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Corruption risks of Hungarian municipalities:

Quantitative and Qualitative Analyses

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Doctoral Dissertation

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1. Introduction

Corruption research is an exciting field of social sciences, as corruption is a particularly deep-rooted socioeconomic phenomenon (Engels, 2016), but in the meantime, it is very challenging to find the proper conceptualization and empirical method to characterize its occurrence (Lambsdorff, 2007; Rothstein *et al.*, 2014). Recently with the emergence of the ‘big-data’ techniques, new perspectives opened up for the researchers, as it became feasible to process and analyse great amounts of data published on the Internet characterizing the integrity of administrative and governing bodies. Analyses based on such data may shed light on tendencies which were unknown so far and also raise new methodological questions concerning this novel approach.

The present thesis joins this field by analysing the quality of public procurement activity of the Hungarian local governments in terms of corruption risks – in other words, the potential presence of corruption – with a twofold aim and implementing mixed, both quantitative and qualitative methods. Firstly, the research intended to reveal relationships between certain local socioeconomic factors and the corruption risks potentially occurring during the work of the municipalities. These correlations are going to be investigated with statistical tools. In addition, interviews planned to be conducted with decision-makers and experts at the local governments may enrich the interpretation of the quantitative part and provide important new understandings of the indicators of corruption risks on the local level.

Secondly, the results can contribute to the vivid methodological dispute concerning corruption research. Mostly because of the combination of quantitative and qualitative approaches the outcomes of the study may enhance our knowledge about the public procurement corruption risk indicators – we can have a better understanding of their validity, and whether they truly measure what they are intended to. As such methods emerged in the 2010s there is still a lack of empirical information about their advantages and disadvantages.

Thirdly, in my view, the dissertation may have important policy relevance, as one of the main characteristics of good governance is its ability to control corruption. Concerning this, well-functioning public institutions can and should conduct public procurement with low corruption risk and a high level of competition. In a state with institutions ensuring a

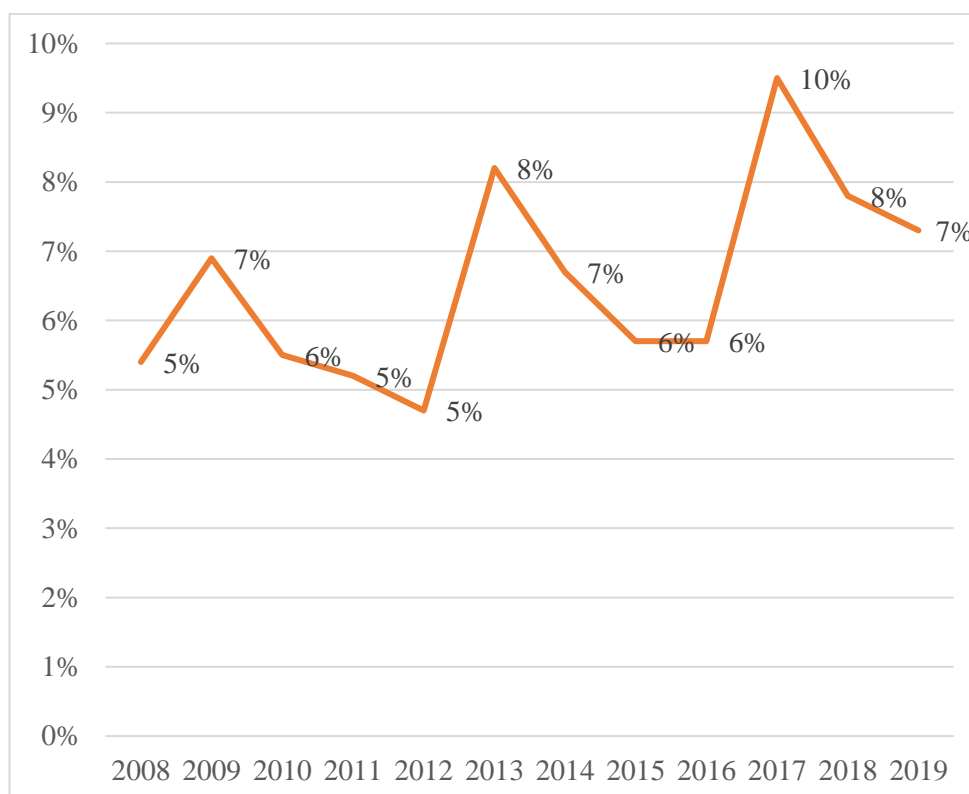
high level of integrity, these positive qualities apply not only at the central but also at the local level. The results of the present research may help the central government by analysing the links between corruption risk, the intensity of competition, the openness of local governments and territorial characteristics (level of human capital, economic development, the strength of local business community, size of settlement).

