

EVALUATION OF TENDERED PRICES OF NATURAL MINERAL WATER, JUICE AND NON-ALCOHOLIC BEER (PUBLIC PROCUREMENT RESEARCH)

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Abstract

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The purpose of this paper is to evaluate tender prices of chosen beverages according to public procurement based on secondary data analysis. The empirical results of analysis (t-test and F-test) show that average annual prices of these beverages are different and collected data are not included in the same sample. Tender prices are different in each year of observed years, although are based on public tender. Important evidence is that for the public tenders in the abroad is obligatory use of the Czech public procurement law. According to this act the base evaluation criterion is the lowest offered price. Data were collected during the years 2005–2009. This study deals with empirical approach, variability of prices of chosen beverages based on public tenders between the Czech Republic (Ministry of Defence) and local suppliers in Kosovo. Results show low variability of prices, which are based on public tender and legal approach, regulated public procurement. The research conclusion is the fact, that tender prices for piece of non-alcoholic beverage are less than 10% from annual mean (pcs./CZK) of tendered prices.

price variability, tender price, public procurement, public tenders

State and public bodies and organizations are focused in playing policy role in the public procurement and are responsible for decision-making processes and managing of appropriate procure activities between organizations of state, public and private sector. Therefore collaborative forms of relationship between organizations of state, public and private sector as outsourcing, leasing, Public Private Partnerships are implemented. With usage of different forms of these collaborative forms of relationship are also connected specifics based on the sector uniqueness and special state of affairs in which are public procurement and acquisitions realized. Public procurement is determined by the legal framework for this procurement. This framework must be used for purchasing of goods and services on the territory of the Czech Republic but also in the case where state organizational

organs or units must buy in the legal conditions services or goods in abroad. Therefore usage and implementation of planning principles, evaluation tools and techniques to manage sustainability of bodies in abroad is one of the most important purposes of the Czech Republic. Relationships between responsible bodies and local firms and companies must be planned and managed from the strategic viewpoint e.g. state departments.

In the case of the Czech Republic much of expenditure is spent on base and incentive pay for mandatory expenses, maintenance of facilities and equipment and portion is also spent on foreign mission. However, the ability of the Ministry of Defence (MoD) to effectively implement a plan for sustainability processes has been questioned in the fiscally constrained tensioned atmosphere of current budget limitation. In accordance with

the conclusions by suggesting a strategy streamered by Division of economic and Division of logistics of MoD stated in July 2004 report, the current economic-logistical indicators demonstrate the require to use local resources for purchasing of material and services, which achieve the standard required by responsible body in the Czech Republic. One of the criterions for this result is also reducing of transport expenditures. This request of the MoD arises from a system steps into the process of gaining approval to contribute of supported activities for development of the regional or local market and networks of supplying goods and services. This result of MoD is connected with broader perspectives that incorporate opportunity to stabilize security environment on one side (Spilý and Nečas, 2009) and on other side to support local production in the case of Kosovo and save expenditures according to usage institute of public procurement and public tenders.

Public procurement management, contracting performance and administrative practices are encompassed in competency of contracting group (CG) working in the National Support Element (NSE) and core responsible body is commander of the contingent. Contracting activities of the CG of NSE incorporate a comprehensive purchase management plan in the planning phase and filling key logistical tasks and also targets as transparency, saving of expenditures, supporting of regional development etc. through public tenders.

Auriol (2008) highlights that government procurement of goods and services represent more than 18% of the world GDP. For the acquisition and purchases realized by CG is used decentralized platform of purchasing in the case of supplies material or services for future applications in public tenders and contracting or acquisition. In this legal approach the total amount of financial liability shall not exceed 2 000 000 CZK without value added tax. This type of purchase is governed in operations abroad by the Czech law, in this case the Act No. 137/2006 Coll. and amendment of this Act No. 417/2009 on public procurement and in the professional regulation of the implementation of decentralized procurement and the Order of MoD No. 39/2008 on procurement in the Department of Defence. According to the Act No. 137/2007 Coll. is *"the base evaluation criterion for the public tenders:*

- a) *the economic convenience of the offer or*
- b) *the lowest offered price"* demand parameters.

