Estimation of costs in the Russian public procurement system

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Abstract: The growing attention of governments, international organisations and NGOs to public procurement issues over the last two decades has been accompanied by many studies on the efficiency of public procurement. However, few researchers have considered the costs of procurement regulation for public customers and private suppliers. This problem is especially acute for the public procurement system in Russia. In this paper we propose an approach to measuring public customers' procurement costs. We test this approach with the data on a large Russian public customer: Voronezh State University. We show that the proposed approach is universal and can be applied at a micro level by other public customers to measure the efficiency of their procurement and to optimise the costs. This approach can also be used as a basis for a larger inquiry into the costs and effectiveness of procurement at the level of regional authorities or sectoral ministries.

Keywords: public procurement; transaction costs; administrative costs of public procurement; Russian public procurement system; public customer; small purchases.


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1 Introduction

The efficiency of public procurement is a vital problem for public administration at the national and municipal levels. This subject has been addressed in many papers in recent years (see, for instance, Singer et al., 2009; Ogbonna and Kalu, 2012; Dimitri, 2013; Bovis, 2013; Guccio et al., 2014; Yakovlev et al., 2015). These studies, however, rarely address an important dimension of efficiency – the costs of administering public procurement. While the benefits have been the focus of attention, the administrative costs borne by the main participants in the procurement process – customers, suppliers, and regulators – have been disregarded. Meanwhile, conducting the public procurement policy requires knowledge on these costs, and identifying the biggest generators of costs, in order to take measures aimed at reducing the costs and increasing the cost-effectiveness of public procurement procedures (Jasko et al., 2015). Experts argue, however, that such costs can be high, making some procurement procedures inefficient (especially for small purchases). The problem of the administrative costs of public procurement is common for many countries, irrespective of the characteristics of their individual procurement systems.

In May 2011, PricewaterhouseCoopers (PwC) carried out a large study attempting to measure the efficiency of public procurement in EU countries (PwC, 2011). The researchers found that on the average, costs in EU procurement deals accounted for approximately 1.4% of the total contract value; 25% of these total costs related to customers, and approximately 75% related to suppliers (including unsuccessful bidders). The techniques used by PwC were developed primarily for the evaluation and analysis of macro-level procurement costs and effectiveness. Measuring the costs for separate public entities participating in procurement is an equally important project to tackle from both academic and practical points of view.

Yakovlev et al. (2010) highlight the importance of measuring procurement costs, using a large public entity as an example. The costs of administering public procurement, according to the estimates, accounted for 0.6% of the total volume of contracts. These costs were borne by the public entity in all cases, even if competitive procedures did not produce any savings from price reduction. Although Costantino et al. (2006, 2009, 2012) address the problem of measuring additional costs of purchasing, they focus mostly on measuring the costs associated with a larger number of procurement bidders, comparing these costs with possible benefits. Häkkinen and Kettunen (2015) stress the necessity to
take the coordination costs between the supplier and the customer into account when calculating the purchase order size.

All these studies show the importance of procurement cost evaluation at the level of individual procurers and suppliers as well as at aggregate level of regions and countries. However little attention was paid to the elaboration of methods of procurement cost assessment. The objective of our research is elaboration and testing of methodology to measure costs of public procurement for public customers in emerging market economies. This paper, taking into account Russian public procurement practice adapts the approach elaborated in PwC (2011) for measuring public customer procurement costs in Russian conditions. We test this method by calculating the public procurement costs of a large public customer in Russia – Voronezh State University (VSU). The proposed method is universal and requires only minor adaptations to suit the characteristics of an individual country. This method can be applied at the micro level by any public customer to measure the efficiency of its purchases and optimise its costs. This method can also be used as the basis for a larger inquiry into the costs and effectiveness of procurement at the regional level, which will allow the development of recommendations for enhancing the efficiency of procurement at the macro level.

2 Theoretical background

The concept of transaction cost economics (TCE) theory is based on the works of Commons (1931, 1934) and Coase (1937, 1960). In his works, Commons argues that the transaction is the basic unit of analysis and the ultimate unit of activity between market actors. According to Coase, the cost of using the market is higher than the cost of the purchased product because of the operations firms have to carry out when they perform transactions.

Coase’s ideas were further developed in the works of Williamson (see, for instance, Williamson, 1975), who defines transaction costs as the costs of running the economic system. He proposes to divide transaction costs into market costs (costs of the selection of the supplier offering the best mix between required price and offered quality; costs of finding target customers for the products of the firm; costs of contract drafting and approval; costs of contract enforcing and hierarchy costs) and hierarchy costs (costs of human resources selection and management; costs of control of contracts regarding human resources; costs of contract enforcement; costs of coordination and information transmission within the firm) (Williamson, 1975).

There are several different interpretations of the term ‘transaction costs’: ‘costs of using the price mechanism’ (Coase, 1937), ‘costs of search’ (Stigler, 1961) and ‘costs of information’ (Alchian, 1969), ‘costs of running the economic system’ (Arrow, 1969), ‘costs that arise not from production of goods, but from their transfer from one agent to another’ (Dahlman, 1979), and ‘costs which are made in order to coordinate and connect all links in the production chain’ (den Butter, 2012). The main definitions include search costs, information costs, negotiation costs and monitoring and enforcement costs (Groth, 2008).

