitive purchase procedures for public customers obligatory (100 thousand rubles or approximately 2,400 euro at the Central Bank's exchange rate, valid on 1 January 2012[4]). Suppliers were selected on the basis of the least-price criterion with minimal requirements for suppliers' qualifications and reputations. The only exception was for tenders: quality criteria could account for up to 45% in the evaluation of R&D bids, and for other services, the share of

[4] The Russian Central Bank's exchange rate as of January 1, 2012, was 1 euro = 41.67 rubles.

quality criteria in the bid evaluation could not exceed 20%. Harsh sanctions were imposed on public customers that violated the legislation.

94-FL permitted only four procurement methods (Yakovlev et al., 2015):

- Open auction (after 2011, only in electronic form): considered as the main method used for procurements exceeding RUR 500,000 (approximately 12,000 euro) in value.
- Tender: could be used only for procurements of specific types of work or services (e.g., R&D, consulting) that were explicitly prescribed by 94-FL.
- Request for quotations: used for procurements of small amounts (RUR 100,000 to RUR 500,000).
- Single-source contracting: could be used for procurements valued under RUR 100,000 (approximately 2,400 euro). All other options for single-source contracting were explicitly prescribed by 94-FL.

Table 1 presents the main differences between the public procurement systems of the EU countries and Russia during that period (Balaeva & Yakovlev, 2015).

Table 1. Characteristics of public procurement in the EU nations and Russia

Characteristics	EU[5]	Russia[6]
Volume of public procurements	3.5% of GDP	8.4% of GDP
Threshold values of a purchase	Contracts valued over 125,000 euro are regulated by the EU Public Sector Directive and EU Utilities Directive; Contracts valued less than 125,000 euro can be regulated by provisions of national laws	For contracts valued over 100,000 rubles (or approximately 2,400 euro), competitive tender bids are mandatory
Average number of bids filed for competition/lot	5.4 bids	2.7 bids
Procedures of public procurement (in % of number of contracts / % of total value)	• open procedure – 73% / 52% • restricted procedure – 9% / 23% • competitive dialogue – <1% / 4% • negotiated procedure – 9% / 14%	• Single-source contracting – 51% / 39% • Request for quotations – 28% / 3% • Auctions – 17% / 38% • Tenders – 4% / 20%
Average contract value	3,000,000 euro	2.8 million rubles (or approximately 67,200 euro)

[5] According to PwC (PwC, 2011).

[6] According to Russia's Federal Statistics Service (Rosstat) for 2008-2010 (GKS, 2008–2010).

However, the process of applying the provisions of 94-FL has exposed its weak points. Specifically, using price as the primary criterion often resulted in contracts being awarded to suppliers that offered lesser quality at the lowest price. Only the purchasing stage of the procurement process was subject to strict regulation and control, while the other stages of the procurement process remained relatively uncontrolled.

A new federal law, No. 44-FL, "On the contract system in the procurement of goods, works and services for state and municipal needs," was developed to further improve the Russian public procurement system and came into force on 1 January 2014. The fundamental difference between the contract systems under the new law and those under 94-FL was that the new regulations covered the entire procurement cycle: planning, purchasing procedure, delivery, and control. The list of possible procurement procedures was also extended considerably (and was in fact based on international practice).

However, these innovations triggered growth in the transaction costs of public procurements. For example, the new law set additional requirements for public customers to forecast and plan their procurements, conduct supplier selection procedures, and monitor the performance of contracts. New requirements were also established that obligated regulators to monitor, control and audit legislative compliance. Therefore, the problem of public procurement efficiency evaluation has not lose its importance under the new public procurement regulation regime in Russia.

The Kaluga Region as an Object of Research

The methodology we propose for evaluating the procurement administrative costs of public customers operating in one region was piloted in the Kaluga region. Analysis was conducted for 2013–2014 – the period of Russia's transition to the new public procurement legislation.

The Kaluga region is a region in the Russian Federation; it is part of the Central Federal District and it is situated to the southwest of Moscow. The land area of the Kaluga region is 30,000 km^2, and the population exceeds 1 million. The Kaluga region is one of the most economically developed regions in the Russian Federation, and it is leader in terms of industrial growth, per capita investment volume and real income growth. Since the early 2000's, the Kaluga regional administration has been actively attempting to attract foreign investors. Major international companies have implemented projects in the region, including Volkswagen, Volvo, Peugeot, Citroen, Mitsubishi, GE, Samsung, Continental, Berlin-Chemie/Menarini, Novo

Nordisk, and STADA CIS, among others. The Kaluga region is viewed as a successful region on the basis of its innovative investment promotion strategy (Zimin, 2010; Rochlitz et al., 2015).

