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Index of Rationality

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1. GOALS AND METHODOLOGY

Centre for Civic Communications from Skopje is the only non-governmental organization in the Republic of Macedonia that implements direct and comprehensive monitoring of public procurements in the country. In an attempt to make additional contribution to advancing state-of-affairs in this field, the Centre initiated development of so-called Index of Rationality in public spending. It aims to introduce a new instrument that will be used to assess effectiveness of public spending, to identify bottlenecks in the system and, ultimately, to contribute to institutions' cost-effective spending of budgets sustained by taxpayers.

Index of Rationality is developed by comparing prices under which different institutions have purchased same goods, services or works. In addition to enabling comparison of prices, analysis of same types of products, services or works allows identification of different patterns of behaviour on the part of state institutions when implementing same type of procurements.

The Index is envisaged to serve state institutions as an indicator against which they will improve rationality in public procurements, i.e. public spending. Given that the index-included prices are the average value of those paid by institutions and do not imply actual or market prices, state institutions should, whenever possible, pursue attainment of lowest prices and spend public funds in a more rational manner, moreover knowing that other institutions have attained more favourable prices on the market of public procurements.

Differences in price paid by institutions for same type of products and services indicate the need for thorough market research prior to tender announcement and harmonized approach on the part of contracting authorities when procuring same type of products.

The sample used to develop this Index includes all contracting authorities on national and local level, from line ministries and municipalities, public enterprises and agencies, to schools and kindergartens.

Development of the Index of Rationality relies on primary and secondary data sources.

Primary data collection is pursued by means of:

- attendance at public opening of bids submitted by economic operators in specific public procurement procedures, in order to obtain data on prices bided; and
- direct contacts with contracting authorities, in order to obtain data on the selection of the most favourable bid.

These activities enabled direct sources of data on prices under which given products, services or works have been procured.

Secondary data sources include:

- the Electronic Public Procurement System (EPPS); and
- Freedom of Information (FOI) applications.

It should be noted that the Index of Rationality will disclose contracting authorities monitored, but not companies with which contracts have been signed (although data thereof is available), due to the fact that responsibility for rational public spending primarily lies with contracting authorities.

The methodology applied to develop Index of Rationality issues 1 to 11 relied on calculating differences in price paid by individual institutions compared against the average price. Starting with the Index of Rationality no. 12, differences in price attained by individual institutions are expressed as percentage of deviation against the average price calculated. It has been assessed that the new method of computing provides clearer and more precise representation of differences in price for goods and services included in the respective index.

2. INDEX OF RATIONALITY

Index of Rationality no. 13 is developed for a new group of goods and services, as follows:

- **aerial mosquito disinsection;**
- **electronic time and attendance log system;**
- **waste containers;**
- **collection, transport and disposal of medical waste; and**
- **chicken steak.**

Development of this Index of Rationality includes national and local institutions that have organized public procurements for these types of goods or services in the course of 2013, 2014 and 2015.

Initially, the Index of Rationality targeted 67 tender procedures implemented by institutions on national and local level. However, due to objective and subjective reasons, analysed in details below, the Index relies only on data related to prices for goods and services attained in 42 tender procedures organized by 40 contracting authorities.

2.1 Index of Rationality for Aerial Mosquito Disinsection

Prices at which different institutions paid services related to aerial mosquito disinsection range from 176 MKD to 606 MKD per 1 hectare. The ratio between the lowest and the highest price is 1:3.44, which means that the Ministry of Transport and Communications, which organized a tender procedure for aerial mosquito disinsection services on behalf of six municipalities (Ohrid, Dojran, Resen, Ceginovo-Oblesevo, Krusevo and Berovo) paid a price that is by 244% higher than the price paid by the City of Skopje. Such great differences in price can only be partially justified with the area covered by the said service. The City of Skopje sprayed its area of five thousand hectares on five individual occasions, which means that it procured this service for a total area of 75,000 hectares, whereas the Ministry of Transport and Communications anticipated one to two rounds of spraying in the said six municipalities, for a total area of 11.300 hectares to be covered with disinsection services.

