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Transaction Costs in Contracting out a Public Service – Case of Municipal Waste in Slovakia

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Abstract:

To contract out public services or deliver them internally? Transaction costs, as part of the total costs for a public service, should represent an important factor when choosing how a public service should be delivered. Despite this, previous domestic and foreign literature shows that oftentimes, the service provider is unable or unwilling to calculate these costs, even if it might result in finding the most effective service delivery option. The goal of this paper is to analyse the situation in Slovak municipalities regarding transaction costs associated with public procurement and producer monitoring for the service of municipal waste management. The primary data from 254 Slovak municipalities, obtained through an online questionnaire, reveal a certain level of ignorance regarding transaction costs, as most municipalities were unable to provide the necessary data required to calculate the transaction costs associated with the selected service.

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1. Introduction

The efficient provision of public services is a key task of municipalities. One way to provide them is through contracting out, i.e., transferring the production of a public service to an external supplier based on a contract. Despite a long-standing debate on the advantages and disadvantages of contracting out, there is no uniform agreement on whether this way of providing public services is actually more efficient compared to bringing the service in-house. Since the 1970s, contracting out has been viewed as a means of reducing costs and enhancing quality; however, the empirical evidence is not entirely conclusive. While some studies confirm cost savings (Soukopová & Klimovský, 2016; Petersen, Hjelmar, and Vrangbæk, 2018), others have failed to confirm this relationship, suggesting the need for a deeper analysis of the factors that influence contracting out and its outcome (Bel et al., 2010; Bel & Rosell, 2016; Dijkgraaf & Gradus, 2013; Simões, Cruz, and Marques, 2012; Petersen, Hjelmar, and Vrangbæk, 2018). The principal-agent theory identifies several risks associated with contracting out public services, including moral hazard and information asymmetry (Perunović and Pedersen, 2007; Pratt and Zeckhauser, 1985; Quinn, 2011; Bruno, 2019).

One of the key factors that can significantly affect the cost-effectiveness of contracting out while increasing the risks described by principal-agent theory is transaction costs. This concept, first introduced by Coase (1937) in the context of the public sector, encompasses costs that would not exist if a service were provided internally. Domestic and foreign authors have therefore focused in recent years on examining the impact of factors such as transaction costs on contracting outcomes. They are closely related to the appropriate choice of the method of public service provision, as authors such as Petersen, Hjelmar and Vrangbæk (2018), Plaček et al. (2019), Gradus et al. (2019), Brown (2008), and Hefetz et al. (2014) warn that high transaction costs may outweigh potential savings, supporting a return to the internalisation of public services. Brown and Potoski's (2002) model analysed public services based on their suitability of external provision, using the criteria of specificity of investment and measurability of output. According to the model, we identify the municipal waste collection and disposal service as suitable for contracting, as it is expected to have low transaction costs. However, it is still necessary to calculate them, which is where multiple problems may appear. Either municipalities make intuitive and often incorrect decisions on the issue of make-or-buy because they do not calculate these costs, which creates information asymmetry, or they do not even want to know

these costs and automatically select an offer from a private producer, which can lead to corruption. Transaction costs are often not monitored even during the contract period, which in turn affects the service's efficiency. Analysing the real state of transaction costs is therefore important for identifying the reasons why contracting out can fail in the context of municipal services and for the development of the principal-agent theory.

This study focuses on analysing the transaction costs associated with contracting out municipal waste collection and disposal services in Slovak municipalities. We investigate whether municipalities can identify the amount of their transaction costs and what share these costs account for in the total costs associated with contracting out the selected service. The paper aims to identify transaction costs associated with the municipal waste collection and disposal service as a factor that can affect the cost-effectiveness of contracting out this service. Based on existing theory, the paper considers two types of transaction costs: ex-ante costs associated with procurement and ex-post costs associated with monitoring the contractor's performance.

The paper introduces new insights into transaction costs within the context of Slovak municipalities, highlighting the limitations of the current understanding of these costs, which can inform municipal decisions on public service provision. The above may lead to better information and more efficient decisions for municipalities in Slovakia and abroad.

Identifying the actual transaction costs associated with contracting local public services in Slovakia has proven to be problematic, as there are no official statistics that include this data. Moreover, many municipalities do not fully understand the concept of transaction costs. The only way to obtain relevant information is through direct contact with municipalities and the collection of primary data. However, even this approach does not guarantee data accuracy, as many municipalities lack the necessary information due to non-functional cost centers. Nevertheless, the information obtained is extremely valuable, as it provides at least an approximate picture of a long-overlooked issue.