Investigating corruption risks on the ground of public procurement is important because of several reasons. Public procurement is an idealistic field for all sorts of people as well as legal entities who are intended to take part in corrupt transactions when the potential of gaining private wealth and the misuse of public power are both existent (Rose-Ackerman, 1978; OECD, 2007). In addition, the share of the public procurement activity to the gross domestic product is considerably high in most countries: the total value of the procurement contracts accounted for 6.6 per cent¹ of the GDP in Hungary on average between 2008 and 2019 and for over 14 per cent² in the European Union.

¹ Source: Hungarian Public Procurement Authority
(https://kozbeszerzes.hu/data/filer_public/89/0a/890a30f6-732b-4200-ac5b-acbd70567e14/kozbeszerzesi_hatosag_2019_evi_beszamoloja.pdf accessed: 1st February 2021)

² Source: European Commission
(https://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm accessed: 1st February 2021)

1.1. Figure: The public procurement value as a percentage of GDP between 2008 and 2019



Source: Hungarian Public Procurement Authority (https://kozbeszerzes.hu/data/filer_public/89/0a/890a30f6-732b-4200-ac5b-acbd70567e14/kozbeszerzesi_hatosag_2019_evi_beszamoloja.pdf accessed: 1st February 2021)

This is because public organizations and bodies using public funds have to launch public procurement tenders before most of their purchases. All in all, public procurement can be considered one of the most important fields of grand corruption – the problems of the definition of corruption and its conceptualization related to the present research are discussed in Chapter 2.1.

In Hungary, the Public Procurement Act³ regulates how public funds have to be spent. The preamble of the law declares that the rules were adopted ‘for the sake of the transparency and public control of the effective use of public funds, in order to establish conditions of fair competition in public procurement, furthermore, to enhance access of local small and medium-sized enterprises to procurement procedures, to promote

³ Act CXLIII of 2015 on Public Procurement (<https://www.kozbeszerzes.hu/torveny/act-cxliiii-of-2015-on-public-procurement/> accessed: 1st February 2021)

environmental protection and social considerations of the State'. Nevertheless, the circumstances favouring corrupt transactions can still be created during the procurement procedures, even without confronting any of the regulations – for example, there are procurement types recognized by the law allowing the issuers to launch tenders without public announcement which may facilitate corruption⁴ (Tóth and Hajdu, 2017c).

The so-called public procurement corruption risks what the present research focuses on are the occurrences of these conditions during the purchase of objects or services by public organizations making it easier to carry out corrupt transactions (Fazekas, Tóth and King, 2014, 2016; Fazekas and Tóth, 2016a) – it is supposed that entities that would like to take part in corruption arrange these circumstances to facilitate their fraudulent activities (Tóth and Hajdu, 2016). These corruption risk indicators – or in other terms red flags – are also acknowledged and used by international organizations and initiatives like the OECD, the European Commission and the Open Contracting Partnership. However, it has to be emphasized that the presence of conditions conducive to corruption does not necessarily mean that corrupt transactions have happened.

The corruption risks can be evaluated based on hard administrative data characterizing each public procurement contract. Firstly, the Hungarian Public Procurement Authority (HPPA) provides such information on its online portal on distinct pages per contract that were downloaded and processed by the Corruption Research Center Budapest (CRCB) resulting in a dataset⁵ containing the public procurement contracts as observations and their standard characteristics (for example the issuer and the winner organizations, the prices, the type of the procedures, the number of applicants for the tenders) what I analyse. Secondly, I rely on the Tenders Electronic Daily (TED), the online version of the 'Supplement to the Official Journal' of the European Union, dedicated to European public

⁴ Several articles and reports analysed the distribution of the tenders based on their value and found that many contracts are concentrated just below the value thresholds for procurement types without announcement, for example: <https://g7.hu/kozelet/20180419/meger-egy-kis-raforditast-hogy-egyszerubben-menjen-a-korruptcio/> (accessed: 1st February 2021), https://k.blog.hu/2018/06/04/alacsony_nyilt_kozbeszerzesek (accessed: 1st February 2021), <https://g7.hu/kozelet/20180206/005-szazalek-tanitani-valoan-trukkoznek-a-kozbeszerzesekkel/> (accessed: 1st February 2021)