All tender procedures organized for this type of service were characterized by non-existing competition, because relevant contracting authorities were presented with only one bid each. In that, as many as five from total of seven contracts included in this Index have been signed with one and the same company.

Index of Rationality for aerial mosquito spraying

(price for aerial mosquito adulticiding per 1 hectare)

Contracting authority	Price in MKD (VAT included)	Difference against the average price
City of Skopje	176	-135.80%
Municipality of Caska	335	-23.88%
Municipality of Vinica	413	-0.48%
Average*	415	0.00%
Municipality of Kratovo	448	+7.37%
Municipality of Gevgelija	457	+9.19%
Municipality of Kriva Palanka	472	+12.08%
Ministry of Transport and Communications	606 ¹	+31.52%

* Average is calculated from prices paid by individual institutions included in this Index of Rationality.

¹ Price paid by the Ministry of Transport and Communications for aerial mosquito disinsection is the weighted average of six different prices paid for six different municipalities (Ohrid, Dojran, Resen, Ceginovo-Oblesevo, Krusevo and Berovo) which ranged from 531 MKD to 636 MKD per 1 hectare.

Development of the Index of Rationality targeted all 15 procurement procedures for mosquito disinsection organized in the period April 2014 – April 2015. It is a matter of tender procedures for procurement of terrestrial and aerial disinsection, as well as mosquito larviciding and adulticiding. However, the methodology-defined requirement of minimum five tender procedures for comparison of prices was not secured in relation to terrestrial mosquito disinsection. Among the total of seven contracting authorities that have procured terrestrial disinsection services, some conducted mosquito larviciding, while others conducted mosquito adulticiding. Therefore, the present Index is developed only for aerial disinsection, i.e. aerial mosquito adulticiding, which was the most frequently procured type of services. In spite of its legal obligation, the Municipality of Kumanovo did not disclose requested information and therefore the Index of Rationality was developed on the basis of prices paid by seven contracting authorities.

As shown in the table above, three contracting authorities paid prices that are by 0.48% to 135.8% lower than the average price, while four institutions paid prices that are by 7.37% to 31.52% higher than the average price calculated.

In terms of the type of procurement procedure organized, the City of Skopje and the Ministry of Transport and Communications organized open tender procedures, while other Index-included municipalities organized bid-collection procedures. Both types of procurement procedures imply an equal level of transparency. All contracting authorities used “lowest price” as the selection criterion. In all tender procedures only one company submitted its bid. Having in mind that all procedures anticipated organization of e-auctions, which did not take place due to the fact that there was one bid per tender procedure, in all cases the bidding company was asked to reduce its final price. However, such reduction of prices took place only in the case of the City of Skopje, where the final price had been reduced in the range of the procurement’s estimated value. In all other tender procedures, the only bidding company had refused to reduce its initial price. Under circumstances of non-existing competition, planned e-auctions could unfavourably affect prices bided, due to the unwritten rule whereby companies, in anticipation of e-auctions, offer higher prices at the public opening of bids, in expectation of the downward bidding, i.e. in expectation that prices will be reduced during the e-auction.

In terms of “quantity” of services procured, the table below provides an overview of areas covered by the said service. Calculation of total quantity is pursued by multiplying the size of the area to be covered by the service with the number of disinsection sprayings anticipated in the contract. The highest number of mosquito sprayings, i.e. five, was anticipated by the City of Skopje. Municipality of Vinica anticipated two rounds of mosquito sprayings, one to three rounds of sprayings were anticipated by municipalities on whose behalf the Ministry of Transport and Communications procured the service needed, while the service contract signed by municipalities Caska, Kratovo, Gevgelija and Kriva Palanka anticipated only one round of mosquito sprayings.