2. Theoretical framework - transaction cost in contracting out

Currently, there is no single precise definition of contracting out that can be found in every book and study. Greaver (1999) describes contracting out as a situation in which a company allocates one of its activities and, together with its technical and personnel resources—employees, materials, and assets—sells or leases it to a contractor who will provide the service on a contractual basis. The key point is that the organisation has historically provided the service itself and must continue to use it after contracting out has started. Otherwise, it is just a sale of part of the business.

Contracting out services in the public sector began to emerge in the 1970s and, at

that time, was perceived by society as an ideal way of providing services, given that it implied cost savings alongside a higher level of service quality compared to in-house provision by a public organisation. However, this potential advantage of contracting out is not sufficiently substantiated in the current domestic and foreign literature.

On the one hand, there are a small number of studies whose results suggest that contracting out brings with it cost savings, but on the other hand, there are a larger number of studies that have failed to confirm this relationship (Bel et al., 2010; Bel & Rosell, 2016; Dijkgraaf & Gradus, 2013; Benito et al., 2015; Simões, Cruz, and Marques, 2012; Nemec et al., 2012). According to the authors, the conversation should focus on what influences the cost-effectiveness of contracting out and how the best outcomes can be achieved with the chosen method of public service provision. Studies by Bel et al. (2010), Petersen, Hjelmar, and Vrangbæk (2018), Bel & Rosell (2016), or Meričková et al. (2022) identify transaction costs as a crucial factor that can influence the outcome of contracting out.

Transaction costs first appeared in the work of Coase (1937), who argued that transaction costs play a crucial role in firms, citing them as one of the primary reasons for their existence - to operate at lower costs than those allowed by the market arrangement at the time. Perunović and Pedersen (2007) identify transaction cost theory as one of the fundamental economic theories used in the contracting out literature. According to Geyskens et al. (2006), the fundamental question of the theory is whether a transaction is more efficiently executed within the firm or outside the firm. The assumption here is that a transaction executed outside the firm is more efficient than one executed within the firm through vertical integration. However, for certain aspects of the transaction, transaction costs may rise to such an extent that vertical integration becomes the more efficient choice. According to Williamson (1979), Brown and Potoski (2003), and Warner and Hefetz (2012), the total cost of contracting out a service consists of two parts: the total cost of production and transaction costs. Therefore, it is necessary to include these costs to gain a comprehensive understanding of the actual situation (Brown et al., 2015). When it comes to the internalisation of a service, transaction costs can be compared to administrative costs.

There are two types of transaction costs (Hirsch, 1991): costs related to the public procurement process (the call for tenders, the evaluation of producers and their documents, the actual selection of the producer and the conclusion of the contractual relationship) and costs incurred after the contract is signed (regular monitoring of the producer and his activities).

Furthermore, Pavel and Vítek (2016) divided transaction costs into three groups: ex-ante costs, which are associated with the public procurement process; costs associated with the duration of the contract period (monitoring and communication); and ex-post costs (handling complaints, legal disputes, costs for finding a new producer in case of failure of the old one, and price increase in case of failure of the first contract).

In the context of Slovakia and the neighbouring Czech Republic, transaction costs

have long been on the periphery of interest. Their significance in evaluating the efficiency of service contracting is often underestimated, as stated in works such as Soukopová et al. (2022), Soukopová et al. (2017), or Soukopová and Sládeček (2018).

Brown and Potoski (2005) and, following them, Schoute, Budding, and Gradus (2018) categorise services according to whether the expected transaction costs are high or low. For services that are easy to measure and have low service specificity, such as municipal waste collection and disposal, transaction costs should be relatively low (Brown & Potoski, 2002). Conversely, services with difficult output measurability and high service specificity, such as fire and police services, are assumed to have high transaction costs (Cuypers et al., 2021). Levin and Tadelis (2010) predict the level of transaction costs based on three factors: ease of measurability, need for flexibility, and retention potential. If low values of these factors characterise the service, we assume low transaction costs.

Pavel and Sičáková-Beblavá (2009) in their work tested the viability of the Brown-Potoski model, which analysed public services based on their suitability for external provision, using the criteria of specificity of investment and measurability of output (Brown & Potoski, 2002) in the environment of Slovak and Czech municipalities. They found a relationship between the measurability of a service and its suitability for contracting out. However, they were unable to establish a relationship between the specificity of investments and suitability for contracting out, which contradicted previous findings (Sičáková-Beblavá, Beblavý, 2007). The authors state that this could be due to the high number of small municipalities with limited budgetary means in both countries and because municipal representatives rarely consider economic criteria when deciding on service provision, either because of an imperfect accounting system or corruption. Findings by Pavel and Sičáková-Beblavá (2009) also indicated that municipalities are unaware of the strengths and weaknesses of contracting out and that financial management and decision-making in the environment of Slovak municipalities are at insufficient levels.

