THE IMPACT OF MARKET CONCENTRATION ON THE COST EFFICIENCY OF PUBLIC SERVICE CONTRACTING AND SELECTION OF SERVICE PRODUCER IN THE CONTEXT OF SLOVAK MUNICIPALITIES

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Abstract

Contracting of municipal public services in a historical context was expected to bring cost savings and improvements in service quality. However, recent research questions this assumption and highlights the need to examine factors that may influence the outcomes of contracting–whether in terms of cost efficiency or service quality. The aim of this paper is to explore the impact of market concentration, as one of these factors, on the cost efficiency of contracting and on municipalities' preferences when selecting a producer for the service of municipal waste collection and disposal. Based on primary research carried out among Slovak municipalities, the findings indicate that the market for the selected service is highly concentrated. The relationship between market concentration and contracting price could not be confirmed. When examining changes in municipalities' preferences in relation to market concentration during the selection of a service producer, we observed that most municipalities chose their producers based on the lowest price of their offer, regardless of the market concentration. Since this is one of the few studies addressing this relationship, it contributes to the development of the theory of contracting public services not only in the Slovak Republic but also internationally.

Keywords: Municipal Public Services, Contracting Out, Market Concentration

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Introduction

There are several reasons why a private or public organization might decide to enter into a contractual relationship with an external producer to secure its services. However, the main reason for switching to contracting is considered to be the potential cost reduction. The views that prevailed in the 1980s about contracting as the ideal form of service provision have changed significantly in recent years (Petersen, Hjelmar, and Vrangbæk, 2018; Bel, Fageda, and Warner, 2010; Bel and Rosell, 2016; Benito, Guillamón, and Bastida, 2015; Simões, Cruz, and Marques, 2012; Dijkgraaf and Gradus, 2013), and the results of studies by current domestic and foreign authors indicate problems with this understanding and point to the need to examine selected factors that may influence the outcome of contracting, such as market concentration.

Higher market concentration should, in theory, lead to higher prices, since in the case of a monopoly position a single company has the opportunity to adjust its prices to maximize its profits at the expense of consumers, which in our case are municipalities. Despite domestic and foreign authors who have been dealing with this topic for several years (Dijkgraaf and Gradus, 2006; Di Foggia and Beccarello, 2021; Pavel and Slavík, 2017; Soukopová and Vaceková, 2015; Bel and Costas, 2006; Massarutto, 2007; and others), there is no clear answer to this question. According to authors (Bertini, Wathieu, and Iyengar, 2012; Parker and Lehmann, 2014; Salisbury and Feinberg, 2012; Kamenica, 2008; Orhun, 2009; Guo and Zhang, 2012; and others), market concentration may also influence the preferences of public service providers when selecting a suitable producer. Nevertheless, this phenomenon has not yet been studied in the Slovak Republic.

The main objective of this paper is therefore to examine the impact of market concentration in municipal waste collection and disposal services on the cost-effectiveness of contracting and the preferences of municipalities when selecting a producer in the real environment of Slovak municipalities. The first part of the paper explains the current understanding of the issue, which includes domestic and foreign studies by authors dealing with the issue of market concentration. In the analytical part, the paper works with the following research questions:

- RQ1: What is the market concentration of municipal waste collection and disposal services in Slovak municipalities?

- RQ2: Does market concentration affect the cost-effectiveness of contracting municipal waste collection and disposal services in Slovak municipalities?
- RQ3: Are municipalities' priorities changing when selecting a municipal waste collection and disposal service producer in view of the market concentration of this service?

Theoretical Background

Currently, there is no single, universally accepted definition of contracting that can be found in all publications and studies. Greaver (1999) defines contracting as a process in which a company separates a specific business activity and, together with the relevant technical and personnel resources–including employees, materials, and assets–transfers or leases it to an external supplier. This supplier then provides the service on the basis of a contractual relationship. A key aspect of contracting is that the organization previously provided the service internally and continues to use it even after it has been transferred to an external provider. If it stopped using the service after outsourcing, it would be more a sale of part of the business than contracting.

Contracting services in the public sector, as one of the alternative forms of providing public services, began to appear as early as the 1970s. At that time, it was perceived as the optimal way of providing services, as it promised cost savings while improving the quality of services provided compared to internal provision. Other factors that may motivate municipalities to switch to external service provision include the use of modern technologies, a focus on key activities, improved flexibility, the release of assets, and ensuring the stability of service provision (Harland, Knight, Lamming, and Walker, 2005; Brown and Wilson, 2012; Wassenaar, Groot, and Gradus, 2013).