Area covered by aerial mosquito disinsection

Contracting authority	Hectares	Difference against the average price
City of Skopje	75,000 ²	-135.80%
Municipality of Caska	360	-23.88%
Municipality of Vinica	2000 ³	-0.48%
Municipality of Kratovo	300	+7.37%
Municipality of Gevgelija	1000	+9.19%
Municipality of Kriva Palanka	330	+12.08%
Ministry of Transport and Communications	11,300 ⁴	+31.52%

As shown in the table above, the lowest price was attained by the City of Skopje, which in fact signed the contract with the highest quantity. However, this economic logic was not applied in the case of the Ministry of Transport and Communications, which paid a significantly higher price compared to municipalities whose service areas were significantly smaller, for example the Municipality of Caska. Moreover, unclear is the legal basis for the Ministry of Transport and Communications to procure this service on behalf of six municipalities (Ohrid, Dojran, Resen, Cusinovo-

² For an area of 5,000 hectares, the City of Skopje anticipated 5 rounds of aerial spraying.

³ For an area of 1,000 hectares, the Municipality of Vinica conducted two rounds of aerial spraying.

⁴ Ministry of Transport and Communications anticipated 3 rounds of aerial spraying for the Municipality of Ohrid covering an area of 1,500 hectares, 3 rounds of aerial spraying for Dojran covering an area of 1,000 hectares, 2 rounds of aerial spraying for Cusinovo-Oblesevo covering an area of 900 hectares, and one round of aerial spraying for Krusevo (750 hectares) and for Berovo (850 hectares).

Oblesevo, Krusevo and Berovo), as well as the reason for selecting exactly these six municipalities.

2.2 Index of Rationality for Electronic Time and Attendance Log System

This Index of Rationality concerns procurement of electronic time and attendance log systems which, according to the Law on Labour Relations, must be installed by all employers (legal entities) with more than 25 employees.

The Index shows that electronic log systems were purchased at prices ranging from 43,200 MKD to 160,000 MKD. The ratio between the lowest and the highest price is 1:3.7, which means that PHI Special Hospital for Pulmonary Diseases and Tuberculosis "Jasenovo" in Veles purchased the log system at a price that is by 270% higher than the price paid by JSC on Management of Business Property in State Ownership. Differences in price can be directly correlated to the level of competition in the tender procedure. Namely, the highest number of bidding companies (four) was noted in tender procedures that attained the lowest prices. In contrast, the tender procedure that attained the highest price was characterized by only one bid submitted, thus preventing conditions for organization of e-auction aimed to reduce initially bided prices.

Index of Rationality for electronic time and attendance log system (price per log system)

Contracting authority	Price in MKD (VAT excluded)⁵	Difference against the average price
JSC on Management of Business Property in State Ownership	43,200	-84.03%
Basic Court - Kumanovo	44,000	-80.69%
PE "City Parking" – Skopje	49,600	-60.29%
State Students' Dormitory "Mirka Ginova" – Bitola	73,600	-8.02%
Average*	79,503	0.00%
Centre for Vocational Education and Training - Skopje	82,080	+3.14%
Secondary School "Marie Curie Skłodowska" – Skopje	104,044	+23.59%
PHI Special Hospital for Pulmonary Diseases and Tuberculosis "Jasenovo" – Veles	160,000	+50.31%

* Average is calculated from prices paid by individual institutions included in this Index of Rationality.

Development of the index for electronic time and attendance log systems targeted 14 contracting authorities whose procurement notices were published in the

⁵ Prices are given without VAT due to the fact that electronic time and attendance log systems are comprised of several components (software, hardware, installation, etc.) that imply different tax rates (5% and 8%) thus preventing unification of data obtained. Most contracting authorities provided price data without VAT, and did not specify the structure of system elements in order to pursue precise calculation of the value added tax.

Electronic Public Procurement System (EPPS) in the period January 2014 - April 2015. However, due to established differences in terms of price data disclosed, the Index was developed by comparing prices attained in 7 tender procedures. PE "Green Markets" – Bitola, PHI Health Care Centre – Kavadarci, Basic Court – Debar, Secondary School "Naum Naumovski Borce" – Probistip and PE "Komunalec" – Kicevo purchased electronic time and attendance log systems for lower number of employees. The present index includes only prices paid by institutions with more than 100 employees, as well as institutions that, despite having lower number of employees, purchased electronic time and attendance log systems that accommodate higher number of employees, as established from their relevant tender documents. The Index does not include the Ministry of Environment and Spatial Planning and PHI Special Hospital for Orthopaedics and Traumatology "St. Erasmus" – Ohrid. Notably, relevant tender procedures organized by these two institutions implied procurement of several electronic time and attendance log systems, but only one software. Due to these reasons, it was considered that a simple arithmetic division of procurement's total value would not result in the actual individual price attained per electronic log system.