⁵ The CRCB published several parts of this dataset on its homepage, for example the tenders issued between 2005 and 2017 with most important variables can be accessed here: <http://www.crcb.eu/?p=1300> (accessed: 1st February 2021)

procurement⁶. Generally, the data of the TED consists of tenders above the procurement thresholds of the European Union, however, as publishing below threshold tenders in the TED is considered a good practice, below threshold tenders, are present as well. I use these two sources of microdata characterizing public procurement tenders for my analyses focusing on those tenders that were issued by the local governments of the Hungarian towns between 2005 and 2020⁷. A more detailed description and comparison of the two datasets are done in Chapter 3.

Moreover, I will take into consideration the local socio-economic factors characterizing this period during the quantitative analyses. A great amount of existing literature discusses how such features correlate with indices of corruption on the country level – a complete section is devoted to introducing many of them in the literature review: see Chapter 2.3. for details. However, considerable variation occurs within the Hungarian regions regarding the prevalence of two features of the public tenders understood as corruption risk – and investigated in the dissertation – implying that it is worth studying subnational differences in more detail: the single bidder and the non-open contracts are widespread in the rural parts of the country than in the region of the capital, what can be explained by the differences in institutional capacity for wider use of open tendering and the maturity of the supplier markets (Fazekas, 2019). The present research may enrich such explanations and contribute to this field with two novelties: it is focused on differences occurring on the intra-national level and deals with the aforementioned objective corruption risk indicators instead of the subjective corruption perception indices which are the main subjects of the comparative quantitative corruption researches since the middle of the 1990s.

As it was highlighted before, the presence of corruption risks cannot be regarded as unequivocal evidence of corruption. Presumably, in many cases, the local market conditions or administrative specialities lead to tenders conducted within questionable circumstances and no fraudulent activities are committed. However, data and scientific investigations about these phenomena are scarce according to my knowledge. The present research aims to fill this gap with the planned interviews conducted with those decision-makers and experts at the local governments who have experiences with and insights into

⁶ <https://ted.europa.eu/TED/main/HomePage.do> (accessed: 15th February 2021)

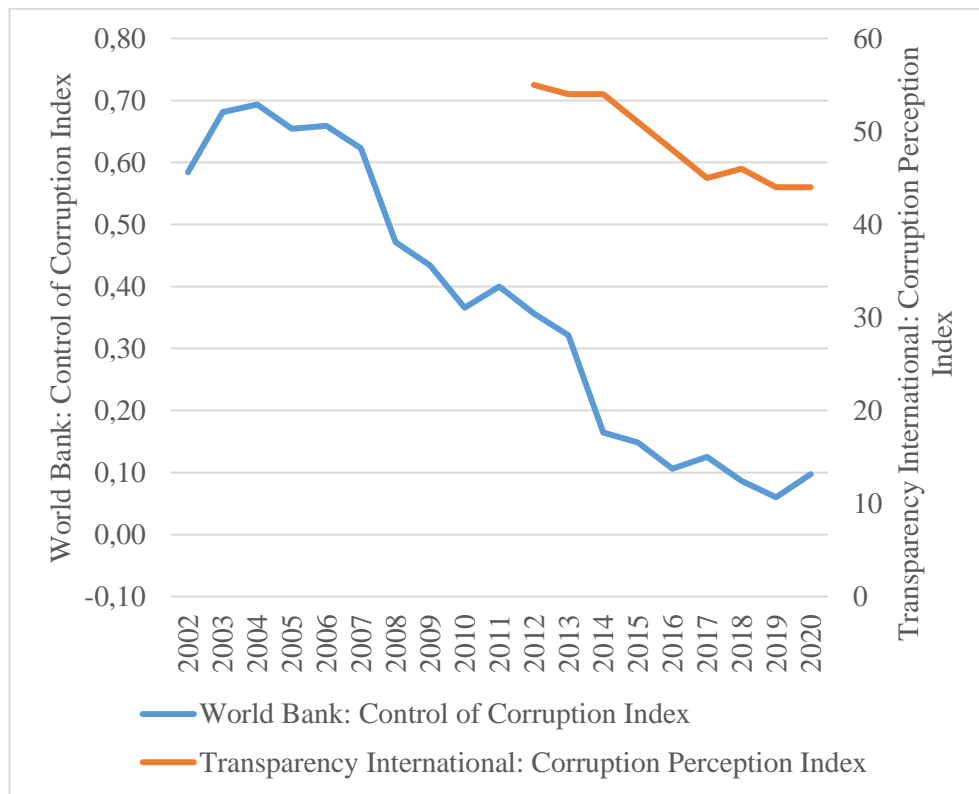
⁷ The analyses based on the TED dataset cover the years between 2006 and 2019 due to the data availability.