Domberger et al. (1986) observed the use of competitive bidding and tendering, which are related to ex-ante transaction costs. They discuss the reasons why tendering is perceived as positive - proponents say that problems associated with information and motivations can be overcome. According to the authors, the tendering process itself provides information about the relative efficiency of a potential producer based on the precision with which service requirements are developed. In terms of motives, the authors argue that once a contract is signed, the private producer will also seek to minimise costs, as this is the only way to maximise his profit. However, they also draw attention to the possible link between market concentration and quality of service, which opponents of public tendering often exploit - they argue that if the cost of a service is reduced due to better competition, the quality of that service may also be reduced. For this reason, it is ideal not to examine these indicators separately but to compare them with one another. The authors, therefore, carried out a regression

analysis to determine whether there are cost reductions when the municipal waste collection service is tendered and whether municipalities that have previously contracted the service can achieve similar results when the service is internalised. They found that costs were, on average, 20% lower when tendering was used. Similarly, after examining service quality, the authors found no inverse relationship between cost and quality, so the previous claim was not confirmed. They also found that municipalities were able to achieve similar results after returning to in-house service provision.

The issue of competitive tendering has also been addressed by Szymanski (1996), who examined compulsory tendering, which was introduced in the UK in 1988 for some public services, including municipal waste collection and disposal. He used regression analysis to examine the impact of compulsory tendering on the cost of the service. He confirmed that competitive tendering significantly reduced costs. Market concentration and the type of producer (public or private) proved to be important; the municipality had significantly lower costs when contracting with a private firm. Similarly, the author presents three ways in which cost reductions can be achieved: increased productivity, reduced quality of service, or worsened conditions for the workforce. However, no case was found where costs were reduced through a lower level of service specification.

Petersen, Hjelmar, and Vrangbæk (2018) examined 49 studies on the cost of service in the hands of a private producer and found that only one of them was able to quantify transaction costs for private production but not for the public sector. The results of existing studies suggest that transaction costs are often very high, to the extent that internalisation of the service appears to be a better option for providing the chosen service (Keane, Marx, and Ricci, 2001; Ohlsson, 2003; Rho, 2013).

Gupta (2002) examined the impact of the number of candidates in the bidding process for highway construction in Florida between 1981 and 1986. He found that the ideal number of candidates is between six and eight; a larger number of candidates does not affect the final price, meaning that a market with eight and 100 candidates will generate the same price. He found that increasing the number of candidates from two to eight implied costs lower by as much as 12-14% and changing the number of candidates from two to six implied costs lower by 9-10%. The author also found evidence of collusion in a given market, as well as the fact that competitiveness is higher, especially when candidates are competing for smaller projects and the economy is strong. Similar results were obtained by Brannman et al. (1987), who, according to their analysis, found that a state of high competitiveness can be achieved with 7-8 candidates.

Šumpíková and Ďurčeková (2019) examined the ex-ante transaction costs associated with contracting out the public procurement service in their work. The authors cite the municipality's insufficient institutional capacity to perform public procurement internally as the reason. The authors cite the following as possible benefits of using these services:

- Minimising information asymmetry,
- Reducing risk,

- Outside firms provide a more professional service,
- They contribute to the development of international practices and customs.

They found that ex-ante transaction costs are high in this case. They also found that the use of external firms resulted in a higher success rate in evaluating producers; however, the use of these firms by utility producers did not prove to be efficient. They also examined the ex-post transaction costs associated with contracting out the services of a lawyer or law firm in the setting of Slovak and Czech municipalities. Municipalities utilise these services if problems arise after the termination of the contractual relationship with the producer, which may lead to a legal dispute. In such cases, the municipality, with the assistance of a lawyer, attempts to resolve the dispute (Šumpíková, Ďurčeková, 2019). The results showed that the use of external firms has an impact on the outcome of the legal dispute and, therefore, on the reduction of transaction costs, although not to a large extent. Plaček et al. (2019) investigated the factors affecting the length of the public procurement process in the Czech Republic between 2010 and 2015 and, using linear regression, found that the use of an external entity entails a reduction of the public procurement process by an average of 6 days. The authors, therefore, conclude that the use of an external entity can lead to significantly lower ex-ante transaction costs. Grega et al. (2019) on the other hand found that in Slovakia, public procurement administrative costs per tender were the fifth highest in for contractors and second highest for suppliers among the EU members, with excessive bureaucracy being one of the top three efficiency problems in the system.