According to the Russian Federal State Statistics Service (Rosstat), Kaluga regional public customers carried out 141,000 procurement procedures during 2013 and 2014 (including single-source procurements of small value). These procedures resulted in contract awards with an overall value exceeding 30 billion rubles. Table 2 shows a comparison of the main procurement characteristics of the Kaluga region and of Russia as a whole.

Table 2. Comparison of Procurement Activity in the Kaluga Region and the Russian Federation (2013 and 2014)

	Procurements of small value[7], %	**Average contract value, 1000 rubles**	**Average number of bids filed for competition/lot**	**Contracts with small enterprises awarded using competitive procedures, %**
2013 (Kaluga region)	85.5	196.13	2.3	15.8
2013 (Russian Federation)	83.9	263.37	2.8	15.2
2014 (Kaluga region)	54.8	290.08	n/a	21.7
2014 (Russian Federation)	64.3	477.56	n/a	22.6

Source: Federal State Statistics Service: www.gks.ru

The average value of public procurement contracts in the Kaluga region was approximately 25–35% smaller than the average value of public procurement contracts in the Russian Federation. At the same time, procurements of small value in 2013 accounted for 85.5% of the region's total procurements compared to 83.9% of Russia's total procurements. The share of contracts with small businesses awarded using competitive procedures both in the Kaluga region and in Russia was slightly above 15% in 2013. Competition in the Kaluga region is slightly lower than in Russia as a whole (2.3 bidders per procedure in the Kaluga region and 2.8 bidders per procedure in the Russian Federation). In general, despite some deviations from the Russian average in some aspects, the above parameters allow us to consider the Kaluga region to be a typical Russian region.

The Kaluga regional public procurement system is characterized by a centralized process of supplier selection and the organization of joint auctions for different customers. The body responsible for implementing regional public procurement policy is the Kaluga Regional Ministry

[7] Procurements of small value are single-source procurements valued less than RUR 100,000.

for Competition Policy. It is authorized to select suppliers for the executive authorities, governments and public sector institutions in the Kaluga region and to organize the procurement system to hold open auctions, tenders with limited participation, two-stage tenders, and e-auctions. Each public customer is responsible for procurement planning, price substantiation, preparing procurement documents, contract performance monitoring, contract closure, and working with the regulators and courts (at least partially).

The data on regional customers in the Kaluga region and the contracts they concluded were obtained for the purposes of this research from the Russian official public procurement website: http://zakupki.gov.ru. The contract information included the procurement procedure, the contract value, the date of the procedure and the contract conclusion date, and the customer organization and its classification under the Russian National Classifier of Economic Sectors (OKVED). Procurement data, including the organization conducting the procurement, were also added to the contract information. A total of 22,255 contracts were concluded in 2013 and 2014, with an overall value of 29.9 billion rubles (net of small-value procurements).

After taking into account some of the characteristics specific to the Kaluga region and relying on data from the OKVED, we identified seven groups of economic sectors for the purposes of further analysis: Health; Education; Social services; Culture, sports and recreation; Public administration; Construction, and Other sectors. The largest customers (in terms of procurement values) were the Public administration, Health, and Construction sectors (see Table 3). The Social services and Education sectors had the largest quantity of concluded contracts. It is also worth noting that the 6 selected economic sectors (not including the category of Other sectors) covered approximately 80% of customer organizations and over 93% of all contracts (over 96% of contracts in terms of value).

Table 3. Procurements in the Kaluga Region by Economic Sector

	2013		**2014**	
	Purchase value, %	**Number of purchases, %**	**Purchase value, %**	**Number of purchases, %**
Health	16.3	54.0	25.5	57.9
Education	2.8	7.4	1.5	3.2
Culture, sports and recreation	1.2	2.8	1.2	4.2
Social services	1.7	8.9	1.5	13.4
Construction	13.8	2.9	19.9	2.2
Public administration	60.5	17.1	45.3	12.4
Other sectors	3.7	6.8	5.2	6.6
Total	100.0	100.0	100.0	100.0

Source: Official RF public procurement website: www.zakupki.gov.ru

The average contract value in the Construction and Public administration sectors was considerably higher (approximately 10–40 times) than in the other sectors under consideration. Competitive procedures (such as auctions) were used particularly often (for more than 90% of procurements) in the Public administration and Health sectors and more rarely in the Education and Culture, sports and recreation sectors (approximately 20% of procurements).