the public procurement at the municipalities. Thereby the planned qualitative fieldwork would not only contribute to the explanation of the statistical findings deriving from the quantitative part but also would provide new aspects and intuitions to the evaluation of the public procurement corruption risk indicators.

Recent proceedings in Hungary may put the conclusions of the empirical analyses into an interesting context. Corruption has become a fundamental problem in Hungary as indicated by the commonly cited general composite corruption perception indices of Transparency International (Ligeti, Martin and Nagy, 2016) and the World Bank⁸ (The World Bank, 2015): both of them indicate the increasing degree of corruption in Hungary, the worsening tendencies are visible on the next chart.

⁸ See the Control of Corruption Index of the Worldwide Governance Indicators (www.govindicators.org accessed: 1st February 2021)

1.2. Figure: The values of the Control of Corruption Index and the Corruption Perception Index for Hungary between 2002 and 2020



Source: Worldwide Governance Indicators of the World Bank (<http://info.worldbank.org/governance/wgi/Home/downloadFile?fileName=wgidataset.xlsx> accessed: 1st February 2021) and Transparency International (https://images.transparencycdn.org/images/CPI_FULL_DATA_2021-01-27-162209.zip accessed: 1st February 2021)

Note: Control of Corruption Index ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance; Corruption Perception Index ranges from zero (highly corrupt) to 100 (very clean).

In addition, recent studies investigating Hungarian public opinion revealed that corruption is a current and essential problem in the country: young people associate corruption with politics (Csőzik, 2014; Laki and Szabó, 2014) and a survey of top managers of mid-size and large companies also reveals the presence of corruption in business from several aspects (Limbek *et al.*, 2015).

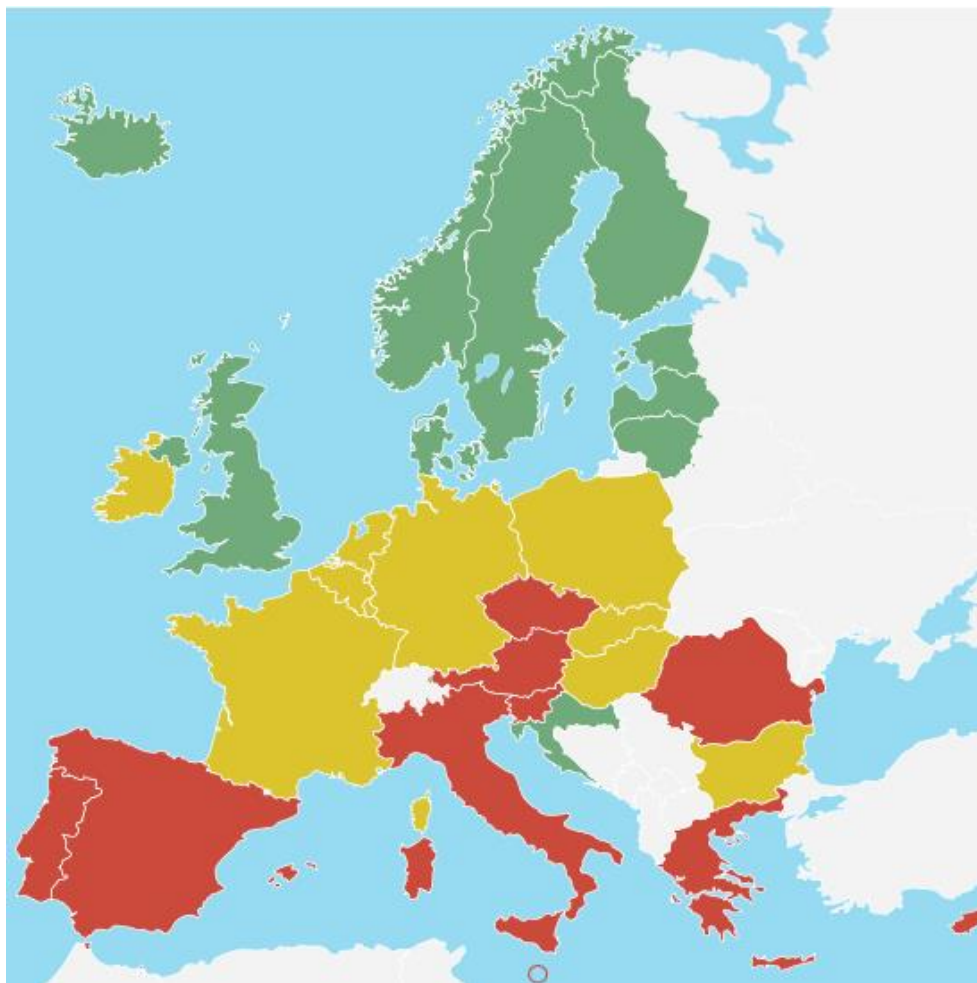
The analyses of objective measures of corruption risks also indicate that corruption is an actual and relevant issue in Hungary. For instance, in the domain of legislation, it was revealed that the speed of the legislative procedure significantly fastened after the government change in 2010 which may provide ground for ad-hoc, self-serving and