Ellram (1993) views transaction costs as a part of the total cost of ownership, which includes pre-transaction costs (which occur prior to receiving the purchased items and placing the order); transaction costs (which are related to order placement and receipt); and post-transaction costs (which are related to the use, maintenance, and disposal
phases). It should be mentioned that these three components are essentially transaction costs in the common sense of the term. den Butter (2012, p.126) 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) considers that it is important to take into account non-price factors such as vendor experience or vendor location or within vendor demographics – size, scope, etc.

Another classification of transaction costs is the division into ex ante and ex post costs (Williamson, 1981; Buvik and Halskau, 2001; Buvik, 2002). Ex ante transaction costs in this model are direct opportunity costs, which imply productivity losses resulting from the lack of the appropriate employment of specific assets. Ex post costs include performance control, performance verification, adjustment and bargaining (Buvik and Halskau, 2001).

Costantino et al. (2006, 2009) view transaction costs connected to the purchase of a new product/service as additional costs of purchasing. The additional costs of purchasing, together with the purchasing price, make up the total cost of purchasing. Costantino et al. (2006, p.70) note that the additional costs of purchasing under review are only part of all the transaction costs defined by Coase and Williamson; in particular, they do not include post-delivery costs. In relation to the classification above, “in a buyer/supplier relationship ex ante costs may be viewed as the costs of research of suppliers, the negotiation costs and the costs of approving and drafting the contract, …ex post costs consider the quality control costs and the enforcement costs”.

Although ‘transaction costs’ is presently a generally accepted and widely used term, most researchers believe such costs are difficult to count. Most literature features descriptive and empirical predictions. Using the classification proposed by den Butter, the area causing the most problems is quantifying soft transaction costs.

Some researchers, however, attempt to quantify the transactions costs for the administration in the provision of public goods (see, for instance, Falconer and Whitby, 1999; Benham and Benham, 2000; Falconer and Saunders, 2002; McCann et al., 2005). Another noteworthy study is a famous paper by Wallis and North (1986) about estimating transaction costs at a macro level and measuring the transaction sector in the US economy. Singer et al. (2009) review the effectiveness of a newly introduced electronic system of public purchasing in Chile. They also measure the administrative costs savings using macro data on costs incurred by the e-procurement agency to provide services to the State agencies and the number of times that such services are used by the State agencies. However, few studies are focused on quantifying the procurement costs at a micro level.

According to Gardenal (2013, p.219), the reduction of the overall elapsed time employed to complete a tendering procedure is the main driver to measure efficiency of purchase. The researcher proposed the model to measure and to control the performances of public procurement organisational units, which are found to be positively correlated to the use of e-procurement. In accordance for this model the elapsed time per procedure (in working days) is the KPI for measuring the efficiency of purchasing and HR employed per procedure is the KPI for measuring the effectiveness. The Serbian authors (Jasko et al., 2015) analyse the cost efficiency of the public procurement process at local level. The efficiency measured in hours per public procurement on a basis of directly invested
hours in the public Serbian enterprises. However, authors did not describe the methodology for their quantitative estimations.

Costantino et al. (2006, 2009, 2012) propose a method of quantifying the additional costs of purchasing. This method estimates time costs at different stages of the procurement process and the relevant monetary costs committed to procurement. As mentioned above, additional costs of purchasing include ex ante costs and ex post costs. The ex ante costs of purchasing, according to Costantino et al. (2006, 2009), consist of the following components: the costs of research and contact of suppliers, negotiation costs and the costs of the drafting and approving the contract with the supplier who has proposed the best price. Ex post costs are a function of quality control costs and enforcement costs.

It is also presumed that all the ex ante costs take into account the time of the buyer and the hourly cost of the buyer. Such costs are probabilistic in nature and depend on the experience of the buyer. All these ex ante costs components can be obtained via 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 additional costs of purchasing, these researchers use the decision support systems (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. They tested the proposed model of measuring the additional costs of purchasing using data from a large construction firm in Italy.

Häkkinen and Kettunen (2015) propose to estimate the coordination costs between the supplier and the customer for the economic order quantity (EOQ) model elaborated to define the purchase order size. The coordination costs are part of the transaction costs and can vary for different suppliers. Any large organisation in either the public or private sector needs specific tools and techniques for its internal purchasing system assessment. According to Garrett (2013), using the six-step contract management process ensures an organisation conducts a comprehensive or life cycle evaluation of its purchasing system.

The most comprehensive study about the costs of purchasing was conducted by PwC (2011). The purpose was to explore how the EU’s current directives (Public Sector Directive 2004/18/EC and Utilities Directive 2004/17/EC) affect the public procurement system. They measured both customers’ and suppliers’ costs (including unsuccessful bidders) for each procurement procedure type. The researchers used empirical data on public procurement and contracts in the EU and European Economic Area (EEA) nations, posted on the Tenders Electronic Daily online portal (http://ted.europa.eu/TED/main/HomePage.do). The database included 540,000 contracts in 30 countries signed in 2006–2010, while 5,500 public buyers and 1,800 suppliers who signed public contracts were surveyed. Measuring costs, the researchers applied labour costs (person-days) as a criterion at individual stages of the purchasing process:

1. pre-award (pre-proposal for firms)
2. award (proposal for firms)
3. post-award
4 litigation and complaint (if applicable).