However, over the last twenty years, there has been a growing number of studies that question the claim that contracting public services is more cost-effective (Bel, Fageda, and Warner, 2010; Bel and Rosell, 2016; Dijkgraaf and Gradus, 2013; Benito, Guillamón, and Bastida, 2015; Simões, Cruz, and Marques, 2012). The authors therefore emphasize that the discussion should focus on the factors influencing the cost-effectiveness of contracting and on ways to achieve optimal results with this model of public service provision. One of the key factors that can influence the results of contracting is the market concentration of the public service. This aspect is currently the subject of intensive research by both domestic and foreign authors.

The Impact of Market Concentration on the Cost Efficiency of Contracting

The basic prerequisite for examining market concentration is the selection of a suitable index for measuring it. Ginevičius and Čirba (2007) addressed this issue in their work, identifying two main groups of indicators: discrete and cumulative. Discrete indicators are based on a concentration curve that shows the percentage shares of individual producers in the market. However, these indicators only take into account selected points on the curve, such as the market shares of the four largest companies. In contrast, cumulative indicators work with all points on the concentration curve, thus taking into account the shares of all entities operating in the market. An example is the Herfindahl–Hirschman Index, which is the most commonly used market concentration index and is also used in our research.

The results of analyses of the impact of market concentration on contracting outcomes are unclear – on the one hand, there are studies that have been able to confirm the research hypothesis of a directly proportional relationship, i.e., that higher market concentration is accompanied by higher costs for contracting a given service. Dijkgraaf and Gradus (2006) investigated the existence of collusions in Dutch municipal waste collection and disposal services and found that the high market concentration that exists there hinders effective contracting. Conversely, competition was stronger in less concentrated regions. The authors therefore recommend the involvement of public organizations, not just private companies. Di Foggia and Beccarello (2021) analyzed the impact of market concentration on Italian public service prices and found that a higher Herfindahl–Hirschman Index slightly increases the cost of contracting a given service. Pavel and Slavík (2017) examined the factors influencing prices for municipal waste collection and transport services in the Czech Republic. In the Plzeň region, where the dominant company controls 50% of the market, prices were higher than in regions with lower market concentration. Soukopová and Vaceková (2015) analyzed market concentration in the Olomouc region, where low market concentration was found with an HHI of 886. It was in these areas that the average and median prices were lower than in more concentrated areas.

On the other hand, however, there are a number of studies that have failed to confirm the relationship between market concentration and contracting prices. Gradus, Schoute, and Dijkgraaf (2018) analyzed the concentration of municipal waste collection and disposal services in the Netherlands between 2006 and 2014 at the regional level. They found a high level of market concentration, but the results suggested that contracting costs were not directly related to market concentration but rather to legislative changes. Bel and Costas (2006) examined competitiveness in 186 municipalities in Catalonia using HHI and multivariate analysis. They identified low competition due to low product differentiation and strong dominance of

large firms, but market concentration did not have a significant impact on the final price of the service. Soukopová and Malý (2012) analyzed the expenditures of municipalities in South Moravia, hypothesizing that competition would have a greater impact on prices in municipalities where neighboring municipalities have a contractual relationship with another producer, thus creating the assumption of lower marginal costs for this producer in the event of expansion. However, the results were not clear-cut: three of the five most competitive districts had the lowest expenditures, but at the same time, municipalities with a recorded monopoly reported lower expenditures than some less concentrated districts. Other studies that failed to confirm this relationship include Massarutto (2007), Soukopová, Malý, and Ficek (2013), as well as our own studies such as Murínová (2023) and Mikušová Meričková and Mališová, Murínová (2022a, b).

The Impact of Market Concentration on Provider Preferences during the Service Producer Selection Process

Based on the studies mentioned above, existing research on the impact of market concentration is clear – most of it focuses on the impact of this factor on contracting costs. However, in this paper, we have decided to also examine the impact of market concentration on the preferences of the provider during the process of selecting a service producer. There is currently no study in the domestic environment that examines this aspect of market concentration, but the theory associated with it has appeared in the work of Bertini, Wathieu, and Iyengar (2012) and states that consumers – in our case, public service providers – know their preferences in terms of quality and price, but the final decision depends on the density of supply, or the number of products offered. In the case of a monopoly on the market, the municipality has no choice, but in the case of several producers on the market, the municipality's priority is to reduce costs, so it often decides based on the lowest price – this has also been confirmed in our own studies (Murínová, 2020; Mikušová Meričková, Mališová, and Murínová, 2022a; Murínová, 2023). However, there is another trend in the case of lower market concentration – consumers tend to buy higher-quality products, while undecided consumers feel the need to seek further information. As a result, higher-quality products become more popular in the eyes of consumers. Authors Parker and Lehmann (2014) and Salisbury and Feinberg (2012) describe this situation as mixed decision-making, where the consumer must satisfy several factors – lower price and higher quality at the same time.