Nemec, Šumpíková, Orviská, Bušina, and Grega (2016) examined transaction costs from the producer's perspective, specifically in the context of construction firms in the Czech Republic. They found that transaction costs are extremely high in this environment, primarily comprising employee salaries, information technology costs, and the purchase of additional equipment or employee induction in preparation for the contract. In the next part of the analysis, they estimated the indirect costs associated with firms' involvement in procurement - the period between the award of the tender and the final signature on the contract. The results showed that producers estimated indirect transaction costs to be very high. They cited unfair practices against construction firms as the reason, as evidenced by the large number of complaints filed with the Competition Protection Authority, which accounts for up to 1.5% of all tenders; only 20% of these complaints are substantiated and approved by the regulator. The results also showed a large number of cancelled tenders, which entail direct and indirect costs, accounting for 30-40% of all tenders in the Czech environment.

Petersen, Hjelmar, and Vrangbæk (2018) refer to the first contracting period as the period during which expected transaction costs are highest, as it is a learning period for both parties—the producer and the provider. When examining Dutch municipalities, Gradus et al. (2019) find that transaction costs are the primary reason for changing the way public services are provided, particularly for services such as

municipal waste collection and disposal, as well as the maintenance of local roads. High transaction costs led to cooperation between municipalities. However, for ancillary services, such as catering for employees or information services, high transaction costs led to the internalisation of the service (Clifton et al., 2019). Brown (2008), Hefetz et al. (2014), and Bel and Warner (2015) examined the impact of transaction costs on the outcome of inter-municipal cooperation. The authors find that inter-municipal cooperation can reduce transaction costs more than switching to internalisation because municipalities share similar goals and also can divide transaction costs among themselves (Meričková et al., 2022; Soukopová & Klimovský, 2016). However, a study by Bel and Sebő (2021) found no significant relationship between these variables, as there are few cases where transaction costs have a positive effect on cost efficiency.

3. Methodology

The primary objective of the study is to determine the transaction costs associated with the municipal waste collection and disposal service as a factor that can impact the cost-effectiveness of contracting out. In the paper, we work with the following research questions:

RQ1: Can Slovak municipalities contracting out municipal waste collection and disposal services determine the amount of their transaction costs?

Based on the examination of the theoretical background, we use the Hirsch (1991) division of transaction costs: costs related to the public procurement process (the invitation to bid, the evaluation of producers and their documents, the actual selection of the producer and the conclusion of the contractual relationship) and costs incurred after the contract is signed (the monitoring of the producer and its activities).

RQ2: What part of the total costs of contracting out the service for the collection and disposal of municipal waste are transaction costs?

In the second part of the analysis, based on the data obtained, we will attempt to quantify the amount of transaction costs associated with contracting out and determine whether they constitute a significant portion of the total costs of contracting out a service.

With these two types of transaction costs, we also attempt to analyse their relationship with the total costs for contracting out the service of waste collection and disposal. For this, we use the SPSS program, in which we employ normality tests to assess whether our dataset follows a normal distribution, correlation analysis to examine the relationship between variables and determine how strongly they are related, and regression analysis to model the relationship and predict how it will change.

The object of this paper is a sample of 254 Slovak municipalities. The paper uses data from primary research, which was collected using an online questionnaire sent to

Slovak municipalities from December 2023 to March 2024. Due to the nature of the work, we aimed to reach as many respondents as possible, so the questionnaire was sent to all municipalities in Slovakia. Table 1 presents the percentage of municipalities in the sample set compared to the base set, categorised by size groups.

Table 1:

Percentage of the sample set in comparison to the base set of municipalities

Size group (population)	Number of municipalities in the base set	Number of municipalities in the sample set	Percentage of the sample set (%)
0 - 199	409	36	8,8
200 - 499	711	50	7,0
500 - 999	735	56	7,6
1 000 - 1 999	593	54	9,1
2 000 - 4 999	307	30	9,7
5 000 - 9 999	68	10	14,7
10 000 - 19 999	32	7	21,8
20 000 - 49 999	26	8	30,7
50 000 - 100 000	7	3	42,8
100 000+	2	0	0

Source: data from the Statistical Office of the Slovak Republic, 2023 and authors' own processing.