For each stage, the average labour costs of its implementation for all competing suppliers and public customers were measured. Then, applying data about employee remuneration for the specialists involved in the procurement process, the researchers quantified the labour costs and the total costs of the procurement, as well as the costs of each type of purchasing procedure.

According to the PwC study, procurement costs account for approximately 1.4% of total procurement volume within the EU. Customers account for approximately 25% of total procurement costs, and suppliers (including losing bidders) for approximately 75%. Procurement costs did not correlate with the values of the contracts (with the exception of the largest purchases), therefore the share of costs in 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 in median-value contracts (approximately 390,000 euro), for 6–9% of the contract value.

The PwC study is of much interest for public procurement researchers and practitioners both in the EU and elsewhere. The approach used in that study appears to be applicable to different public procurement systems. That said, one would assume that when the minimal threshold value for public contracts in a certain country is smaller (and when the value of the average public contract is smaller) than in the EU countries reviewed in the PwC study, the costs of any single procurement procedure will probably be higher.

However, as our research shows, the above-mentioned approaches to measuring costs are not always applicable at the micro level – the level of an individual public customer. In the next section, we describe our approach, which can be used by public entities for procurement cost accounting. The approach proposed in this paper is universal and can be applied to any entity, with only small changes required and for the public procurement system of an individual country.

3 Approach to measuring the procurement costs of a public customer: the model

Initially, our approach to measuring public procurement costs was based on the logic of the PwC (2011) study: identifying the costs typical of separate stages of the purchasing process and summing them. We consider each stage of the procurement process individually: purchasing from single-source contracting (as the baseline for comparison); requests for quotations (RFQ); electronic auctions; and tenders.

Using the framework suggested by PwC, and taking into account Russian procurement practice we consider the following more disaggregated stages in procurement process of public customers:

- identifying the need for a purchase (planning)
- reviewing requests and making a plan for purchases
- preparing terms of reference
- preparing documentation for the procurement procedure
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- carrying out the procedure
- selecting a winner and signing the contract
- settling conflicts with bidding suppliers (if such conflicts arise)
- monitoring the performance of the contract
- settling conflicts related to the contract implementation (if such conflicts arise).

To assess the viability of our approach to measuring public customer procurement costs, we conducted a series of in-depth interviews with Russian public procurement specialists from different levels. We decided to slightly change the approach to measuring these costs and not to assess the costs of each individual stage of the process. This decision was made, first of all, because of the high level of heterogeneity of this process: the specialists had difficulty evaluating the labour costs of a particular stage of the process, even for one type of procurement procedure. They gave only interval assessments, and the intervals were quite broad. Using such imprecise interval assessments to measure procurement costs for an entire organisation would have produced inadequate results. Moreover, this approach implies a low degree of formalisation and therefore calls for a series of in-depth interviews in every entity. Therefore, data collection would have become a very laborious process.

Considering all of the above, the initial approach to measuring public customer procurement costs was corrected. The main principles of the final approach were as follows:

1. An assessment of a public customer’s procurement costs should be provided for a particular time period (for instance, one year). These overall costs include:
   - Personnel costs.
     In this context, personnel include all of the entity’s employees with any degree of involvement in the planning and implementation of purchases. Personnel costs calculated as the time the employees expend on these activities (as a percentage of their working time), and their average remuneration.
     As our interviews show, in Russian public entities, this group of employees, in addition to procurement department officers and in-house lawyers who handle the legal aspects of purchasing, includes members of the procurement commission, a senior manager controlling purchasing, in-house accountants, and employees of customer departments who participate in planning purchases and in drawing up terms of reference.
   - Costs related to the use of other resources – in particular, office spaces, equipment, and software.
     When measuring general costs of procurement for public customers, one should take into account not only direct labour costs (and the relevant remuneration) of employees involved in the purchasing process but also the organisation’s other expenses associated with these activities.
It is assumed that every employee involved in the purchasing process has a workplace including furniture, a computer and office equipment. Employees also use expendable items (paper, ink cartridges, and other office supplies). These employees are assigned certain spaces for work, so one has to account for the relevant utility bills. Moreover, these employees need other staff and handle their needs – hiring them, managing the payroll, etc.; these additional staff are employed in such departments as HR, legal, financial, and accounting departments.

2 One chooses the least labour intensive of all procurement procedures (labour intensity here means the total amount of time spent on the procedure by all the staff involved). Next, one assesses by how much the average labour intensity of each of the other procedures is higher than this one. Thus, we come up with a normalised labour coefficient for each procedure used by the organisation.

Our interviews also evidence that the labour intensity of a procedure depends to a large degree on the complexity of the purchase. Considering this, we propose to divide the purchases of the organisation into simple and complex ones. We consider simple purchases to be typical, standard purchases and complex purchases to be purchases specific to the organisation, rare purchases, and purchases requiring complex terms of reference (sophisticated equipment, tools, devices, and servicing thereof, construction works, technical design, professional services, etc.).

