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THE QUALITY OF SERVICES AND PUBLIC PROCUREMENT: THE CASE OF MOSCOW HOSPITALS

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Moscow, 2020



PROFILE



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Research interests: public procurement, health care, quality, public administration, economic efficiency



MOTIVATION

- **About 20% of Russia's GDP is made up of public procurement where medical procurement amounts to 53.8 billion rubles and the volume of which increases annually;**
- **The socio-economic significance of medical public procurement in Russia;**
- **Many hospitals have problems with the organization of the procurement process where more than 50% of hospitals in the Russian Federation are not able to provide quality medical care**



THE AIM OF THE RESEARCH



Are there any differences in the purchases of customers who provide services of different quality?



THE LITERATURE REVIEW

I Works evaluating the impact of customers on the trading results

Bandiera and co-authors (2009) show that the most acute problem in Italian public procurement is not the corruption problem but the problem of inefficiency of the bureaucrats who have to deal with them. **Best** and co-authors (2017) calculate that 60% of the fluctuations in the Russian procurement price within a single product are due to the customer effect. **Baldia** and **Vannonib** (2017) have concluded that in Italy the quality and the size of the savings in the medicine procurement will vary depending on the selected procurement procedure





THE LITERATURE REVIEW

II Works evaluating the relationship between corruption and public procurement

Mironov and **Zhuravskaya** (2016) show the correlation between getting money out through short-lived companies in the vicinity of elections where politicians receive rewards in exchange for contracts. **Di Tella** and **Schargrodsky** (2003) found a decrease in average prices by 10% when analyzing the impact of stricter monitoring on the procurement prices of standard medical devices for hospitals in Buenos Aires





THE LITERATURE REVIEW

III Works analyzing medical procurement

Grennan (2013, 2014), investigating the procurement of coronary stents in the United States, analyzes the process of price discrimination as a result of the auction between private hospitals and private suppliers. He also showed that the hospital's bargaining power explains up to 79% of the variation in procurement prices. **Laing** and **Lian** (2004) compare public and private procurement of medical services in the UK, showing suboptimal results of the former. **Sorenson** and **Kanavos** (2011) describe European practices of medical procurement highlighting the wide variety of procedures used by customers