On the other hand, authors such as Kamenica (2008), Orhun (2009), and Guo and Zhang (2012) examine this phenomenon from the producer's perspective – that is, how producers decide on supply based on anticipated consumer behavior. If the costs of obtaining additional information are low enough for consumers, there is a chance that, given sufficient differences in the quality of the two offers, they will be interested in the higher-quality and more expensive one (Wathieu and Bertini, 2007). However, if consumers are unwilling to learn more about the offer, they are likely to make the same decision as other consumers in their area or automatically focus on the cheaper offer. In the case of municipalities, this could result in reduced interest in new producers and further market concentration.

In the context of Slovak municipalities, this theory would mean that in the case of low market concentration and a larger number of producers on the market, municipal demand would shift towards higher-quality offers associated with an expected higher price.

Methodology

The main objective of this paper is to examine the impact of market concentration in municipal waste collection and disposal services on the cost-effectiveness of contracting and the preferences of municipalities when selecting a producer in the real environment of Slovak municipalities.

The object of the study is a sample set of 254 Slovak municipalities. The paper primarily uses data obtained through an online questionnaire that was sent to all Slovak municipalities between December 2023 and March 2024. The following table shows the representativeness of the sample set.

We can see that the sample set is not representative, especially in the case of smaller municipalities, so the research results will not be generalized to the entire population.

Based on the main objective, we formulated several research questions:

- RQ1: What is the market concentration of municipal waste collection and disposal services in Slovak municipalities?

The basis for examining this issue is the work of Ginevičius and Čirba (2007), which appeared in the theoretical background of this paper. Based on the authors' classification of market concentration indices according to their suitability for use, we selected the Herfindahl–Hirschman Index, which is used in almost all domestic and foreign studies (Dijkgraaf and Gradus, 2006; Gradus, Schoute, and Dijkgraaf, 2018; Di Foggia and Beccarello, 2021; Soukopová and Vaceková, 2015; Bel and Costas, 2006; Mikušová Meričková, Mališová, and Murínová, 2022a, b; Murínová, 2023; Murínová, 2024). The index uses the sum of the squares of the market shares of companies in a given industry. The index reaches values in the range

I: Percentage representation of the sample set by size group compared to the base set

Size group (number of inhabitants)	Number of municipalities in the base set	Number of municipalities in the sample set	Share of the sample set in the base set
0	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 own research

<0; 10 000>. A value of 10 000 indicates a situation where there is a monopoly on the market that provides the total supply, and conversely, values approaching 0 mean that there is an infinite number of companies of similar size on the market (Brezina, Oršulová, and Pekár, 2009).

$$HHI = s_1^2 + s_2^2 + s_3^2 + s_4^2 + \ldots s_n^2$$

II: Herfindahl-Hirschman Index scale

HHI < 1 500	The industry is not concentrated, there are many companies in it, and competitiveness is high.
1 500 < HHI < 2 000	The industry is moderately concentrated
2 500 < HHI	The industry is highly concentrated, supply in the industry is divided among only a few companies, or one company in the case of a monopoly, competitiveness is low

Source: U.S. Department of Justice website, 2018

In foreign studies, as in the case of the study by Gradus, Schoute, and Dijkgraaf (2018), we observe that authors most often use a circular radius to determine the size of the studied territory. However, given the administrative division of the Slovak Republic, this paper considers individual districts.

- RQ2: Does market concentration affect the cost-effectiveness of contracting municipal waste collection and disposal services in Slovak municipalities?

In this section, we monitor cost efficiency using two selected indicators – expenditures per capita and expenditures per performance indicator, which in this case is one ton of waste. Nemec (2012) states in his work that public organizations in Slovakia and the Czech Republic do not keep cost accounts, or that they cannot be used during research due to their ineffectiveness. Therefore, cost efficiency is examined through the annual expenditure of contracting the municipal waste collection and disposal services. Similar indicators were also used in the works of Meričková and Fanta (2012), Murínová (2020), and Pavel and Slavík (2017), as well as Soukopová and Malý (2012), and Mikušová Meričková, Mališová, and Murínová (2022a, b; 2023; 2024).