Based on the results, we can say that the sample is not representative, especially in the case of smaller municipalities. Therefore, the results of the research cannot be generalised for the entire set of Slovak municipalities. After examining the level of contracting out of the municipal waste collection and disposal service, we found that more than 92% of municipalities contract this service. Thus, after removing the municipalities that provide the service internally, we work with 235 municipalities in Slovakia.

As found based on the findings of domestic and foreign authors, transaction costs are complicated to calculate accurately. One of the problems we faced during the analysis is the fact that in the environment of Slovak municipalities, cost centres do not work the way they should – in their work, Holíková, Mikušová Meričková and Muthová (2022) find that small Slovak municipalities are unable to determine the real performance costs of transferred competencies, which can lead to inefficient decision making. The above would mean that even if municipalities tried to determine their

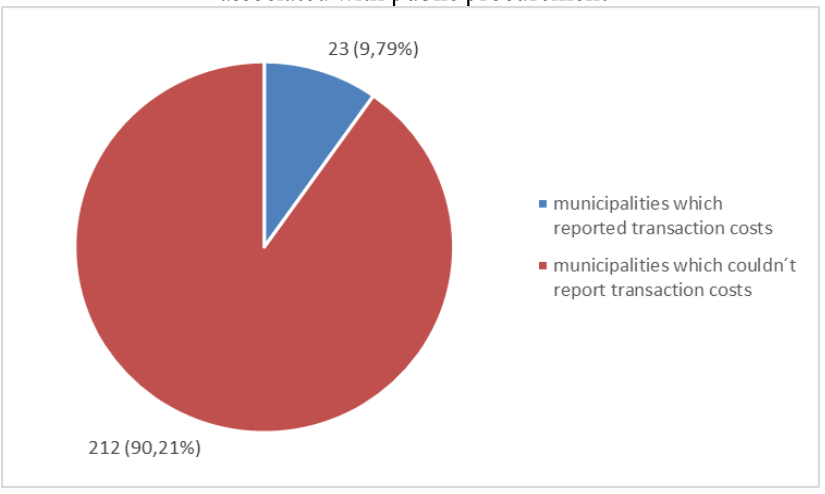
transaction costs, they would not know what these costs consist of.

4. Results and Discussion

Given the difficulty of quantifying transaction costs, as evident from the results of studies by both domestic and foreign authors, this part of the paper focuses on how many municipalities can realistically report these costs. We follow Hirsch's (1991) division into two groups: costs incurred before the contractual relationship and costs incurred during the contractual period. In the first part, we examine ex-ante costs associated with the procurement process, including the issuance of the invitation to tender, the evaluation of bidders' documents, the actual selection of the contractor, and the creation of the contract. Figure 1 shows the proportion of municipalities that were able to report these costs.

Figure 1:

Distribution of municipalities concerning their knowledge of transaction costs associated with public procurement



Source: Authors' own elaboration, 2025

The figure shows that more than 80% of the municipalities in the sample set that contract out the selected service are unable to provide an accurate cost for the public procurement process. The main argument was that the municipality does not keep any records of these costs. Thus, we continue to work with the 23 municipalities that stated their costs.

First, we examine the normality of the data using SPSS. The normality of the data for both indicators was tested using the Shapiro-Wilk test, given the small sample size of municipalities. The results (Table 2) indicate that the p-values for both indicators are

less than 0.05; therefore, we conclude that the data for both indicators are generally not normally distributed.

Table 2:

Tests of Normality of chosen variables

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Annual costs for contracting out the service	.401	23	<.001	.329	23	<.001
Costs for public procurement	.229	23	.003	.725	23	<.001
a. Lilliefors Significance Correction						

Source: Authors' own elaboration, SPSS, 2025

We then examine the correlation between the two variables. Since the data for both variables are not normally distributed, we use Spearman's correlation coefficient, as it is more robust to outliers and non-normal data compared to Pearson's correlation. The results are presented in Table 3.

Table 3:

Correlation between the chosen variables

			Annual costs for contracting out the service	Costs for public procurement
Spearman's rho	Annual costs for contracting out the service	Correlation Coefficient	1.000	.521*
		Sig. (2-tailed)	.	.011
		N	23	23
	Costs for public procurement	Correlation Coefficient	.521*	1.000
		Sig. (2-tailed)	.011	.
		N	23	23
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Authors' own elaboration, SPSS, 2025

The Spearman coefficient between the two variables was found to be 0.521, indicating a moderate positive correlation, which suggests that as one variable increases, the other tends to increase as well. However, the relationship is not perfectly linear or strong. Furthermore, the p-value indicates that the correlation is statistically significant at the 0.05 significance level, which means there is sufficient evidence to conclude that the observed correlation between the two variables is unlikely to have occurred by

chance. We then examine how these variables interact through regression analysis. We examine whether costs for public procurement significantly affect annual costs for contracting out the service; therefore, costs for public procurement are our independent variable (Table 4, Table 5).