THE CUSTOMER IN THE FEDERAL CONTRACT SYSTEM

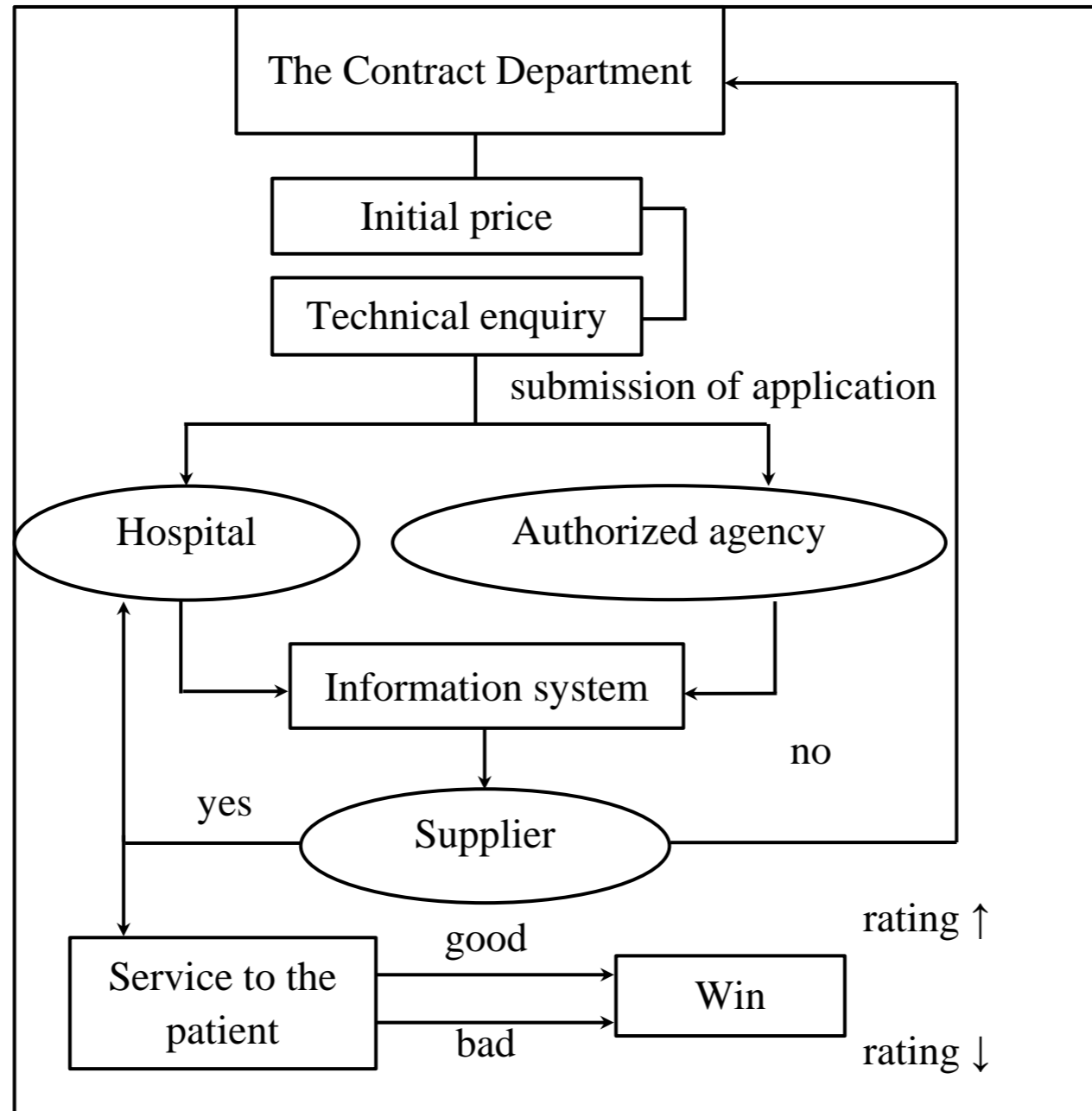


Figure.1. Interaction of the hospital customer with suppliers in the contract system



DATA DESCRIPTION

The study is based on the author's database which contains **6 439 contracts** of public procurement of **2 hospitals in Moscow for 2011-2018**, 5662 of which were established through competitive price procedures, namely electronic auctions (4795) and requests for quotations (887)



THE CHARACTERISTICS OF TWO MUNICIPAL CLINICAL HOSPITALS OF MOSCOW FOR 2018 YEAR

Indicators	Hospital A	Hospital B
Group quality rating	71 points out of 75 - category «excellent»; - the 9th place among 142 organizations of Moscow	41,7 points out of 75 - category «satisfactory»; - the 77th place among 142 organizations of Moscow
Location	Moscow	Moscow
Type of activity	86.10 - Activities of hospital organizations	86.10 - Activities of hospital organizations
Founder	Public Health Service of Moscow	Public Health Service of Moscow
Senior officials	O.V. Sharapova, chief medical officer (with 24.02.10)	G.G. Melkonyan, chief medical officer (with 20.07.2016)
Number of staff units	2 077,75	1 364,25
Number of patients in the hospital, people	57 919 (for 2016 year)	30 271 (for 2017 year)
Revenue, bill rubles	3,56	1,9
Expenses, bill rubles	3,54	2,0