As shown in the table above, four institutions purchased the electronic time and attendance log systems at prices that are by 8.02% to 84.03% lower than the average price, while three institutions attained prices that are by 3.14% to 50.31% higher than the average price calculated.

Such great differences in price observed in the case of electronic time and attendance log systems, whose procurement is law-mandated and which should include same features, i.e. standardized performance, are not result of the type of procurement procedure organized. All institutions organized same type of procurement procedures, i.e. bid-collection procedures, with "lowest price" defined as the selection criterion. However, differences were noted in terms of the manner in which public procurement procedures had been implemented. In general, competition in tender procedures for procurement of electronic time and attendance log systems was also relatively low. Satisfactory number of bidders was observed only in tender procedures implemented by JSC on Management of Business Property in State Ownership and Basic Court – Kumanovo, i.e. four bidding companies per

tender procedure. Two bidding companies competed for the procurement contract in the tender procedure organized by the Centre for Vocational Education and Training - Skopje, while the remaining tender procedures received only one bid each.

Quantity of electronic time and attendance log systems purchased

Contracting authority	Quantity of systems purchased	Difference against the average price
JSC on Management of Business Property in State Ownership	2	-84.03%
Basic Court - Kumanovo	1	-80.69%
PE "City Parking" – Skopje	5	-60.29%
State Students' Dormitory "Mirka Ginova" – Bitola	1	-8.02%
Centre for Vocational Education and Training - Skopje	1	+3.14%
Secondary School "Marie Curie Skłodowska" – Skopje	1	+23.59%
PHI Special Hospital for Pulmonary Diseases and Tuberculosis "Jasenovo" – Veles	1	+50.31%

In terms of quantity purchased, with the exception of two institutions, all other contracting authorities purchased one system each. Only PE "City Parking" – Skopje purchased five log systems, while JSC on Management of Business Property in State Ownership purchased two electronic time and attendance log systems.

2.3 Index of Rationality for Waste Containers

Prices paid by municipalities and local utility companies for metal waste containers of 1.1 m³ range from 12,383 MKD to 18,502 MKD. The ratio between the lowest and the highest price is 1:1.49, which means that the price attained by PUE "Komunalec – Gevgelija is by 49% higher than the price paid by PUE "Komunalec" – Sveti Nikole. Such differences in price are not a result of the type of procurement procedure organized, in particular because all procurement procedures implied high level of competition, i.e. three to six bidding companies. Differences are not a result of the quantity purchased, because PE "Ohridski Komunalec" purchased the highest quantity, i.e. 100 waste containers, but attained a price that is within the range of above-average prices.

Index of Rationality for waste containers (price per metal container of 1.1 m³)

Contracting authority	Price in MKD (VAT included)	Difference against the average price
PUE "Komunalec" – Sveti Nikole	12,383	-34.77%
Municipality of Bogdanci	15,573	-7.16%
Municipality of Gevgelija	15,966	-4.52%
Average*	16,688	0.00%
PE "Komunalec" – Kriva Palanka	17,618	+5.28%
PE "Ohridski Komunalec" – Ohid	17,641	+5.40%
PUE "Komunalec" – Strumica	17,700	+5.72%
PUE "Ilinden" – Ilinden	18,119	+7.90%
PUE "Komunalec" – Gevgelija	18,502	+9.80%

*Average is calculated from prices paid by individual institutions included in this Index of Rationality.

Development of this Index targeted all 15 contracting authorities that organized procurement procedures for this type of goods in the period April 2013 - April 2015. However, the Index analyses prices attained by 8 institutions that purchased metal containers with dimensions of 1.1 m³. PE "Komunalna higijena" – Skopje, PUE "Nikola Karev" – Probistip and Municipality of Struga reported that they have purchased only plastic containers, while PE "Komunalec" – Negotino, PE "Komunalec" – Kavadarci

and PE "Isar" – Stip did not respond to FOI applications submitted, although they are obliged by law to disclose requested information.