Table 4:

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	82001600050.014	1	82001600050.014	.822	.375b
	Residual	2095798613337.725	21	99799933968.463		
	Total	2177800213387.739	22			
a. Dependent Variable: Annual costs for contracting out the service						
b. Predictors: (Constant), Costs for public procurement						

Source: Authors' own elaboration, SPSS, 2025

Table 5:

Coefficients table

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	50507.339	92623.654		.545	.591
	Costs for public procurement	67.272	74.215	.194	.906	.375
a. Dependent Variable: Annual costs for contracting out the service						

Source: Authors' own elaboration, SPSS, 2025

Based on the ANOVA table, the costs for public procurement do not explain a significant portion of the variance in annual costs for contracting out the service. Therefore, the model is not statistically significant. The Coefficients table tells us that costs for public procurement are not a significant predictor of annual costs for contracting out the service, as the p-value is above the threshold (0.05). So, the relationship indicated by the coefficient unstandardized coefficient could likely be due to chance. Based on these results, we find that there is no significant relationship between these two factors; however, this could be due to the small sample size of municipalities.

When examining the transaction costs concerning the total annual costs for

contracting out the service (Table 6), we observe several cases, such as those of the municipalities of Pušovce and Letničie, where the costs exceed 8% of the total contracting costs. In other municipalities, relatively low transaction costs were recorded. However, it should be noted that, except for Lučenec, almost all of them are small municipalities with an average population of around 1,600 inhabitants. In some cases, the data may be real; however, we are inclined to believe that some municipalities that reported transaction costs may not have been aware of them and added data to the questionnaire that they believed to be correct or were only estimates of the actual situation. The above is because the values for the percentage of these costs out of the total annual cost of contracting out were, in some cases, significantly different.

Thus, we note that the municipalities in the sample set that are contracting out the selected service are largely unable to determine the amount of transaction costs incurred prior to the contract being signed or do not keep records of them at all.

Table 6:

Procurement costs in selected municipalities

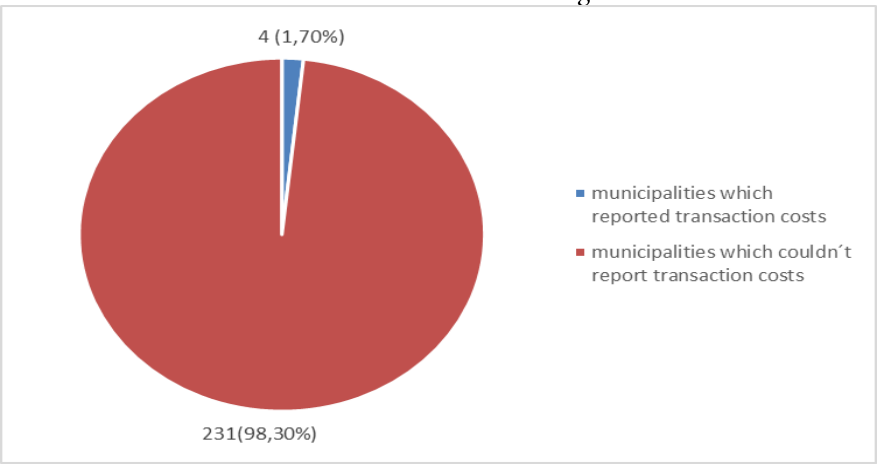
Municipality	Costs for public procurement (€)	Annual costs for contracting out the service (€)	Costs for public procurement out of annual costs for contracting out the service (%)
Šiatorská Bukovinka	200	6 179	3.24
Lučenec	1 200	1 530 274	0.08
Klenovec	300	118 000	0.25
Lovča	100	16 000	0.63
Dubová	1 500	43 500	3.45
Kaplna	750	44 000	1.70
Dunajská Lužná	4 200	174 200	2.41
Gemerská Panica	300	17 000	1.76
Hurbanovo	2 000	228 546	0.88
Veľké Ludince	1 000	32 800	3.05
Maňa	480	36 700	1.31
Udavské	200	24 972	0.80
Veľký Slivník	300	6 650	4.51
Pušovce	1 000	9 800	10.20
Radatice	650	14 094	4.61
Kladzany	300	7 500	4.00
Topoľnica	400	27 461	1.46
Kráľov Brod	300	20 000	1.50
Dojč	2 000	45 000	4.44
Borský Svätý Jur	1 000	40 048	2.50
Letničie	1 000	11 500	8.70
Turčianske Jaseno	700	15 000	4.67
Oravská Jasenica	300	50 000	0.60

Source: Authors' own elaboration, 2025

Next, we examined the second group of transaction costs, which are the costs associated with monitoring the producer throughout the contractual relationship. Figure 2 shows the number of municipalities that were able to report these costs.