PUBLIC PROCUREMENT OF TWO HOSPITALS

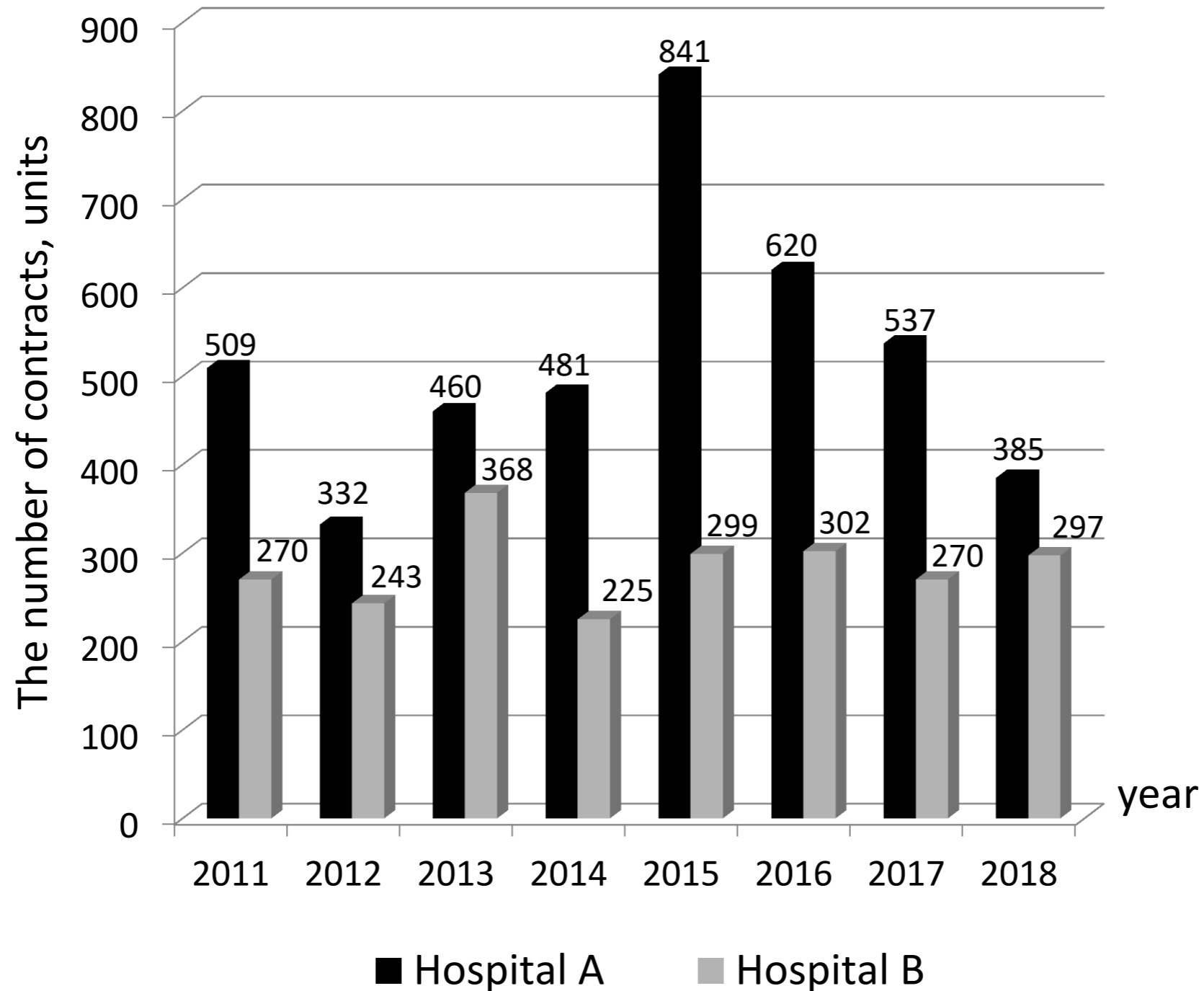


Figure.2. Total numbers of contracts concluded by customers for 2011-2018



FINANCIAL HOSPITAL PERFORMANCE