- RQ3: Are municipalities' priorities changing when selecting a municipal waste collection and disposal service producer in view of the market concentration of this service?

This research question is based on the theory of Bertini, Wathieu, and Iyengar (2012), who argue that as the number of producers on the market increases, municipalities' priorities in selecting a producer shift toward higher-quality services, which may entail higher prices. Using a questionnaire, we identify the priorities of municipalities, which we assign to the identified market concentration in a given district. Using comparative analysis, we then identify changes in the behavior of service providers with regard to the number of producers on the market.

Results

For this research, we only took into account the districts that had the highest representation among respondents – these districts, together with the representation of the sample set in the base set, can be seen in Tab. III.

III: Percentage representation of the sample set by district compared to the base set

Districts	Number of municipalities in the sample set	Number of municipalities in the base set	Share of the sample set in the base set
Lučenec	11	57	19.2%
Rimavská Sobota	13	107	12.1%
Senec	10	54	18.5%
Topoľčany	8	45	17.8%
Trnava	7	29	24.1%
Liptovský Mikuláš	8	56	14.3%
Žiar nad Hronom	4	35	11.4%
Malacky	4	26	15.4%
Rožňava	7	62	11.3%
Kežmarok	6	41	14.6%
Nové Mesto nad Váhom	4	34	11.7%
Považská Bystrica	4	28	14.3%
Prievidza	6	52	11.5%
Žilina	6	53	11.3%

Source: own research

Due to the low number of respondents, 14 districts were included in the analysis, with the number of respondents reaching more than 10% of the base set.

The first step was to assess the extent of contracting the municipal waste collection and disposal services compared to the municipalities that provide these services internally. We assess market concentration based on the number of external companies operating in the given market, including the technical services, which is an entity created by a municipality, usually a bigger city – we only include it in the calculation if it is used by another municipality, which indicates a contractual relationship. Otherwise, it is only an internal provision of services by an organization created by the municipality itself to provide the selected service. As Tab. IV shows, contracting this service is the most common form of provision, with internal provision recorded in only four districts.

Based on previous studies (Mikušová Meričková, Mališová, and Murínová, 2022a, b; Murínová, 2023; Murínová, 2024), we observe only minimal changes in the extent to which this service is contracted out;

IV: Contraction rate in selected districts

Districts	Contraction rate
Lučenec	100%
Rimavská Sobota	100%
Senec	100%
Topoľčany	100%
Trnava	100%
Liptovský Mikuláš	75%
Žiar nad Hronom	100%
Malacky	100%
Rožňava	85%
Kežmarok	83%
Nové Mesto nad Váhom	75%
Považská Bystrica	100%
Prievidza	100%
Žilina	100%

Source: own research

V: Measured HHI values

Districts	HHI	Number producers on the market
Lučenec	4 876.72	3 private
Rimavská Sobota	8 528	2 private
Senec	5 000	2 private
Topoľčany	3 000	4 private
Trnava	7 738	2 private
Liptovský Mikuláš	2 824	2 private, 2 technical services
Žiar nad Hronom	6 250	2 technical services
Malacky	6 250	2 private
Rožňava	5 512	2 private
Kežmarok	3 600	3 private
Nové Mesto nad Váhom	10 000	1 private
Považská Bystrica	10 000	1 private
Prievidza	3 336	4 private
Žilina	7 312	2 private

Source: own research

in some cases, the rate is even higher in the same districts. In our previous work, we also identified the reluctance to provide the service internally due to its high technical complexity as one of the reasons for the preference for contracting. In the case of municipal waste collection and disposal, this is a service that entails high entry costs, such as the purchase of the necessary vehicles, collection containers, and waste processing equipment. Municipalities are therefore willing to pay an external producer for the service, even if the resulting price may be higher than if they provided it internally (Murínová, 2020).

In the next section, we moved on to calculating the market concentration. The following table shows the measured values of the Herfindahl–Hirschman Index for each of the districts monitored, together with the total number of private service producers recorded in each district.