3 One gathers data on the number and value of purchases implemented by a public customer during a period under review. The data referenced above in clauses 1 and 2 is used to calculate the total labour intensity and a public customer’s procurement costs for the applicable period, the labour intensity of each type of procedure, the average costs for one procedure of every type, and other indicators necessary for the analysis.

The total public customer’s labour intensity 1:

\[ T = \sum (t_i \cdot m_i) \]

where \( t_i \) is the time the entity’s employees of department is expended on the purchases’ activities (as a percentage of their working time), \( m \) – the number of these employees.

The total public customer’s procurement costs:

\[ C = \sum (t_i \cdot m_i \cdot r_i) \]

where \( r_i \) is the remuneration of the entity’s employees of department \( i \).

The labour intensity of each type of the procurement procedure:

\[ l_j = \left( \frac{\sum (N_j \cdot K_j)}{T} \right) \]

where \( N_j \) is the number of the procurement procedure (type \( j \)), \( K_j \) – the labour intensity coefficient of the procedure (type \( j \)).

The average costs for each type of the procurement procedure:
\[ c_j = c * l_j, \quad (4) \]

where \( c \) is the average procurement costs in terms of person-hours:

\[ c = \frac{\Sigma C}{\left( \Sigma \left( N_j * l_j \right) \right)} \quad (5) \]

4 The results obtained are analysed, and relevant recommendations are made.

Customising this approach, we have elaborated a method for calculating the average costs of different procurement procedures for a public customer’s simple and complex purchases for a particular time period. This method was tested on data for a large public purchaser in Russia: VSU.

4 Public procurement system in the Russian Federation (RF)

After the breakup of the USSR and the demise of the old Gosnab system, the Russian system of public procurement was reformed (see Yakovlev and Demidova, 2012). Before January 1, 2014, most public procurement in the RF was governed by Federal Law 94-FL ‘On the Placement of Orders to Supply Goods, Carry Out Works, and Render Services for Meeting State and Municipal Needs’ (hereinafter referred to as 94-FL), which entered into force on January 1, 2006. This law was aimed primarily at combating corruption, as well as ensuring transparency in public procurement and competitiveness in public tenders and auctions.

To ward off corruption and establish conditions for competitiveness, the law prescribed maximally simple and uniform purchasing procedures that strictly limited customers’ ability to influence the selection of suppliers. The law ensured free access to participate in public procurements for all economic agents, primarily small and medium size enterprises (SMEs). In order to ensure transparency in public purchasing, the Russian government created an official national site where procurement notices were posted http://www.zakupki.gov.ru. Public entities had to select the suppliers using the lowest price criteria. At the same time, with rare exceptions, they could not use requirements for suppliers’ qualifications and reputations. To foster SME entrance into the public procurement market, 94-FL set very low thresholds for making competitive purchase procedures for public customers obligatory (100,000 rubles or approximately 2400 euro using the Central Bank’s exchange rate as of January 1, 2012).

The following procedures were used in the Russian public procurement system: purchasing from a single supplier (single-source contracting), requests for quotations (RFQ), auctions (in electronic form since 2010), and tenders. At the same time, stricter controls over public procurement were put in place. Harsher sanctions began to be applied to purchasing institutions for violating the requirements of 94-FL.

Table 1 highlights the main differences between procurement systems in the EU and Russia during that period.

However, the practical application of 94-FL showed some of its weaknesses. With price being the main selection criterion, public contracts were often awarded to suppliers offering the worst quality at a minimum price. The types of purchase such as ‘experience goods’ and ‘credence goods’ – goods whose quality cannot be checked at delivery (Nelson, 1970; Darby and Karni, 1973) – were especially strongly affected by the lack of attention to suppliers’ qualifications and reputations. The mechanism of justifying the
initial price of a contract, which public customers had to announce when posting a procurement notice, was also subject to much debate. Another shortcoming of the legislation was the fact that only purchasing itself was strictly regulated and controlled, while other stages of the procurement process were not. Critics also pointed to other deficiencies of 94-FL.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>EU(^a)</th>
<th>Russia(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of public procurements</td>
<td>3.5% of GDP</td>
<td>8.4% of GDP</td>
</tr>
<tr>
<td>Threshold values of a purchase</td>
<td>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 with provisions of national laws</td>
<td>For contracts valued over 100,000 rubles (or approximately 2,400 euro(^c)), competitive tender bids are mandatory.</td>
</tr>
<tr>
<td>Average number of bids filed for competition/lot</td>
<td>5.4 bids</td>
<td>2.7 bids</td>
</tr>
<tr>
<td>Procedures of public procurement (in % of number of contracts/total value)</td>
<td>Open procedure– 73%/52%</td>
<td>Single-source contracting– 51%/39%</td>
</tr>
<tr>
<td></td>
<td>Restricted procedure– 9%/23%</td>
<td>Request for quotations– 28%, 3%</td>
</tr>
<tr>
<td></td>
<td>Competitive dialogue– &lt;1%/4%</td>
<td>Auctions – 17%/38%</td>
</tr>
<tr>
<td></td>
<td>Negotiated procedure– 9%/14%</td>
<td>Tenders – 4%/20%</td>
</tr>
<tr>
<td>The average contract value</td>
<td>3,000,000 euro.</td>
<td>2.8 million rubles (or approximately 67,200 euro(^d)).</td>
</tr>
</tbody>
</table>

Notes: \(^a\)According to PwC (2011)  
\(^b\)According to Russia’s Federal Statistics Service (Rosstat) for 2008–2010  
\(^c\)The Russian Central Bank’s exchange rate as of January 1, 2012.  
\(^d\)The Russian Central Bank’s exchange rate as of January 1, 2012.