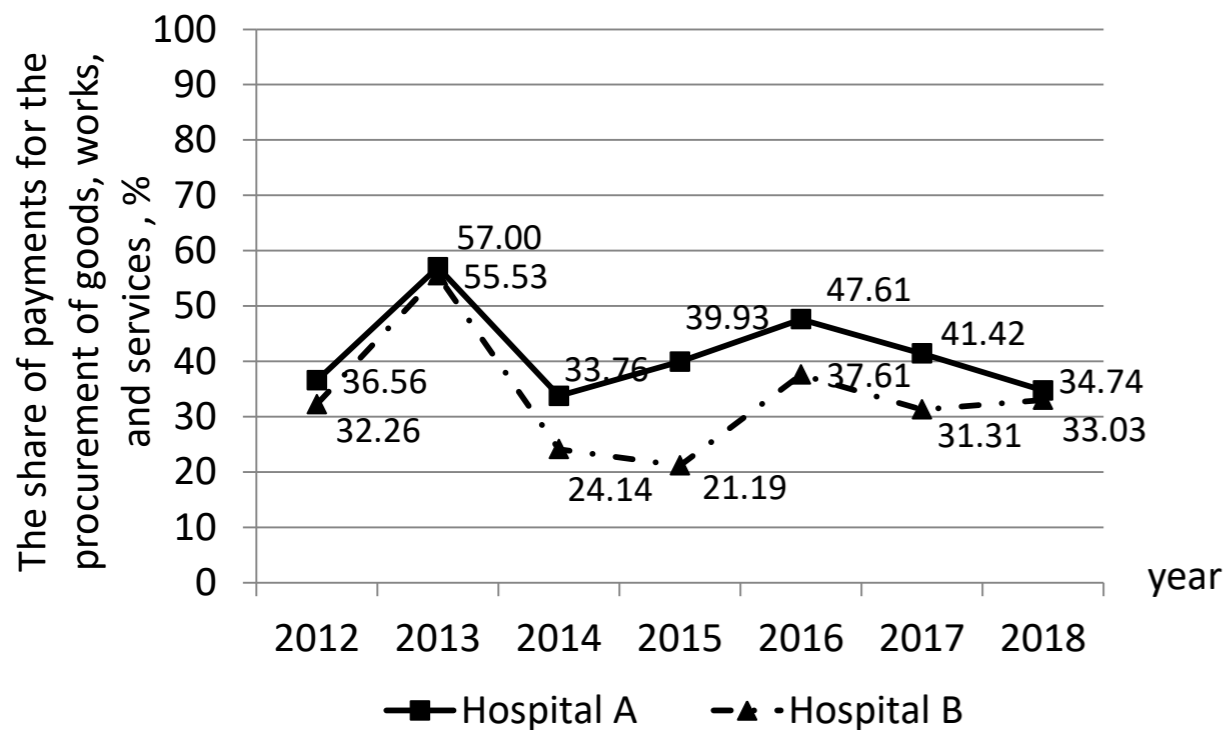


Figure.3. The share of payments for the procurement of goods, works, services of the total hospitals expenditure for 2012-2018