Based on the results, we can see that the market for municipal waste collection and transport services is highly concentrated in selected Slovak regions, i.e., we did not record an HHI value lower than 2,500 in any of the districts. A monopoly was recorded in only two districts, namely those of the private companies Marius Pedersen a.s. and Megawaste Slovakia s.r.o. The lowest market concentration values were recorded

VI: Indicators of costs per citizen and per ton of waste in the monitored districts

Districts	Cost per capita	Cost per 1 ton of waste	HHI
Lučenec	25.47€	148.50€	4 877
Rimavská Sobota	27.40€	158.43€	8 528
Senec	48.03€	203.35€	5 000
Topoľčany	34.65€	221.29€	3 000
Trnava	37.65€	208.88€	7 738
Liptovský Mikuláš	32.02€	179.82€	3 800
Žiar nad Hronom	24.74€	189.80€	6 250
Malacky	26.27€	171.87€	6 250
Rožňava	31.12€	213.17€	5 512
Kežmarok	37.65€	214.29€	3 600
Nové Mesto nad Váhom	50.38€	245.14€	10 000
Považská Bystrica	28.19€	211.11€	10 000
Prievidza	33.19€	148.79€	3 336
Žilina	31.32€	168.65€	7 312

Source: own research

in districts with four producers, in both cases with an almost equal distribution of market shares. In addition to the above-mentioned companies, names such as MEPOS s.r.o., Brantner Gemer s.r.o., Fúra s.r.o., AVE Slovensko s.r.o., FCC Slovensko s.r.o., and ENVI-GEOS Nitra s.r.o. also appeared. However, we also recorded the use of technical services provided by the city as a producer of the service in question.

Based on the results, we respond to RQ1: Market concentration in municipal waste collection and disposal services is high in the Slovak municipalities monitored, with several cases involving a monopoly by a single producer.

In the case of the second research question, we monitored the impact of market concentration on costs per capita and costs per ton of waste. As mentioned in the previous section, we used annual expenditures for contracting out the service to calculate the indicators. The following table shows the resulting values of the indicators calculated as the arithmetic mean of the costs per capita and the costs per ton of waste in all municipalities within a single monitored district. For comparison, the table also shows the individual HHI values.

Based on the results, it is not possible to unequivocally confirm the impact of market concentration on the contract price of the monitored service, as the data obtained show conflicting trends. For example, the district of Lučenec, which is characterized by relatively low market concentration (in the context of the sample set), achieves low – i.e., more positive – values of both cost indicators. Conversely, in the district of Topoľčany, where the HHI is lowest, we see high values of both indicators. Similar results are also seen in the districts of Prievidza and Kežmarok, especially for the first indicator.

On the other hand, when looking at districts with high market concentration, we see the district of Nové Mesto nad Váhom, where a monopoly by Marius Pedersen a.s. was recorded, and the values are very high for both indicators. However, this trend is not consistent – Rimavská Sobota, Malacky, and Žilina achieved relatively good cost indicator values despite an HHI value higher than 6,000.

In the case of the Žiar nad Hronom district, this is a market dominated by the technical services of two towns – Turčianske Teplice and Žiar nad Hronom – and it is here that, despite the high market concentration, we recorded better values for both indicators. This partially confirms the findings of previous studies (Mikušová Meričková, Mališová, and Murínová, 2022a, b; Murínová, 2023) that technical services, which mostly operate in only one district and provide their services to surrounding municipalities, usually have lower prices for their services, even though the concentration in the district is very high or there is no other competition at the same level.

Nevertheless, the results indicate that contracting costs are independent of the concentration of the municipal waste collection and transport market. Based on this, we can answer RQ2: Market concentration does not affect the price of contracting the municipal waste collection and disposal services in Slovak municipalities.

In the last section, we examined the following research question:

- RQ3: Are municipalities' priorities changing when selecting a municipal waste collection and disposal service producer in view of the market concentration of this service?

Given that the theory dealing with this relationship (Bertini, Wathieu, and Iyengar, 2012) refers to the priorities of municipalities when selecting a service producer as a variable dependent on the size of the market supply, we refer to this phenomenon as a sub-factor of market concentration.

To determine changes in preferences, we therefore used market concentration values from the previous part of the analysis. We compared the results with the priorities that municipalities cited as the main reason for choosing a particular producer. Tab. VII contains HHI values and the three priorities with the highest number of votes.