The efforts to further improve the Russian procurement system brought about a new law on public procurement, which came into force on January 1, 2014: Federal Law No. 44-FL ‘On the contract system in the procurement of goods, works and services for state and municipal needs’. This new system radically differs from 94-FL in that it governs the entire procurement cycle: planning, purchasing, implementation, control. It makes the public procurement system more flexible compared to 94-FL.

- **Planning:** 44-FL introduces a clear and well-structured system of purchase planning. Purchase planners must justify their orders, and the method of selecting suppliers and the amount of funds necessary for the purchase.

- **Purchasing:** 44-FL provides for new additional methods of posting procurement notices: requests for proposals, closed tenders, and two-stage tenders. This allows customers to handle the selection of suppliers of specific goods, works and services. It allows customers to take into consideration potential suppliers’ qualifications and reputations. Simplifying the purchase of goods and services for schools, hospitals or kindergartens at regional and municipal levels, 44-FL allows the centralisation of the
procurement system – in particular, the establishment of a public agency in charge of selecting suppliers. The delegation of powers will allow the avoidance of duplicative procedures.

- **Execution of the contract:** 44-FL allows a public customer to cancel its contract with a supplier unilaterally when the supplier provides goods of a substandard quality or incomplete sets of goods, does not comply with deadlines for supplying goods, performing works and providing services, or materially breaches the terms of a contract. The supplier enjoys a similar right.

- **Control:** 44-FL provides for control over public purchasing at all stages, from planning to implementation. Both federal authorities and the public will control procurement through monitoring, auditing and other methods. If the contract value is more than one billion rubles (approximately 25 million euro), a public debate on the contract should be held, with opportunities to change terms of reference or even cancel the purchase.

One of the main principles of 44-FL is the openness and transparency of public procurement. According to the new law, a unified information system containing all data about any federal or municipal purchase must be created.

However, despite the numerous positive changes, in the new legal environment, evaluating the efficiency of public procurement continues to be a very important issue. One of the reasons for this is the growth in public procurement costs caused by 44-FL.

5 **VSU’s procurement costs: data for calculations**

VSU is one of the oldest classical universities in Russia, with almost 100 years of achievement in Russia and the world. Every year, VSU is listed among the top universities in national and international rankings, which encourages its stakeholders – government and business organisations – to invest in both current University projects and innovation initiatives. In the 2014 National Ranking of Universities (Interfax): Classical Universities and Research Institutions, it was ranked as 19–20, and in the QS University Rankings: BRICS, it was ranked 90 (World) and 17 (RF). VSU has over 21,000 students, 18 faculties, 6 research institutes. VSU is the only university in Europe with its own unique nature reserve. There are 1,580 lecturers working at VSU, including 316 professors. VSU’s graduates include a Nobel Prize Winner in physics (1958), Prof. Pavel Cherenkov.

As institutions of higher learning are concerned, VSU has been a typical public customer in many respects. With the idea of testing our approach in a stable regulatory environment, we selected for our case study data on the ‘pre-reform’ year 2012. Data about the contracts concluded by VSU in 2012, grouped into electronic tables, was provided by officers of VSU’s procurement department. These datasets are also available at http://www.zakupki.gov.ru.

VSU’s procurement operations are quite extensive. In 2012, VSU concluded 400 contracts valued at 193 million rubles (more than 4.6 million euro). VSU is a public entity, and in 2012, its purchasing was governed by 94-FL. At that time, VSU used three types of procurement procedures: single-source contracting, RFQs, and electronic auctions. Tenders, which were also allowed under 94-FL, were not held.
We divided the goods, works and services purchased by the University into simple and complex ones. VSU’s complex purchases include sophisticated equipment, tools, devices, and their servicing (for instance, an X-ray diffraction meter, X-ray fluorescence spectrometer, a repair of centrifuges); technical design and construction (for instance, construction of buildings and facilities, design for the reconstruction of a power supply system, the expert evaluation of a dormitory construction project), and professional services (for instance, software consultations, academic services in natural sciences).

In 2012, 65% of VSU’s purchases were from a single supplier, 23% by RFQ, and 12% from electronic auctions (Table 2). However, when weighted by the contract value, electronic auctions accounted for the bulk of purchases (61%) single-source contracting deals accounted (30%), and purchases via RFQ (9%). The price of VSU’s average purchase was relatively low – 483,100 rubles (by way of comparison, according to Goskomstat (GKS, 2012), the average public contract price in Russia in 2012 was 604,800 rubles, and excluding small-volume single-source contracting, 2,572,900 rubles). One of the main reasons for this is VSU’s large number of small purchases, including contracts valued below 100,000 rubles, most of which were concluded via single-source contracting.