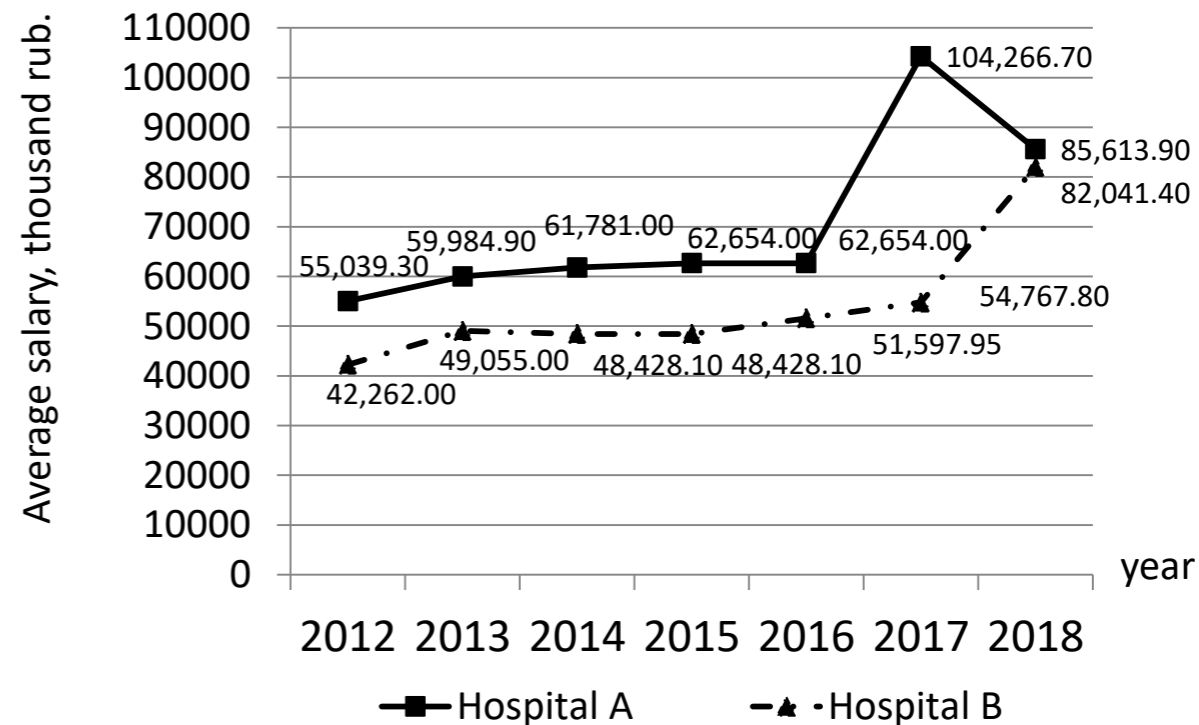


Figure.4. Average salary in hospitals for 2012-2018

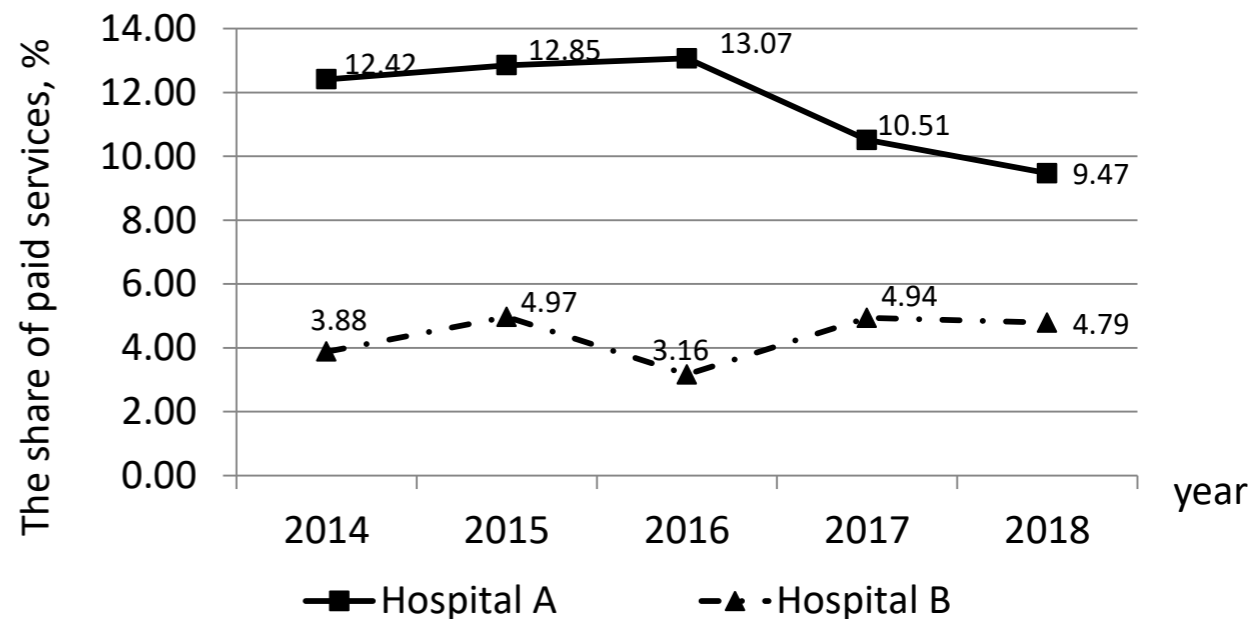


Figure.5. The share of paid services in total hospital revenue for 2012-2018



DATA OVERVIEW

Table 2 – Descriptive statistics for two documents in the context of Law 94 and Law 44 about procurement

Variables	Law 94		Law 44	
	High rating	Low rating	High rating	Low rating
Average number of procurement:				
from a single supplier	0.2843966	0.1418842	0.0314246	0.0681981
through the request for quotations	0.2605688	0.3564132	0.0003492	0.1672649
through e-auction	0.4458109	0.4846765	0.961243	0.7430007
The average number of participants in a competitive procurement				
The average number of participants in a competitive procurement	2.03382	2.244041	1.910615	1.967696
The average price reduction	0.1179284	0.1481425	0.0951367	0.1052536
Normalized delays	0.4558032	0.169126	0.0370112	0.0136396
Number of observations	1301	881	2864	1393

A customer with a high rating gives a clear preference to electronic auctions, especially after the introduction of the Law 44 in the work of the contract system. The implementation of the Law 44 had a significant impact on the performance of both hospitals, in particular hospitals were able to significantly reduce delays in deliveries.



HYPOTHESIS AND METHODOLOGY

Hypothesis: A customer who provides good quality services must ensure the timely delivery of goods and services in public procurement.