As shown in the table above, the average price for procurement of containers is 16,688 MKD. Three institutions purchased such containers at prices that are by 4.52% to 34.77% lower than the average price, while five institutions paid a price that is by 5.28% to 9.80% higher than the average price calculated. All contracting authorities organized transparent public procurement procedures. With the exception of public utility enterprises from Ohrid and Strumica, which organized open procedures, other contracting authorities organized bid-collection procedures. All contracting authorities used the selection criterion defined as "lowest price". All tender procedures were marked by high level of competition, which allowed organization of planned e-auctions. Therefore, reasons behind differences in price observed under this Index cannot be attributed to the manner in which procurement procedures were implemented. Analysis of tender procedures provided the conclusion that there is no straightforward economic logic in prices attained under different procurement procedures also in terms of the quantity purchased.

Quantity of purchased containers

Contracting authority	Number of containers purchased	Difference against the average price
PUE "Komunalec" – Sveti Nikole	20	-34.77%
Municipality of Bogdanci	15	-7.16%
Municipality of Gevgelija	40	-4.52%
PE "Komunalec" – Kriva Palanka	5	+5.28%
PE "Ohridski Komunalec" – Ohid	100	+5.40%
PUE "Komunalec" – Strumica	20	+5.72%
PUE "Ilinden" – Ilinden	20	+7.90%
PUE "Komunalec" – Gevgelija	19	+9.80%

As shown in the table above, PE "Ohridski Komunalec" purchased the highest quantity, i.e. 100 waste containers, but the price it attained was by 5.40% higher compared to above-average prices, and by 42,46% higher than the lowest price.

2.4 Index of Rationality for Collection, Transport and Disposal of Medical Waste

Prices paid by health institutions for procurement of services defined as collection, transport and disposal of medical waste range from 41 MKD to 95 MKD per kilogram. The ratio between the lowest and the highest price is 1:2.32, which means that the price attained by the General Hospital in Kicevo is by 132% higher than the price paid by the General Hospital in Strumica. As was the case with procurement of aerial mosquito disinsection services, analysis shows that one bidding company has dominant position in this market section. Namely, as many as 10 from total of 12 procurement contracts for collection, transport and disposal of medical waste were signed with one and the same company. In addition, having in mind the competition level in tender procedures and the fact that it facilitated conditions for organization of e-auction in all tender procedures, with the exception of the tender procedure organized by PHI Institute for Prevention, Treatment and Rehabilitation of Cardiovascular Diseases – Ohrid, unclear is the reason behind different prices offered by the same bidding company with dominant position.

Index of Rationality for collection, transport and disposal of medical waste
(price per one kilogram of medical waste)

Contracting authority	Price in MKD (VAT included)	Difference against the average price
PHI General Hospital - Strumica	41	-58.54%
PHI Health Care Centre - Gevgelija	41	-58.54%
PHI General Hospital - Gevgelija	42	-54.76%
PHI Health Care Centre - Negotino	51	-27.45%
PHI Special Hospital for Pulmonary Diseases and Tuberculosis – Lesok	58	-12.07%
Average*	65	0.00%
PHI General Hospital - Kocani	70	+7.14%
PHI Institute for Prevention, Treatment and Rehabilitation of Cardiovascular Diseases - Ohrid	71	+8.45%
PHI General Hospital - Kavadarci	73	+10.96%
PHI Health Care Centre - Kavadarci	74	+12.16%
PHI Health Care Centre - Struga	83	+21.68%
PHI Health Centre - Bitola	83	+21.68%
PHI General Hospital - Kicevo	95	+31.58%

*Average is calculated from prices paid by individual institutions included in this Index of Rationality

Development of this Index targeted 13 contracting authorities that organized procurement procedures for this service in the period January – April 2015. However, this Index of Rationality was developed only on the basis of prices attained by 12 health institutions, because PHI Special Hospital for Orthopaedics and Traumatology “St. Erasmus” – Ohrid did not disclose the requested information.