The evaluation of the offers of single adepts in the tender for the best service offer is connected to the evaluation of those characteristics that are derived from the aims defined by public organization in the market strategy formed for purchase. These characteristics are specified in the preparation of tender and concreted in the set of partial criteria. These criteria could be expressed quantitatively – expenditures, lost or qualitatively – the service quality, impacts on staff satisfaction, skills. If the submitter decides that the offers will be evaluated

according to the criteria of economic effectiveness of the offer, the submitter is obliged to, according to this Act, set the partial evaluation criteria. The partial evaluation criteria have to relate to the offer and besides the offered price it could be mainly the quality, technical level of the offered solution, the impact on the environment etc. For the partial criteria is the submitter obliged to set the weighs that is expressed in percents. The target of these regulations is to establish a legal framework for the acquisition of property and services (OECD, 2000, Ochrana, 2004). Principles of electronic commerce are also used in the MoD as electronic support instrument related to platform for managing procurement and acquisition and future tenders. In the case of public tenders in Kosovo is the core evaluation criterion the lowest offered price. According to Wong *et al.* (2000) a strong correlation exists between private and public clients on the relative value of the categories used to select suppliers as contractor organization, financial considerations, management resources, past experience, past performance etc. These results are interesting for this study, because of the lowest offered price, but also health control of supplies, quantitative and qualitative parameters of supplies based on agreement according to public tender.

Furthermore, this legal framework for competition of companies from different regional parts of Kosovo as potential suppliers is based on the ensuring of effective, efficient and economical use of public resources, transparent and non-discriminatory process for selecting suppliers of property, and other services (Pomazalová, 2008). According to internal regulation for realization of decentralized platform for purchases the commander of the contingent is core contracting authority in the mission. This commander represents MoD and collaborates with the Chief of Logistics CG; here is also sharing of responsibilities. The CG receives contract by the general logistical reporting requirements from the contingent operating in the theatre and provides the contract. Before joining the public tender is necessary to verify whether the material can not be supplied from the stocks located in the Czech Republic or if the variant of the central acquisition is optimal for solving the case according to procurement's effectiveness, economy and expediency (Pavel, 2009). If the contingent does not have the required storage capacities and the central purchase platform is better for use than the decentralized, it proceeds with the procurement at the base of the contingent. The purchase agreement is required from the Join Operational Centre of MoD. Depending on the type of requested material according to legal framework; there are approached at least minimally three potential suppliers. These potential suppliers complete the price of materials or services according to the specification of the quality, quantity and other requested description of the material or service. If it is possible to secure the purchase of material or services in the operations,

this request is solved in the competences of the NSE in the place of operation realization. After receiving the request the CG begins to implement tools for processing the security for ensuring the selection of supplier and purchase of the required materials and services, which then transmits to the responsible entities for end users.

Some literature has showed the problem of increasing role of civilian logistical support and special military knowledge and expertise based not only on contract length. Bhaskar (2009) identified that it is or should be and serving more than anything else to demonstrate why the services were contracting out without any good understanding of future implications. Other researches (Lambsdorff, 2002; Williams, 2008) demonstrate that the financial advantage to the government of outsourcing certain missions to civilian companies is based on the term financial advantage (O'Looney, 1998). Given the size of the contingent and professionalism of the CG, there is occasion for public tenders and also outsourcing of services or supplying material as well other forms of participation of companies and state divisions. The Armed Forces of the Czech Republic (ACR) are important or even key social actor for mobilization sources for local and regional development, especially in the areas with low infrastructure, technologies, innovation, but also opportunities for entrepreneurship (Korecki and Pomazalová, 2009). ACR as the analogical authority body mobilize internal resources in order to create a business development environment by growth factors such as knowledge, trust, trustworthiness, networks and traditional factors transformed into economic assets.

MATERIAL AND METHODS

this research is based on the statistical analysis of average year prices of chosen beverages (natural mineral water, juice and non-alcoholic beer) in a sample. First aim in this study is to set conceptual framework of public procurement. The second aim is to compare two samples to each other and also to compare mean of sample and theoretical middle value on the base of statistic test and also present evidence of statistic tests (t, F), degrees of freedom (d.f. 11), and p-value ($p < 0.05$). The third aim of this research is to evaluate variability of tender prices of chosen beverages achieved in years 2005–2009 according to public procurement law. The measuring of tender prices variability was based on available year means of contract prices based on tenders between MoD and local companies in the case of Kosovo. For this research is not possible to use the interregional variability of these prices because of character of contracts and the used criterion of the lowest offered price. This research is not based on evaluating transactional costs as costs of control mechanisms, administration of tenders, risk management of tenders, relations to corruption (Pavel, 2009; Jurčík, 2010).