In accordance with our methodology, data were gathered for calculating the costs of Russian public customers through a formalized survey of public customers and representatives of an authorized body. Eighteen public customer organizations representing different sectors were selected to respond to the questionnaire. These organizations were considered to be typical, and their procurements were handled by experienced specialists.

The aggregate procurements under the contracts concluded by the analyzed respondent organizations accounted for some 24% of the total procurements in the region. The survey revealed that our respondents were generally larger organizations that conducted major procurements through competitive procedures (including auctions) more frequently than other organizations in the Kaluga region that represented the same economic sectors. The combination of these two factors usually resulted in an "economy of scale" effect, as the costs of the procurement department and other supporting services correlated with larger procurement values. In addition, large organizations generally can recruit more qualified procurement specialists, and therefore their procurement procedures are more efficiently organized. In this vein, we assume that the evaluation results of the procurement activities presented below can be characterized as the lower margin of the costs incurred by regional public customers in each sector.

The average cost for a public customer for each type of procedure in the Kaluga region should be calculated after taking into account that most electronic auctions and tenders are conducted in a centralized manner (by an authorized body). During the period in question, the Kaluga regional authorized body conducted 89% of all competitive procurements, 93% of which were electronic auctions. To calculate the total administrative costs of public procurement in the region, we recommend including both the public customer's general costs for conducting an e-auction or open tender procedure and the costs incurred by the authorized body for performing the procedure.

Results and Discussion

Calculations have shown that the total average labor cost of a procurement procedure in the region was 24.3 person-hours in 2013 (Table 4). Small-value procurements were the least

labor-intensive (9.7 person-hours), and open auctions were the most labor-intensive (57.8 person-hours). Despite the respondents' explicitly higher evaluations of the labor intensity of the request for quotations procedure compared to the single-source contracting procedure, the average labor cost of performing requests for quotations in the region was lower than the average labor cost for single-source contracting. This is explained by the fact that requests for quotations were used, as a rule, to make "simple" procurements, whereas single-source contracting was often applied for "complex"[8] procurements. The increased time required to conduct a "complex" procurement procedure, as noted by the respondents in the questionnaire, was also taken into consideration when calculating the average labor intensity of the procedure.

Table 4. Total and Administrative Costs of Procurement Procedures in the Kaluga Region in 2013

	Procurements of small value (up to 100,000 rubles)		**Single-source contracting (over 100,000 rubles)**		**Request for quotations**		**E-auction**		**Open tender**		**Total[9]**	
	total	**adm.**	**total**	**adm.**	**total**	**adm.**	**total**	**adm.**	**total**	**adm.**	**total[10]**	**adm.**
Person-hours	9.7	0	13.7	2.7	10.4	2.9	26.2	17.6	57.8	28.7	24.3	15.5
1000 rubles	2.4	0	3.2	0.6	2.5	0.7	7.7	5.6	16.2	10.0	7.0	4.9

The average regional administrative cost of procurements amounted to approximately 15.5 person-hours. This study calculates administrative procurement cost as the difference between the labor cost of the procurement procedure prescribed by the law on public procurements and the labor costs of procurements of small value (we accept this as the basic administrative procurement cost). Thus, the administrative costs of procurements of small values in our calculations will equal zero in our calculations.

In addition to the labor cost of procurement administration, we also estimated the average cost of compensation for employees involved in procurement procedures; this cost were calculated for 2013 in monetary terms (it was an average of 7,000 rubles in the Kaluga region)

[8] The term "complex" means procurements in which it takes much longer to prepare terms of reference compared to the time required for simple (typical, standard) procurements. Complex procurements include the purchase of sophisticated equipment and appliances, the maintenance of such equipment and appliances, construction works, and design services, among others.

[9] Weighted average of the number of procedures.

[10] To ensure comparability with the "administrative costs" column, the average figures are presented net procurements of small value.

(Table 4). The approximate aggregate costs of performing the different types of procurement procedures were as follows: a small value procurement procedure was 2,400 rubles, a single-source contract was 3,200 rubles, a request for quotations was 2,500 rubles, an e-auction was 7,700 rubles, and an open tender was 16,200 rubles.

The administrative costs of procurement procedures in monetary terms (accepted as zero for small-value procurements) were 600 rubles for single-source contracting, 700 rubles for requests for quotations, 5,700 rubles for e-auctions, and 9,700 rubles for open tenders. The average administrative cost of a procurement procedure in the region totaled 4,900 rubles (Table 4).