As shown in the table above, the average price paid by health institutions for collection, transport and disposal of medical waste is 65 MKD per kilogram. Four health institutions purchased this service at prices that are by 12.07% to 58.54% lower than the average price, while seven institutions attained prices that are by 7.14% to 31.58% higher than the average price calculated.

In terms of the type of procurement procedures organized, all institutions organized bid-collection procedures, with the exception of the General Hospital in Strumica, which organized an open procedure. All contracting authorities used the selection criterion defined as “lowest price”. All procedures were marked by high level of competition, thus securing conditions for organization of e-auction in all tender procedures implemented, except for the tender procedure implemented by PHI Institute for Prevention, Treatment and Rehabilitation of Cardiovascular Diseases – Ohrid, which received only one acceptable bid.

In that, such differences in price attained have no straightforward economic logic, in particular knowing that procurement contracts for this service were predominantly signed with one and the same company, under prices that range from 41 MKD to 95 MKD per kilogram.

One possible explanation for such differences can be sought in the quantity of medical waste indicated in the procurement contract, starting from the logic that higher scope of work should have resulted in lower prices. However, the analysis indicates that differences in price are not a result of the quantity purchased. Namely, despite the fact that PHI General Hospital - Strumica and PHI Health Care Centre - Gevgelija attained the lowest prices, these two institutions demonstrate significant difference in terms of quantity of medical waste subject to being collected, transported and disposed. Moreover, there is no logic for PHI Health Care Centre – Gevgelija to have attained a price that is by 132% lower than the price attained by PHI General Hospital – Kicevo, for a quantity that is only 25% higher.

Quantity of medical waste to be disposed of

Contracting authority	Kilograms	Difference against the average price
PHI General Hospital - Strumica	12,400	-58.54%
PHI Health Care Centre - Gevgelija	1,000	-58.54%
PHI General Hospital - Gevgelija	1,800	-54.76%
PHI Health Care Centre - Negotino	1,200	-27.45%
PHI Special Hospital for Pulmonary Diseases and Tuberculosis – Lesok	1,200	-12.07%
PHI General Hospital - Kocani	3,600	+7.14%
PHI Institute for Prevention, Treatment and Rehabilitation of Cardiovascular Diseases - Ohrid	7,100	+8.45%
PHI General Hospital - Kavadarci	3,600	+10.96%
PHI Health Care Centre - Kavadarci	400	+12.16%
PHI Health Care Centre - Struga	800	+21.67%
PHI Health Care Centre - Bitola	2,500	+21.67%
PHI General Hospital - Kicevo	750	+31.58%

At the same time, as shown in the table above, PHI General Hospital - Kavadarci signed a contract with the lowest quantity, but the price it attained was almost by one third lower than the highest price.

2.5 Index of Rationality for Chicken Steak

Prices paid by different institutions for procurement of one kilogram chicken steak range from 172 MKD to 315 MKD. The ratio between the lowest and the highest price is 1:1.83, which means that Kindergarten "Raspeana Mladost" Karpos - Skopje purchased chicken steaks at a price that is by 83% higher than the price attained by the State Students' Dormitory "Mirka Ginova" in Bitola.

Highest prices for procurement of chicken steak were attained in tender procedures with only one bid submitted.

Index of Rationality for chicken steak (fillet) *(price per one kilogram of chicken steak)*

Contracting authority	Price in MKD (VAT included)	Difference against the average price
State Students' Dormitory "Mirka Ginova" – Bitola	172	-41.86%
Municipal Students' Dormitory "Branko Stanoevik" – Gostivar	200	-22.00%
State Students' Dormitory "Braka Miladinovci" – Stip	225	-8.44%
State Secondary School "Iskra" – Stip	233	-4.72%
Average*	244	0.00%
Office for General and Common Affairs of the Government of the Republic of Macedonia	258	+5.43%
Kindergarten "Orce Nikolov" Karpos – Skopje	260	+6.15%
Kindergarten "Majski Cvet" Karpos – Skopje	290	+15.86%
Kindergarten "Raspeana Mladost" Karpos – Skopje	315	+22.54%

*Average is calculated from prices paid by individual institutions included in this Index of Rationality

Initially, development of this Index targeted 10 contracting authorities that have announced their procurement notices in the period January – April 2015.