<table>
<thead>
<tr>
<th>Procedure type</th>
<th>Single-source contracting</th>
<th>RFQ</th>
<th>Electronic auction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of purchases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple purchase</td>
<td>188</td>
<td>74</td>
<td>19</td>
<td>281</td>
</tr>
<tr>
<td>Complex purchase</td>
<td>72</td>
<td>20</td>
<td>27</td>
<td>119</td>
</tr>
<tr>
<td>Total</td>
<td>260</td>
<td>94</td>
<td>46</td>
<td>400</td>
</tr>
<tr>
<td>Purchase value, 1,000,000 rubles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple purchase</td>
<td>31.8</td>
<td>10.8</td>
<td>63.2</td>
<td>105.8</td>
</tr>
<tr>
<td>Complex purchase</td>
<td>26.1</td>
<td>5.7</td>
<td>55.7</td>
<td>87.5</td>
</tr>
<tr>
<td>Total</td>
<td>57.9</td>
<td>16.5</td>
<td>118.9</td>
<td>193.3</td>
</tr>
<tr>
<td>Average purchase value, 1000 rubles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple purchase</td>
<td>169</td>
<td>146</td>
<td>3,325.1</td>
<td>376.3</td>
</tr>
<tr>
<td>Complex purchase</td>
<td>362.7</td>
<td>284.4</td>
<td>2,063.5</td>
<td>735.4</td>
</tr>
<tr>
<td>Total</td>
<td>222.6</td>
<td>175.4</td>
<td>2,584.6</td>
<td>483.1</td>
</tr>
</tbody>
</table>

Using the expert evaluations of VSU procurement officers, we obtained the labour intensity coefficient of the procurement procedures used by this organisation. When talking about labour coefficients, we should remember that the labour intensity of all types of complex purchases grows along with increases in the time spent on the preparation of the terms of reference in the customer department. Therefore, the values of labour intensity coefficients for complex purchases increased. These corrections were introduced on account of what we learned from interviews with the customer department representatives.

The least labour-intensive procedure is single-source contracting, and the most labour-intensive one is tenders because of the large volume of tendering documentation,
the length of preparation and processing of this documentation, the length of the procedure, and the number of Tender Committee meetings, etc. The final labour intensity coefficients are presented in Table 3.

Table 3  Labour intensity coefficients for procedures used in procurement

<table>
<thead>
<tr>
<th>Type of procedure</th>
<th>Simple purchase</th>
<th>Complex purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-source contracting</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>RFQ</td>
<td>1.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Electronic auction</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

It should be noted that complex purchases are fairly labour intensive, even in the case of single-source contracting. Tenders are normally used in the case of complex purchases (construction and repair services, research and development solutions, etc.), whereas RFQ is usually applied to simple purchases.

The data for calculating the labour costs in 2012 was obtained from the expert evaluations of VSU’s specialists, and accounting sheets.

6  Results

In order to calculate an institution’s procurement labour costs, one has to calculate the number of university employees involved in procurement operations. VSU has a Procurement Department, where all employees (seven persons) are engaged in the University’s procurement operations. Moreover, one employee of VSU’s Legal Department provides legal counselling on procurement affairs. The University has eight full-time staff dedicated to procurement alone. According to the respondents, other VSU employees committed some of their working hours to procurement. This group of employees included a specialist from the Accounting Department, the vice-rector in charge of economic affairs, who was in charge of the University’s procurement, specialists at different levels of customer departments, who were in charge of purchase planning in their departments and the preparation of terms of reference, and members of the Tender Committee. Their total procurement-related labour costs over one year were estimated as the equivalent to 7.4 full-time employees.

The overall procurement labour costs of VSU’s officers in 2012 totalled 306,000 person-hours or 76 person-hours (9.6 person-days) for one purchase (Table 4). This is a relatively small figure, which can be explained by the large share of single-source contracting purchases – the simplest type of a procedure – among VSU’s contracts. At the same time, it should be noted that electronic auction labour costs – 22 person-days – were fairly comparable with PwC’s figure – 28 person-days.

Table 4  Average labour costs for a procurement procedure, person-hours

<table>
<thead>
<tr>
<th>Type of procedure</th>
<th>Simple purchase</th>
<th>Complex purchase</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-source contracting</td>
<td>40</td>
<td>120</td>
<td>62</td>
</tr>
<tr>
<td>RFQ</td>
<td>48</td>
<td>144</td>
<td>68</td>
</tr>
<tr>
<td>Electronic auction</td>
<td>80</td>
<td>240</td>
<td>174</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>151</td>
<td>76</td>
</tr>
</tbody>
</table>
We estimate that in 2012, total annual costs associated with the remuneration of officers involved in procurement activities at VSU amounted to 6,024,000 rubles (145,000 euro). Other annual costs related to the use of other resources and associated with the activities of employees involved in procurement activities (excluding the expenditures on their wages) amounted to 215,000 rubles. This number includes overall office maintenance cost as well as equipment, software, consumables etc. We believe that when our cost measurement method is applied, this component of costs can be disregarded because it is only a very small fraction of the public customers’ procurement costs whereas accounting for these costs is quite labour intensive and complicates the application of the method.