The administrative costs of procurements represented an average of 46% of the total public procurement costs of the Kaluga region, and the share that administrative costs for procurements represented in the total public procurement value was 0.2%. The difference in this parameter according to sector can be explained by the different proportion of procurements of small value with zero administration costs and different procurement value scales. The least costly sectors are Construction and Public administration, in which the average contract values are 10–15 times higher than in other sectors, while the most costly sector was Social services, in which small-value procurements were more common.

The most costly procedure is a request for quotations: administrative costs for the customer in 2013 amounted to 0.4% of the overall contract value. This is due to the relatively low average value of each procurement conducted through a request for quotations (approximately four times lower than the value of e-auction procurements). The least costly procedure under review was single-source contracting, which is used for procurements of larger values (the administrative costs of the procedure represented a mere 0.07% of the average procurement value). E-auction is also a relatively "cheap" procedure (the share of administrative costs is 0.2%).

We classified the analyzed Kaluga region procurements into "small" (up to 100,000 rubles), "medium" (from 100,000 to 500,000 rubles), and "large" (over 500,000 rubles) purchases. Small and medium purchases were conducted mainly through single-source contracting and requests for quotations, and large purchases were made using e-auctions and open tenders and, very rarely, through single-source contracting.

The calculation results show that small and medium purchases were the most costly. The average administrative cost of one small procurement in the region in 2013 represented 14.7% of the overall procurement value, whereas the cost of a medium procurement was 2.1%, and the cost

of a large procurement was 0.1%. Consequently, a question arises regarding the economic feasibility of using legally prescribed procedures for such small and medium contracts.

The average administrative cost of one procurement procedure (Table 5) in the region nearly doubled from 2013 to 2014: from 15.5 person-hours to 44.6 person-hours. Administrative costs in monetary terms grew 2.2 times on average: from 4,900 rubles to 11,100 rubles. This is due to an increase in the number of employees involved in the procurement process and their word loads, specifically for the higher-paid categories of personnel (in 2014, nearly all organizations demonstrated high levels of involvement by their top managers in procurement processes). At the same time, despite such a significant increase in costs, the overall number of procurement procedures (net of small volume procurements) dropped dramatically.

Table 5. Administrative Costs of One Procurement Procedure in the Kaluga Region in 2013–2014

Administrative costs, person-hours		Administrative costs, rubles	
2013	**2014**	**2013**	**2014**
15.5	44.6	4,924	11,134

The share that the administrative costs of a procurement represented in the total contract value increased from 0.3% in 2013 to 1.2% in 2014. This is generally connected with the growth of the administrative costs and a decrease in the average procurement value.

The proportion of administrative costs of a procurement of the total contract value doubled or tripled in 2014 compared to 2013 (depending on the contract value) in all sectors and procurement categories (Table 6). In addition to the increase in cost per procedure, this is also explained by the specifics of the procurement structure (e.g., a reduction in the value of procurements conducted through e-auctions in 2014).

Table 6. The Share of the Administrative Costs for One Procurement Procedure in the Total Contract Value, %

Procurement valued up to 100,000 rubles		From 100,000 to 500,000 rubles		Over 500,000 rubles	
2013	**2014**	**2013**	**2014**	**2013**	**2014**
14.7	30.1	2.1	4.7	0.1	0.2

The results confirm the presence of a “scale effect”. Therefore, the use of more complicated procedures is economically feasible for larger procurements, while simpler procedures should be applied for small procurements.

Conclusions

The methodology we have proposed offers an approach for evaluating the costs incurred by regional public customers that represent major public sector industries for different types of procurement procedures and for procurements of different values. The results can be used to analyze and optimize the procurements of individual organizations, economic sectors, and regions. Recommendations for national economic policy can also be developed on the basis of our findings. Moreover, the proposed methodology can be successfully used to account for the costs incurred by the primary participants in the public procurement process as changes are made to regulations.

The results of our analysis of public customers' procurement costs in one of the Russian regions prompt the following conclusions:

1. Public customers incur significant administrative costs in an effort to abide by the requirements of public procurement legislation (according to our estimates, this takes 15.5 person-hours on average). In addition, the costs not connected with the public procurement legislation represent as much as 54% of the overall costs of procurement procedures. The nature of these costs is largely related to the growing requirements that various regulatory and supervisory authorities have established for public sector organizations regarding the expenditure of budgeted funds. In our opinion, the reduction of such costs is possible only if the very model of supervision shifts toward the analysis and monitoring of public sector organizations' performance outcomes and away from controlling these organizations' business processes.
2. This analysis of the administrative costs of public procurement has revealed strong variations in labor costs in the performance of different types of procurement procedures. They range from approximately 3 person-hours for requests for quotations and single-source contracting (for procurements valued over 100,000 rubles) to 2.2 and 3.5 person-days for e-auctions and open tenders, respectively. However, bearing in mind the differences in contract values that are characteristic of different procurement procedures, the relative costs incurred by public customers will trend in the opposite direction: from 0.2% of the contract value for e-auctions to 0.4% for requests for quotations.
3. The study revealed considerable differences in the administrative costs of procurements for different public sectors. The reason for such differences may be due

to the different average procurement volumes for different organizations. However, according to our findings, in addition to the differences in procurement volumes, the level of cost is also affected by presence of well-qualified procurement specialists on the staff of the organization, even for organizations with small procurement volumes.