However, the Index is based on price data provided by 8 contracting authorities, as the State Students' Dormitory "Zdravko Cvetkovski" – Skopje responded that its procurement of meat products had not included chicken steak, while the State Students' Dormitory "Krste P. Misirkov" – Kavadarci did not respond to FOI applications submitted.

As shown in the table above, the average price for one kilogram of chicken steak is 244 MKD, which is within the range of retail prices and completely illogical, having in mind the quantity purchased, as well as the lower costs for companies in cases of wholesale. In that, four contracting authorities paid prices that are by 4.72% to 41.86% lower than the average, while four contracting authorities attained prices that are by 5.43% to 22.54% higher than the average price calculated.

Differences in price cannot be justified with the type of procurement procedures organized or the quantity purchased. Namely, all institutions included in the Index, purchased the chicken steak as part of their tender procedures for procurement of meat products. Three contracting authorities, those being State Students' Dormitory "Mirka Ginova" – Bitola, Office for General and Common Affairs of the Government, Kindergarten "Majski Cvet" Karpos – Skopje, organized open procedures, i.e. their procurements were of higher value. All remaining institutions organized bid-collection procedures for procurement of chicken meat. Criterion for selection of the most favourable bid was defined as "lowest price". Nevertheless, although all tender procedures implied same terms and conditions, differences in price occurred in the course of their implementation. Namely, unlike the tender procedure implemented by the Students' Dormitory "Mirka Ginova" – Bitola, where five bidding companies submitted their bids and e-auction was organized for the purpose of reducing initially bided prices, only one bid each was received in procedures organized by all kindergartens in Karpos, resulting in non-existing conditions for organization of e-auctions and attainment of prices within the high range. Undoubtedly, this is another proof of negative effects related to anticipation and planning e-auctions under conditions when there is no competition in tender procedures.

Differences in price cannot be directly correlated with the quantity purchased. As shown in the table below, it seems that the Office for General and Common Affairs of the Government, which purchased the highest quantity, actually attained a price that is significantly higher than the average. At the same time, evidence in support of the fact that the quantity purchased does not affect prices attained is found in information that Secondary School "Iskra" – Stip and Kindergarten "Raspeana Mladost" Karpos – Skopje have purchased the same quantity of chicken meat, but at prices that differ by 35%.

Quantity of purchased chicken steak

Contracting authority	Quantity purchased (kg)	Difference against the average price
State Students' Dormitory "Mirka Ginova" – Bitola	1,500	-41.86%
Municipal Students' Dormitory "Branko Stanoevik" – Gostivar	310	-22.00%
State Students' Dormitory "Braka Miladinovci" – Stip	500	-8.44%
State Secondary School "Iskra" – Stip	150	+4.72%
Office for General and Common Affairs of the Government of the Republic of Macedonia	2,000	+5.43%
Kindergarten "Orce Nikolov" Karpos – Skopje	300	+6.15%
Kindergarten "Majski Cvet" Karpos – Skopje	300	+15.86%
Kindergarten "Raspeana Mladost" Karpos – Skopje	150	+22.54%

4. GENERAL CONCLUSION

This Index of Rationality, developed for a new group of goods (electronic time and attendance log system, waste containers and chicken steak) and services (aerial mosquito disinsection and collection, transport and disposal of medical waste), reveals major differences in price attained by institutions for same type of goods/services.

The biggest difference in price was observed in procurement of electronic time and attendance log systems, while the smallest difference was noted in procurement of waste containers.