The data represent tender prices based on public tenders of supply of chosen beverages for supporting foreign operation in Kosovo, where these beverages are purchased. Data of tender prices of chosen beverages for this research are obtained from the Distribution Centre reports in Pardubice, where these data have been collected for the sample period from 2005 to 2009. The reports include internal data on purchases based on different long-term public tenders. In particular, the data include transactions of MoD who uses foreign suppliers, although it is difficult to use every data, because of restriction. Therefore only the data of annual mean of tender prices were available for this research and for usage of descriptive statistics. The released data do not include annual mean of soft drinks, because these data are gathered from the year of 2008, when the realization of public tender with local supplier in Kosovo began.

The sample number of observation for each type of chosen beverages was $n = 12$ cases for each year in one sample. For this research was expected that the two samples of chosen beverages are included in the same samples, therefore null hypothesis is formulated as following H_0 : Selected samples of average tender price for a peace of non-alcoholic beverage are contented in one basic sample. Alternative hypotheses are derived in the following: H_{A1} : Selected samples of average tender price for a peace of non-alcoholic beverage in the years 2005 and 2006 are not contented in one basic sample. H_{A2} : Selected samples of average tender price for a peace of non-alcoholic beverage in the years 2005 and 2007 are not contented in one basic sample. H_{A3} : Selected samples of average tender price for a peace of non-alcoholic beverage in the years 2005 and 2008 are not contented in one basic sample. H_{A4} : Selected samples of average tender price for a peace of non-alcoholic beverage in the years 2005 and 2009 are not contented in one basic sample. No existence of difference in average prices of non-alcoholic beverage is reflected in the null hypothesis H_{0B} : Average year prices of a peace of non-alcoholic beverage are not different in the observed years (2005–2009). H_{AB} : Average year prices of a peace of non-alcoholic beverage are different in the observed years (2005–2009). Significance level was level of ($p < 0.05$) suggested by Sachs and Hedderich (2009).

In this study is used empirical approach. Due to the annual means of tender prices for a piece of beverage and for next measurement the research worked with annual means of tender prices from the years 2005 to 2009. The mean, range, variance, standard deviation (pcs./CZK) and coefficient of variation are considered for evaluation of the data. As statistical method for testing was used two samples F-test for equity of variances and two sample t-test with equity of variances for testing probability of both samples are from the same sample.

RESULTS AND DISCUSSION

Descriptive statistic results are overviewed in the next part of this study. Table I presents descriptive statistics of the tender prices of juice. On the base of measurement, there is mean 11.42, range is 5.10, and it shows that there are not identified extremes. Variance is 1.02 and the amount of standard deviation varies from the mean for 1.02 and also coefficient of variation 8.93% is low. The consideration shows, that the annual tender price of juice is relatively different only on ± 0.09 CZK from mean for piece of juice for year.

I: Descriptive statistic – juice

Year	Mean pcs./CZK	Range pcs./CZK
2005	11.33	0.09
2006	10.30	1.12
2007	10.35	1.07
2008	12.60	1.18
2009	12.50	1.08

Source: Pomazalová, Korecki, 2010

Consideration shows (Table II), there is mean for piece of natural mineral water for year 5.31, the tender prices are in 0.80 range. Variance is 0.16 and the amount of standard deviation varies from the mean for 0.4, also coefficient of variation 7.53% is low. The analysis shows, that the annual tender price of juice is relatively different only on ± 0.08 CZK from mean for piece of natural mineral water for year.

II: Descriptive statistic – natural mineral water

Year	Mean pcs./CZK	Range pcs./CZK
2005	5.27	0.04
2006	4.98	0.33
2007	4.80	0.51
2008	5.90	0.59
2009	5.60	0.29

Source: Pomazalová, Korecki, 2010

On the base of measurement (Table III), there is presented mean 12.29 for piece of non-alcoholic beer for year, range is little 1.86 and results show that there are not identified extremes. Variance is

III: Descriptive statistic – non-alcoholic beer

Year	Mean pcs./CZK	Range pcs./CZK
2005	12.39	0.10
2006	11.60	0.69
2007	11.60	0.69
2008	12.78	0.49
2009	13.10	0.81

Source: Pomazalová, Korecki, 2010

0.37 and the amount of standard deviation varies from the mean for 0.61, also coefficient of variation 4.96% is low. Here is evidence for the annual tender price of juice is relatively different only on ± 0.05 CZK from annual mean for piece of non-alcoholic beer.