Figure 2:

Distribution of municipalities concerning their knowledge of transaction costs associated with monitoring

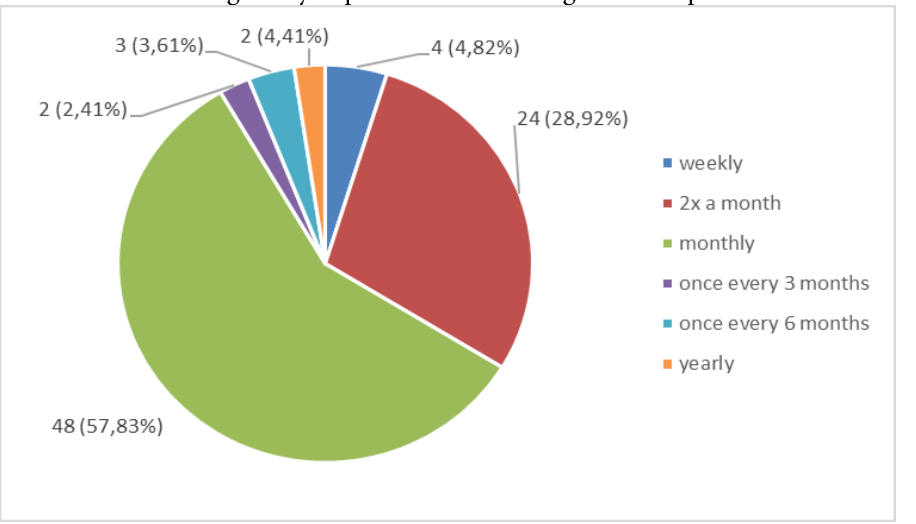


Source: Authors' own elaboration, 2025

We see that, in this case, even fewer municipalities in the sample set were able to report their transaction costs. The main argument of the municipalities was that this activity is included in the job description of the municipality's employees, and therefore, it is not possible to determine the costs. We found that most of the analysed municipalities perform the control internally; there were only a few cases where they used an external firm. However, even in these cases, they were unable to indicate these costs. In the next section, we examined how frequently municipalities conduct monitoring. Figure 3 illustrates the responses of municipalities that indicate they conduct regular inspections.

Figure 3:

Regularity of producer monitoring in municipalities



Source: Authors' own elaboration, 2025

Based on the results, we can see that more than half of the municipalities perform monitoring at least once a month, and almost 30% of municipalities perform it even more frequently. Considering the number of inhabitants, we observe that municipalities belonging to smaller size groups conduct monitoring at larger intervals. We see the reason for this in the lack of human capital and time available for inspection when the municipal authority employs a small number of people. However, given that for many municipalities, this is a regular activity, it is alarming that they are unable to identify the associated costs. The questionnaire also explored how many hours, on average, it takes a municipality to carry out monitoring - in this case, the majority of municipalities answered the question, with responses mostly ranging from 1 to 5 hours per month if only one employee is responsible for the monitoring. Finally, we examined the data provided by the four aforementioned municipalities. Table 7 presents the data on monitoring costs in the selected municipalities.

Due to the very small sample size of only four municipalities, conducting statistical tests such as correlation analysis and regression analysis would not be appropriate, given the lack of statistical power and the low reliability of the results. Therefore, we did not conduct such an analysis for this type of transaction cost.

Table 7:

Producer monitoring costs in municipalities

Municipality	Annual costs for monitoring (€)	Annual costs for contracting put the service (in €)	Costs for monitoring out of annual costs for contracting out the service (%)
Opiná	200	2 800	7.14
Veľké Ludince	2 400	32 800	7.31
Dojč	2 500	45 000	5.50
Jakubovany	240	6 200	3.87

Source: Authors' own elaboration, 2025

Since we only have data from four municipalities, the results cannot be clearly explained. However, based on the existing data, we can see that monitoring costs make up a larger percentage of the total cost of contracting out for the selected service. The above is, of course, assuming the municipalities provide actual, real data. However, given the low number of respondents, we are inclined to the same view as for the first group of transaction costs, that municipalities provided inaccurate or unrealistic data. Therefore, based on the results, we conclude that municipalities in the sample do not keep records of producer monitoring costs for the selected service.