Based on the results, we cannot say unequivocally that market concentration influences municipalities' preferences when selecting a producer. On the one hand, we see districts with the highest market concentration in the sample, such as Rimavská Sobota, Trnava, Nové Mesto nad Váhom, and Považská Bystrica, which clearly prioritize the lowest price. For respondents in the Malacky district, this is even the only priority mentioned. However, we observe the same in the case of municipalities with relatively low market concentration (relative to the sample set) – these are the districts of Topoľčany, Kežmarok, and Prievidza. In some cases, however, priorities such as references become more important – we observe this in the district of Liptovský Mikuláš, which has a relatively low market concentration. We understand this priority as the need for municipalities to educate themselves further and take an interest in the results of contracting in other municipalities. Looking at the districts where at least some municipalities were interested in the highest quality – Lučenec, Senec, Topoľčany, and Prievidza – we observe that these are districts with relatively low market concentration. We therefore see signs that, with greater supply, municipalities can become more interested in improving the quality of their public services. Nevertheless, the lowest price is still the main priority in most districts, regardless of their market concentration, so it is not possible to say that there is a relationship between the variables.

We therefore answer the research question RQ3 as follows: The priorities of municipalities when selecting a producer of municipal waste collection and disposal services are not dependent on market concentration and the associated size of the market offer.

VII: Municipalities' priorities when selecting a producer

Districts	HHI	Priority with the highest number of votes	Priority with the second highest number of votes	Priority with the third highest number of votes
Lučenec	4 877	Realism of the offer (45%)	Lowest price (45%)	Highest quality (10%)
Rimavská Sobota	8 528	Lowest price (46%)	References (23%)	Realistic offer (23%)
Senec	5 000	Realistic offer (43%)	Lowest price (43%)	Highest quality (14%)
Topoľčany	3 000	Lowest price (60%)	Realistic offer (30%)	Highest quality (10%)
Trnava	773	Lowest price (75%)	Realistic offer (25%)	
Liptovský Mikuláš	3 800	References (77%)	Lowest price (33%)	
Žiar nad Hronom	6 250	Lowest price (75%)	Realistic offer (25%)	
Malacky	6 250	Lowest price (100%)		
Rožňava	5 512	Lowest price (72%)	Realistic offer (14%)	References (14%)
Kežmarok	3 600	Lowest price (80%)	The municipality has no choice (20%)	
Nové Mesto nad Váhom	10 000	Lowest price (50%)	Realistic offer (50%)	
Považská Bystrica	10 000	Lowest price (75%)	Realistic offer (25%)	
Prievidza	3 336	Lowest price (50%)	Realistic offer (33%)	Highest quality (17%)
Žilina	731	Lowest price (83%)	Realism of the offer (17%)	

Source: own research

Discussion and Conclusion

Based on the analysis of the impact of market concentration on the contracting of municipal waste collection and disposal services in Slovak municipalities, several key findings can be seen. The first significant finding is the high market concentration of the selected service in all the districts examined, which confirms the fact that in many areas one or very few producers dominate. Similar results were reported in the works of Bel and Costas (2006), Dijkgraaf and Gradus (2006), Soukopová, Malý, and Ficek (2013), Gradus, Schoute, and Dijkgraaf (2018), Di Foggia and Beccarello (2021), Murínová (2020), Mikušová Meričková, Mališová, and Murínová (2022a), Mikušová Meričková, Mališová, and Murínová (2022b), and others.

However, the results of the analysis of the impact of market concentration on the cost efficiency of contracted services do not show any specific relationship between these indicators; in some districts, the price for contracting is low compared to the rest of the sample, despite higher market concentration. The results are therefore consistent with the findings of Bel and Costas (2006), Massarutto (2007), Gradus, Schoute, and Dijkgraaf (2018), Soukopová and Malý (2012), Soukopová, Malý, and Ficek (2013), and others. However, the problem that arose in this part of the analysis is the distortion of the results due to the very high market concentration – given that we did not find any low-concentration districts, we cannot say unequivocally what impact market concentration has on cost efficiency. The priority in the Slovak Republic should therefore be to reduce market concentration, for example by shortening the contract period in order to stimulate competition in the market, or by concluding contracts with other public organizations, such as municipal technical services. In some cases, using municipal technical services has resulted in lower prices than using purely private producers.

The results of the analysis of the impact of market concentration on the preferences of public service providers during the selection of a producer also proved to be unclear. In the vast majority of cases, municipalities focused on the lowest price as a priority in their selection, but in some less concentrated districts, we observed signs that municipalities are becoming more interested in improving the quality of municipal waste collection and transport services. Nevertheless, we cannot unequivocally confirm the relationship between market concentration and preferences during the producer selection process. Due to the very low number of existing studies, this topic needs to be further explored, as it may help to further develop the theory of public service contracting not only in the domestic but also in the international environment.

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