Results of analysis suggest that coefficient of variation is less than 10% and the estimate is assumed appropriate, also the means are representative. One of the reasons is the lowest offered price and elimination of failures in the public tenders. It reflects public tenders without negative manipulation with the tender prices and securing of risk of rise these prices by high rate of inflation. Changes of tender prices are influenced also with annual change rate of the Czech National Bank for exchange CZK to EUR.

Results for hypotheses are drawn as average tender price for a peace of non-alcoholic beverage in the years 2005 and 2006 is significantly different ($t(22) = 3.458$, $p = 0.002$) and result of F-test shows homogeneity of variances ($F(11, 11) = 2.061$, $p = 0.244$). According to these results is recognized, that these two samples are not content in the same basic sample. Formally is H_0 rejected ($p < 0.05$).

Also average tender price for a peace of non-alcoholic beverage in the years 2005 and 2007 is significantly different ($t(22) = 3.934$, $p = 0.0007$) and result of F-test show homogeneity of variances ($F(11, 11) = 1.637$, $p = 0.426$). According to these results is recognized, that these two samples are not content in the same basic sample. Formally is H_0 rejected ($p < 0.05$).

In the years 2005 and 2008 average tender price for a peace of non-alcoholic beverage is significantly different ($t(22) = -5.349$, $p = 0.00002$) and result of F-test show homogeneity of variances ($F(11, 11) = 1.907$, $p = 0.298$). According to these results is recognized, that these two samples are not content in the same basic sample. Formally is H_0 rejected ($p < 0.05$).

Average tender price for a peace of non-alcoholic beverage in the years 2005 and 2009 is significantly different ($t(22) = -4.624$, $p = 0.0001$) and result of F-test show homogeneity of variances ($F(11, 11) = 1.132$, $p = 0.840$). According to these results is recognized, that these two samples are not content in the same basic sample. Formally is H_0 rejected ($p < 0.05$).

The exploration of achieved findings was of criteria in the public tender – the lowest offered price. But sources of variation of tender prices and healthy control security are also important prerequisites, checked by medical inspection in mission abroad. The changes of prices during year are influenced with inflation, annual exchange rate for Euro (according to the Czech National Bank). On the other side here are also regulation of quantity of supplies and frequency of supplies which are influenced with activities as training and exercise within the security environment. Therefore contractor changes tender agreement for example

each month or each half a year, because of the lowest offered price of tender supplies of chosen beverages.

Selected sample of average tendered price for a peace of non-alcoholic beverage in the years 2005 and 2008 are not content in one basic sample, therefore suggestion of H_{A1} , H_{A2} , H_{A3} and H_{A4} are supported. No existence of difference in average prices of non-alcoholic beverage is reflected in the null hypothesis H_{0B} which is also rejected. Thus, it is suggested that H_{AB} is supported because of identified findings that comparison of annual average tendered prices from the year 2005 mean (average tendered price 9.66 pcs./CZK) and standard deviation (s.d. 3.137) to all observed years (2005–2009) based on mean (average tendered price 9.67 pcs./CZK) and standard deviation (s.d. 0.660) are different in this case, see Fig. 1. On the other side is important evidence, that tendered prices of chosen beverages are approximately stabile in observed years.