Based on the results from this section, we answer the research questions as follows:

RQ1: Can Slovak municipalities contracting out municipal waste collection and disposal services determine the amount of their transaction costs?

The municipalities in the sample were unable to identify the amount of their transaction costs. Less than 10% of the municipalities indicated a specific amount for ex-ante costs, and only 1.7% of the municipalities indicated a specific amount for monitoring costs. Thus, the claim by domestic and foreign authors that calculating transaction costs is very complex and that municipalities and cities are not willing to work with them is confirmed.

RQ2: What part of the total costs of contracting out the service for the collection and disposal of municipal waste are transaction costs?

Where municipalities have reported transaction costs in the sample, we observe significant differences in their contribution to the total contracting cost. The highest values recorded exceeded 8%, and the lowest values were less than 1% of the total costs. We note that the reported values are not reliable, and therefore, we cannot answer the research question. Therefore, a priority for further investigation will be to obtain a larger number of respondents or to contact and work with specific municipalities in order to estimate these costs more accurately.

It should be acknowledged that the results of the analysis may be distorted by the fact that municipalities do not systematically track exact transaction costs. This

objective issue in research has been observed in similar studies conducted in both Slovakia and the Czech Republic, such as Soukopová et al. (2022), Soukopová et al. (2017) or Soukopová and Sládeček (2018). Nevertheless, transaction costs could be one of the crucial aspects when evaluating the efficiency of public service contracting.

5. Conclusion

Contracting out public services, such as municipal waste collection and disposal, is an important tool for providing public services. Despite its widespread use, research highlights the significant role of transaction costs in evaluating the effectiveness of this service provision method, as well as the frequent oversight by municipalities of these costs. Transaction costs are one of the key factors that can influence the success of contracting out (Brown & Potoski, 2003; Brown & Potoski, 2005; Bel & Warner, 2015; Domberger et al., 1986; Bel et al., 2010; Petersen, Hjelmar and Vrangbæk, 2018; Bel & Rosell, 2016; Meričková et al., 2022).

Examination of the Slovak municipalities in the sample set revealed that only a small percentage of these municipalities can quantify their transaction costs, making it difficult to objectively assess the effectiveness of contracting out. The result is consistent with the findings of Domberger et al. (1986), Petersen, Hjelmar, and Vrangbæk (2018), Bel and Warner (2015), and others. Nevertheless, a large majority of the selected Slovak municipalities contract out the municipal waste collection and disposal service. The public procurement process and subsequent regular monitoring of the producer may represent a significant part of the total costs (Brown et al., 2015; Bel & Warner, 2015; Domberger et al., 1986), which would be contrary to the findings of Brown and Potoski (2002), who in their model categorise municipal waste collection and disposal service as one with potentially low transaction costs. Due to the low number of respondents and the unreliability of the data obtained, we were unable to confirm the findings of these authors in the Slovak municipality setting. These findings also align with those of Holíková, Mikušová Meričková, and Muthová (2023), confirming the issue of cost centres in small Slovak municipalities. To solve the problem of transaction costs and their calculation, it is therefore necessary to ensure that the cost centres function properly.

As we stated before, it is not possible to determine the actual transaction costs associated with contracting local public services in Slovakia in the current environment. Not only are the data available non-existent due to non-functional cost centres, but many municipalities also lack a clear understanding of what transaction costs are, further complicating the matter. Therefore, the only viable approach is to establish direct contact with municipalities and conduct primary data collection. This primary data collection does not guarantee accurate information; nevertheless, the information obtained through this method, such as in the case of this paper, remains highly valuable,

as it provides at least an approximate insight into this long-overlooked issue.

The results of the studies suggest that the effectiveness of contracting out depends on a comprehensive assessment of costs, including transaction costs. Nevertheless, the current situation in the environment of selected Slovak municipalities is unsatisfactory and far from optimal.

Transaction costs are a fundamental factor in contracting-out decisions, influencing the make-or-buy decision in public service delivery. High transaction costs can outweigh the benefits of contracting out, making in-house production a more viable option. When transaction costs are minimised through effective contract design and management, contracting out can lead to efficiency gains and cost savings. Ultimately, while contracting out can offer significant advantages, its success depends on how well transaction costs are managed. However, the first prerequisite for transaction cost management is understanding their nature and monitoring them.

Research on transaction costs in the public sector in Slovakia cannot yet work with relevant data in statistically significant samples. However, it must at least draw attention to the seriousness of the problem of not tracking them in the practice of public administration.

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