In summary, the Index of Rationality provides the following conclusions:

- **aerial mosquito disinsection** was priced in the range from 176 MKD to 606 MKD per hectare, where the highest price is by 244% higher than the lowest price;
- **electronic time and attendance log systems** were purchases at prices ranging from 43,200 MKD to 160,000 MKD per system, where the highest price is by 270% higher than the lowest price;
- **waste containers** (metal 1.1 m³) were purchases at prices ranging from 12,383 MKD to 18,502 MKD, which means that the highest price is by 49% higher than the lowest price;
- **collection, transport and disposal of medical waste** was priced in the range from 41 MKD to 95 MKD per kilogram, with the highest price being by 132% higher than the lowest price; and
- **chicken steak** was purchased at prices ranging from 172 MKD to 315 MKD per kilogram, which means that the highest price is by 83% higher than the lowest price.

Data analysis for the purpose of this Index of Rationality and the said group of goods and services shows two rather serious issues affecting the public procurement system in the country. The first issue concerns dominant position of particular companies in tender procedures organized for given goods or services, while the second concerns negative effects of planning e-auctions under conditions when there is no competition in tender procedures.

Unfavourable dominant position of particular companies was observed in procurements organized for three from total of five goods or services targeted under this Index of Rationality, those being: aerial mosquito disinsection; collection, transport and disposal of medical waste; and chicken steak.

All tender procedures organized for procurement of services related to aerial mosquito disinsection were characterized by only one bid submitted, while the services in question are offered only by two companies, which did not compete against each other. In that, five from total of seven contracts for aerial mosquito disinsection were signed with one and the same company.

Furthermore, although characterized by satisfactory level of competition, as many as 10 from total of 12 procurement contracts signed for collection, transport and disposal of medical waste and included in the Index were signed with one and the same company.

As regards procurement of chicken steak, again monitoring activities identified dominant position of one company in tender procedures organized by the three kindergartens in Karpos and targeted by this Index of Rationality. As part of their respective tender procedures, all kindergartens were presented with one bid each, submitted by the same bidding company with whom they all signed the procurement contracts. In that, prices paid by these kindergartens were actually the highest prices included in this Index, which gives rise to the second issue listed above - negative effects of anticipating e-auctions under conditions when there is no competition in tender procedures. More specifically, the fact that only one bidding company participated in all three procurement procedures for chicken meat implied the risk of bidding higher prices in expectation of their reduction at the planned e-auction. This assumption was mirrored in prices for chicken steak attained by the three kindergartens in Karpos, which are the highest prices paid compared to other institutions.

In addition to tender procedures for procurement of chicken steak, the problem related to non-organization of e-auctions for the purpose of reducing initially bided prices was also observed in other public procurement procedures included in the respective indices of rationality developed for procurement of aerial mosquito disinsection and electronic time and attendance log systems.

The section on general conclusions from this Index of Rationality notes another issue emerging from the analysis of procurement of services related to aerial mosquito disinsection. In particular, it was established that the Ministry of Transport and Communications had purchased these services on behalf of six municipalities (Ohrid, Dojran, Resen, Cusinovo-Oblesevo, Krusevo and Berovo). Moreover, the legal basis for the Ministry of Transport and Communications to procure this service on behalf of six municipalities remains unclear, as well as the method applied to select these particular municipalities.

Given the above-listed issues and problems, there is an undeniable need for greater involvement of competent institutions (Bureau of Public Procurements, State Commission on Prevention of Corruption and Commission for Protection of Competition) with the view to improve state-of-affairs in the field of public procurements. Bureau of Public Procurements should make efforts aimed at detailed reconsideration of effects triggered by mandatory organization of e-auctions, and aimed at defining under which conditions and types of procurement procedures organization of e-auctions would yield results, including cases in which such obligation for contracting authorities might instigate irrational public spending. Based on such reconsiderations and findings, the Bureau of Public Procurements should initiate amendments to the Law on Public Procurements for abandoning the concept of mandatory e-auctions in all tender procedures. Pursuant to its jurisdiction, the State Commission for Prevention of Corruption should initiate further reconsideration of data presented in all issues of the Index of Rationality, thus possible establishing grounds for corruption. Commission for Protection of Competition should also be engaged in this field, for the purpose of examining the possibility for bid-rigging agreements among suppliers participating in tender procedures.