EMPIRICAL RESULTS: THE IMPACT OF THE CUSTOMER ON DELIVERY

Table 3 – OLS models. Delays in deliveries between 2011 and 2018

Variables	Delays	
	more than 14 days	more than 15% of the contract duration
The customer with a high rating	0.407***	0.380***
The same suppliers	0.026	0.027
The customer with a high rating * The same suppliers	-0.038*	-0.063**
The customer with a high rating *44-law	-0.356***	-0.308***
The customer independently conducts auctions	0.010	0.029**
Logarithm of the reserve price	0.010	-0.012
Number of contracts with the supplier	0.020*	0.036***
Drugs	0.020	0.008
Medical technique	-0.009	-0.008
Related medical products	0.026**	0.031**
Number of observations	6428	6428
* p<0.1; ** p<0.05; *** p<0.01		

The impact of the customer on delivery: For a customer with a high rating the delays are more common than for a customer with a low rating. However, within the framework of the 44-law this effect is greatly reduced, and delays are less frequent, which may be due not only to the actions of the customer, but also to the overall policy of regulating the healthcare industry, and tightening control over execution



EMPIRICAL RESULTS: THE IMPACT OF THE CUSTOMER ON THE NUMBER OF PARTICIPANTS

Table 4 – Poisson regression. The number of participants in e-auctions and requests for quotations

Variables	Number of bidders
The customer with a high rating	-0.084***
Quantity of goods in the contract	0.003***
E-auction	-0.200***
The customer independently conducts auctions	-0.065***
Logarithm of the reserve price	0.031***
Drugs	-0.133***
Medical technique	-0.212***
Related medical products	-0.139***
Number of observations	5390

* p<0.1; ** p<0.05; *** p<0.01

The impact of the customer on bidding: a customer with a high rating has lower competition at the auction



EMPIRICAL RESULTS: THE IMPACT OF THE CUSTOMER ON THE NUMBER OF PARTICIPANTS

Table 5 – OLS models. The number of participants in e-auctions and requests for quotations

Variables	Number of bidders		
	fullselect	Law 94	Law 44
The customer with a high rating	0.009	0.095***	-0.031
E-auction	-0.103***	-0.176***	-0.091**
The customer independently conducts auctions	0.042**	-0.065*	0.103***
Drugs	-0.050**	0.135***	-0.180***
Medical technique	-0.098***	-0.045**	-0.105***
Related medical products	-0.154***	-0.082***	-0.201***
Number of observations	4054	1459	2595
* p<0.1; ** p<0.05; *** p<0.01			

The impact of the customer on bidding: the customer effect was present only within the framework of the Law 94 and was positive. This means that hospital A attracted more bids than hospital B. Within the framework of the Law 44 the dependence changes – the coefficient becomes negative, but insignificant. This can be explained by the fact that a number of purchases are carried out by the authorized agency which also affects the number of participants in the auction



EMPIRICAL RESULTS: THE IMPACT OF THE CUSTOMER ON REBATE

Table 6 – OLS models. Rebate in e-auctions and requests for quotations

Variables	Rebate at auction		
	fullselect	Law 94	Law 44
The customer with a high rating	-0.028	0.000	-0.001
E-auction	0.107***	0.170***	-0.041
The customer independently conducts auctions	0.038*	-0.157***	0.128***
Drugs	-0.019	0.032	-0.078***
Medical technique	-0.123***	-0.113***	-0.105***
Related medical products	-0.201***	-0.113***	-0.228***
Number of observations	4054	1459	2595
* p<0.1; ** p<0.05; *** p<0.01			

The impact of the customer on the rebate: As we noted above this effect is mediated and the coefficient for hospital A is insignificant. Independent bidding has a significant impact on the result and the effect is very different during the period of different laws: within the framework of Law 94 the rebate is reduced and within Law 44 it is growing. The customer effect is present, but it is the same for both types of customers



CONCLUSIONS

Empirically assessing the impact of customers with a high and a low quality of services on the results of auctions, we get that our results of comparing the organization of public procurement by hospitals are unambiguous. It is noted that in different periods of time customers follow different strategies, and are strongly influenced by external factors. In the period closest to the date of the first quality assessment, the customer with a higher rating attracted fewer participants to the auction, but there is no significant difference in the delays of contracts execution for the two customers



SUPPLEMENT TO THE STUDY

In the future, we plan to use the financial indicators of hospitals such as the average salary and the share of paid services instead of the quality rating, and take into account the status of hospitals: federal, regional or municipal. The hypothesis will be tested on an extended database containing public procurement of all hospitals in Moscow and Moscow region in 2011-2019

Thank you for your attention!



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