We estimate that the combined total annual procurement costs at VSU in 2012 were 6,240,000 rubles (150,000 euro). Table 5 presents the calculated average costs for one procedure of every type.

### Table 5

<table>
<thead>
<tr>
<th>Procedure type</th>
<th>Simple purchase</th>
<th>Complex purchase</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-source contracting</td>
<td>8.2</td>
<td>24.5</td>
<td>12.7</td>
</tr>
<tr>
<td>RFQ</td>
<td>9.8</td>
<td>29.4</td>
<td>14</td>
</tr>
<tr>
<td>Electronic auction</td>
<td>16.3</td>
<td>49</td>
<td>35.5</td>
</tr>
<tr>
<td>Total</td>
<td>9.1</td>
<td>30.9</td>
<td>15.6</td>
</tr>
</tbody>
</table>

As the table shows, on average, a single-source contract costs the University 12,700 rubles, an RFQ purchase costs 14,000 rubles, and a purchase through electronic auction costs 35,500 rubles. On average, the costs of every procurement procedure at VSU are estimated at 15,600 rubles in 2012. The average procurement costs in terms of person-hours at VSU, according to our estimates, amounted to 204 rubles per person-hour (or approximately 5 euro at the exchange rate in 2012).

On average, we estimate that at VSU in 2012, the share of customer procurement costs in the overall contract value was 3.2%. A comparison of the share of procurement costs in the total contract value shows that VSU’s most ‘expensive’ procedure type was RFQ, where the customer costs accounted for 8% of the total contract value. The ‘cheapest’ procedure was electronic auction, which was usually applied to high-value contracts, in which the customer’s costs accounted for approximately 1.4% of total contract value (Table 6). This index for complex goods, works and services was nearly 1.8 times greater than that for simple ones. The reason for this was additional costs associated with the preparation of the terms of reference, the need to secure various additional approvals, and other similar actions. The difference in the costs was not compensated by a higher price of complex purchases (in 2012, the average price of a complex purchase was 735,000 rubles and that of a simple purchase was 376,000 rubles).

### Table 6

<table>
<thead>
<tr>
<th>Procedure type</th>
<th>Simple purchase</th>
<th>Complex purchase</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-source contracting</td>
<td>4.8</td>
<td>6.7</td>
<td>5.7</td>
</tr>
<tr>
<td>RFQ</td>
<td>6.7</td>
<td>10.3</td>
<td>8</td>
</tr>
<tr>
<td>Electronic auction</td>
<td>0.5</td>
<td>2.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>2.4</td>
<td>4.2</td>
<td>3.2</td>
</tr>
</tbody>
</table>
VSU’s database of purchases for 2012 comprised ‘small’ purchases valued below 100,000 rubles, as well as ‘medium-sized’ (between 100,000 and 500,000 rubles) and ‘large’ purchases valued over 500,000 rubles (see Table 7).

<table>
<thead>
<tr>
<th>Contract value of purchase, 1,000 rubles</th>
<th>Single-source contracting</th>
<th>RFQ</th>
<th>Electronic auction</th>
<th>Total</th>
<th>Average costs of purchases (% of contract value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 100</td>
<td>85</td>
<td>40</td>
<td>-</td>
<td>125</td>
<td>19.1</td>
</tr>
<tr>
<td>100–500</td>
<td>165</td>
<td>54</td>
<td>10</td>
<td>229</td>
<td>6.1</td>
</tr>
<tr>
<td>Above 500</td>
<td>10</td>
<td>-</td>
<td>36</td>
<td>46</td>
<td>1.1</td>
</tr>
<tr>
<td>Total</td>
<td>260</td>
<td>94</td>
<td>46</td>
<td>400</td>
<td>3.2</td>
</tr>
</tbody>
</table>

These figures show that ‘small-’ and ‘medium-sized’ purchases had the highest relative procurement costs. The share of average costs of purchases in total value of contract was 19.1% for small procurements, 6.1% for medium-sized procurements and 1.1% for large contracts. On average this indicator was equal to 3.2%. Therefore, one can question the efficiency of the obligatory application of formal procurement procedures for ‘small-’ and ‘medium-sized’ contracts.

As mentioned above, under 94-FL regulation the main criteria of effectiveness of procurement procedures was the reduction of state budget expenses resulted from price decrease during competitive procurement procedures. However, these effects should be compared with procurement costs of public customer and all participating suppliers. In Table 8, we compared VSU’s savings from competitive procedures and the costs carried by the University when they were implemented.

<table>
<thead>
<tr>
<th>Type of procedure</th>
<th>Savings from price reduction at auctions, 1,000s rubles</th>
<th>Average procurement costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As percentage of savings from price reduction</td>
<td></td>
</tr>
<tr>
<td>Single-source contracting</td>
<td>-</td>
<td>3,296</td>
</tr>
<tr>
<td>RFQ</td>
<td>3,700</td>
<td>1,300</td>
</tr>
<tr>
<td>Electronic auction</td>
<td>27,400</td>
<td>1,600</td>
</tr>
<tr>
<td>Total</td>
<td>31,000</td>
<td>6,200</td>
</tr>
</tbody>
</table>

The data presented here show that customer savings from competitive procedures exceed the costs associated with them. Suppliers also bear procurement costs [in particular, in the EU, according to PwC, suppliers’ costs account for 75% of the general costs of administering procurement procedures (PwC, 2011)], and these costs are nevertheless ultimately factored into the price of contracts.