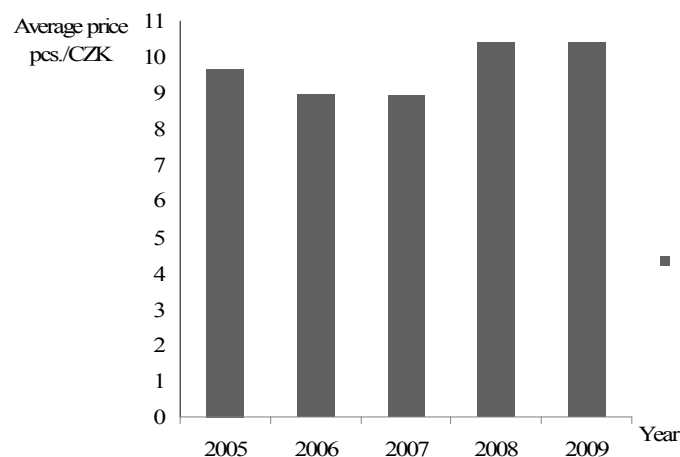
These empirical evidences of this research also imply several managerial suggestions on the side of professional behaviour and experiences of contractors and decisions at multiple points. Factors as trust, trustworthiness, cultivation of behaviour, control of behaviour, transfer of know-how between contractor and supplier for achieving security of supplies, but also between sharing trust of contractor and ability of translator authority investigates perception and sharing the sense of public tender. Communication, sharing knowledge and trust in local conditions are important prerequisite or determinants for successful public tender, tender price change and tender agreements. Some managerial issues are found by Quayle *et al.* (2000). According their results the core approach for government purchasing (in the UK and Canada) has moved from a reactive to a proactive model. That means adopting of private sector's practices where it is appropriate. A new range of skills and

competencies was perceived as crucial for this development.

CONCLUSION

Public tenders on supply of chosen beverages carry out only part of public procurement realized in the deployed area. In the case of Kosovo the purchases of services take place on regional level. The abroad experiences with public procurement showed that the connection of submitters with market sector creates a sufficient guarantee for sustained services quality increase along with economically sustainable condition for the given department. The understanding of socio-economic and managerial function of public procurement based on public tenders is in this paper considered as a tool for increasing competition of suppliers and is related with socio-economic potential of suppliers in the locality or region. The results in this research show the quality of public tenders and low variability of tender prices in the public tenders provided in Kosovo, where the core criterion of the public procurement was the lowest offered price and also quality of chosen beverages.

The study focuses on the analysis and evaluation of tender prices and variability of the tender prices of chosen beverages based on public procurement. In this research were analyzed tender prices for years from 2005 to 2009 in the case of contracts provided by CG of NSE in Kosovo. According to empirical results of the research has been found, that the procurement prices have low variability and range in the cases of beverages as juice, natural mineral water and non-alcoholic beer. Values are relatively stabile, without extremes cases. Variability of tender prices of natural mineral water measured with standard deviation was 1.00 CZK and variability of these prices measured with coefficient of variation is approximately 9.00% from average price. Variability of tender prices of juice measured with



1: Average tender price of chosen beverages (pcs./CZK) in observed years
Source: Own work

standard deviation was 0.40 CZK and variability of these prices measured with coefficient of variation was approximately 8.00% from average price. Variability of tender prices of non-alcoholic beer measured with standard deviation was in this case 0.40 CZK and variability of these prices measured with coefficient of variation was around 6.00% from average tender price.

Given empirical findings suggest other but also important issue for future research. Future

research might explore relations of tender prices of non-alcoholic beer and juice to nutrition value of each beverage use in the specific condition across of mission and exercise abroad. It would be particularly interesting to analyze quantitative and qualitative parameters of these beverages and what are expectations about the different attributed for consumers in missions abroad.

SUMMARY

This research is based on the statistical analysis of average year prices of chosen beverages (natural mineral water, juice and non-alcoholic beer) in a sample. First aim in this study is to set conceptual framework of public procurement. Due to the annual means of tender prices for a piece of beverage and for next measurement the research worked with annual means of tender prices from the years 2005 to 2009. The mean, range, variance, standard deviation (pcs./CZK) and coefficient of variation are considered for evaluation of the data. The study focuses on the analysis and evaluation of tender prices and variability of the tender prices of chosen beverages based on public procurement. In this research were analyzed tender prices for years from 2005 to 2009 in the case of contracts provided by contracting group of National Support Element in Kosovo. According to empirical results of the research has been found, that the procurement prices have low variability and range in the cases of beverages as juice, natural mineral water and non-alcoholic beer. Values are relatively stabile, without extremes cases. Variability of tender prices of natural mineral water measured with standard deviation was 1.00 CZK and variability of these prices measured with coefficient of variation is approximately 9.00% from average price. Variability of tender prices of juice measured with standard deviation was 0.40 CZK and variability of these prices measured with coefficient of variation was approximately 8.00% from average price. Variability of tender prices of non-alcoholic beer measured with standard deviation was in this case 0.40 CZK and variability of these prices measured with coefficient of variation was around 6.00% from average tender price.

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