4. The administrative costs of procurement procedures also differ greatly for contracts of different values. These costs represented approximately 0.1% of the total contract value for large procurements (over 500,000 rubles) and 2% for medium procurements (100,000–500,000 rubles), whereas the administrative cost of small procurements reached nearly 15% of the total contract value.

5. International comparisons (using the data of the PwC study) were not quite appropriate in this case, as we were analyzing all the procurements of public customers in one of the Russian regions, and PwC experts analyzed only procurements valued over 125,000 euro that fell under the European Commission directives. In addition, judging by the methodology description, the PwC project evaluated the aggregate costs of public customers. Nevertheless, if we focus only on relatively large procurements according to Russian standards (over 500,000 rubles) and take into account the total costs of the customers, the regulatory burden on public customers in Russia and the EU will be comparable. In particular, the average aggregate cost for EU customers in 2011 reached 0.4% of the total contract value, and in 2013, the average aggregate cost for public customers in Russia (using the case of the Kaluga region) for procurements valued over 500,000 rubles was approximately 0.3% of the total contract value.

   Further optimization of the procurement procedures would require cost evaluation not only of the customers but also of the suppliers (which was the approach used, inter alia, by the PwC study). In our opinion, the unreasonably high supplier cost for paperwork and bid submissions is precisely the factor that can explain the low level of competition at auctions in Russia.

This study has a number of limitations that could influence the focus of further studies. Although we have shown that the Kaluga region is a typical, representative region in Russia, the data for one region are far from sufficient for reaching general conclusions concerning the country as a whole. Therefore, in our further research we will extend the list of regions. This study evaluated only the costs incurred by public customers, but we must take into consideration

the even more substantial supplier costs (according to the estimates of the (PwC, 2011) study, they are 3 times higher). We assert that the unreasonably high costs faced by suppliers for paperwork and bid submissions can explain the low level of competition at auctions in Russia. Moreover, another important component of public procurement costs needs to be taken into account – the costs incurred by supervisory and regulatory authorities. Based on this consideration, our future studies can be devoted to an evaluation of the costs incurred not only by public customers but also by suppliers and supervisory and regulatory authorities.

This paper evaluated public customers' costs for public procurements in 2013 and 2014 – the period of Russia's transition to new public procurement legislation. A transitional period does not always accurately reflect the post-transition reality; therefore, it would be advisable in the future to analyze subsequent years, after the new legislation has been fully implemented. The sample of respondents was limited and could be expanded considerably in the future by further simplifying and integrating our questionnaires.

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Яковлев, А. А., Балаева, О. Н., Ткаченко, А. В.
Издержки закупочной деятельности российских региональных госзаказчиков: оценка и анализ : препринт WP1/2016/03 [Электронный ресурс] / А. Яковлев, О. Балаева, А. Ткаченко ; Нац. исслед. ун-т «Высшая школа экономики». – Электрон. текст. дан. (500 Кб). – М. : Изд. дом Высшей школы экономики, 2016. – (Серия WP1 «Институциональные проблемы экономики») – 28 с. (на англ. яз.).

Существующие процедуры государственных закупок, предусмотренные российским законодательством, не только способствуют повышению уровня прозрачности и конкуренции, но и влекут за собой определенные трансакционные издержки, как для госзаказчика, так и для поставщика. Эти издержки являются одним из существенных факторов, определяющих эффективность системы закупок. Однако данному вопросу посвящены лишь очень немногие исследования, как российские, так и зарубежные. В представленной работе предлагается методика оценки издержек администрирования закупочной деятельности для большой совокупности госзаказчиков, действующих в рамках одного региона. Оценка издержек базируется на данных формализованного опроса. Разработанная методика была протестирована на данных одного из регионов Российской Федерации – Калужской области. Полученные результаты позволили разработать ряд рекомендаций по совершенствованию регулирования государственных закупок в РФ. При этом предлагаемый подход может быть использован и в других развивающихся странах и странах с переходной экономикой.

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Ткаченко Андрей Викторович

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