7 Conclusions

In this paper the methodology proposed in the report of PwC (2011) is adapted for the Russian conditions. Using this methodology we estimate the costs for procurement
procedures for one of large Russian public customers – the VSU. Our results give the practical tool to evaluate the efficiency of particular purchasing procedures and types of purchases of VSU and carry out policy advice on the improvement of procurement processes.

We believe that the method we have designed can be applied for public customers in different countries to optimise in-house procurement procedures. At the same time, we believe that the findings obtained using this method also warrant broader conclusions about the need for changes in procurement regulation.

Using VSU data, we have demonstrated that it is possible to measure an individual public customer’s procurement costs. We have shown differences between the costs of different procurement procedures: while a single-source contracting deal in 2012 cost VSU, on average, 12,700 rubles (305 euro), conducting an electronic auction ‘cost’ 35,500 rubles (852 euro). At the same time, as a percentage of the total purchase volume, the share of costs in purchases via auctions turned out to be much lower than that in single-source contracting deals: 1.4% against 5.7%. These data are yet another form of evidence of ‘the scaling effect’, which indicates that more complex procedures are economically practical for larger purchases, while simple procedures should be used for small purchases. While in the EU, competitive procedures are mandatory for contracts valued above 125,000 euro (for construction works, this threshold is even higher), in Russia, similar requirements apply to contracts valued above 100,000 rubles (or 2,500 euro).

At a first glance, such ‘excessive regulation’ reflects that the state distrusts its employees – both those working at governmental agencies and those employed in the public sector. However, recent international studies on contract theory show that when political opposition to mass media or NGOs are likely to come up with accusations of corruption, the optimal strategy for a rational bureaucrat would be to adhere to excessively rigid rules that narrowly regulate procurement (Moszoro and Spiller, 2012; Spiller, 2013). Such ‘excessive regulation’ is economically impractical, although it exists in many countries because it allows the typical bureaucrat to exempt himself from responsibility for the final results of his actions. In essence, responsibility for the result is replaced with control over adherence to the procedures. This approach can function on different levels – by regulatory authorities and by purchasing public customers.

Further regulatory activities within this vein would require even more expenditures by public institutions on organising and administering procurement, instead of mobilising their limited resources for their core activities, such as educational or healthcare.

Our study encompasses several limitations. Firstly, we estimate procurement costs only for one large public customer (VSU) and our results do not allow to make overall conclusion at country level. Secondly, comparative analysis of our data and relevant international data (especially based on PwC report) not always is possible due to different sampling approach. For instance PwC (2011) consider only relatively large procurement contracts (with total value 125,000 euro and more regulated by EC directives) and in the case of VSU we analysed all procurements (including small purchases). Thirdly we estimated only public customer procurement cost and did not take into account procurement cost of suppliers (due to absence of relevant data). However, PwC study confirmed that suppliers should cover about 3/4 of all procurement costs. Fourthly, our methodology included a number of in-depth interviews with VSU procurement officers and other representatives of VSU management. These interviews were very useful for better understanding of procurement processes at VSU but they were quite time-
consuming. Therefore some simplification of methodology can be required for its application to the analysis of many public entities.

Thus, the following possible directions of future research could be outlined. Firstly, analysis of aggregated procurement costs at the level of region or country can be important. Secondly, in the future there is sense to focus on assessment of procurement costs for suppliers because this factor can limit incentives to participate in auctions and tenders for many firms (especially SME) and can lead to low competition in procurement system. Thirdly it can be important to analyse broader time period – because in 2014 new Law on contracting system came in force and according to some experts cost of procurement even increased under new regulation. Nevertheless we suppose that approach proposed in this paper and tested on empirical data of large Russian public customer can be applied also in other developing countries both at the level of individual organisations and authorities responsible for procurement issues in the region or sector. We hope that broader understanding and correct estimation of procurement costs will improve the efficiency of procurement system.

Acknowledgements

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References


Estimation of costs in the Russian public procurement system


Notes
1 All indicators are calculated for particular time period (for instance, a year).
3 The Russian Central Bank’s exchange rate as of January 1, 2012 was 1 euro = 41.67 rubles.
4 According to the Federal Statistics Service (Goskomstat) for 2012 (GKS, 2013).
5 The share of single-sourcing in the number of procurement contracts in 2012 was close to 65%.
6 This trend in Russia is arguably reflected in the fact that the average value of sugar contracts reached through electronic auctions in Russia in 2011 was 92,000 rubles – in other words, below the 100,000-ruble threshold required by the 94-FL for competitive procedures (Yakovlev et al., 2013). However, public customers used this relatively labour-intensive procedure on a massive scale in order to hedge themselves against possible accusations on the part of supervisory agencies.