tailored law-making (Alberti *et al.*, 2015). In addition, research on Hungarian public procurement revealed that the strength of competition and the transparency of the procurement methods declined between 2010 and 2015 and thereby the risks of corruption increased in this field (Tóth and Hajdu, 2016, 2018a). In a cross-national comparison, the Index of Public Integrity, a composite indicator of objective measures regarding the potential of controlling corruption underlined the worrying situation in Hungary, as there are only four countries that can be characterized by worse rankings in the EU⁹ (Mungiu-Pippidi and Dadašov, 2016).

The Single Market Scoreboard of the European Commission combines 12 individual characteristics of the public procurement conducted in the member countries of the European Union (see Figure 1.3.) based on the data of TED. The details of the underlying methodology will be discussed in a distinct subsection in the ‘Data and methodology’ chapter, as in the dissertation the indicators I understand as corruption risk indices are composed according to it. However, it is worth highlighting here, that the overall public procurement performance – expressing whether purchasers get good value for money – in Hungary was average in 2019.

⁹ For the values of the index see: <http://integrity-index.org> (accessed: 15th February 2021)

1.3. Figure: The overall performance of the European countries according to the combination of the twelve Scoreboard indicators



Source: European Commission
(https://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm accessed: 15th February 2021)

Note: the overall performance is based on the combination of 12 characteristics of public procurement. By default, a satisfactory performance in an individual indicator increases the overall score by 1 point, while an unsatisfactory performance reduces it by 1 point. Red colour indicates an overall score below -3, yellow indicates between 3 and -3, and green indicates above 3.

By investigating the intranational socioeconomic factors affecting or at least correlated with corruption risks the current research may also contribute to a better understanding of how corruption became more and more widespread in Hungary. Recent studies investigating the modern autocratic states often focus on the current Hungarian proceedings (Guriev and Treisman, 2015; Kornai, 2016b) – the present dissertation may also supply this field with interesting insights. Furthermore, the results may give rise to

new aspects that can be taken into consideration during the formulation of anti-corruption policies.

In addition, since the 1990s most governments proclaim zero tolerance towards corruption, implicating that procurement and competition authorities put great emphasis on the detection and the exclusion of corrupt actors, and suppliers too (Auriol, Hjelmeng and Søreide, 2017). Despite these efforts cases of corruption continuously emerge, and many indicators suggest – like the aforementioned ones – that the challenges persist. One reason behind this phenomenon is that policymakers implemented different tools (like cartel settlements in competition law, sanctions for bribery, exclusion of suppliers from public tenders, and private enforcement, such as private actors' opportunity to claim compensation for breach of rules regulating market behaviour) mostly based on the example of the United States, but then failed to consider the interaction between them. In the meantime, citizens' belief that their governments' can solve the issue diminish across the globe – better understanding of public procurement corruption can also lead to relevant insights that may help to tackle this worldwide tendency, which is exceptionally important in emerging economies where public procurement accounts for 20 to 70 per cent GDP and is a lever of reforms (Neupane *et al.*, 2014).

All in all, the dissertation is an organic continuation of several projects of the CRCB, which I joined in 2015. Many of our recent joint work with my supervisor, István János Tóth here aimed to analyse the public procurement corruption risks in Hungary (Tóth and Hajdu, 2016, 2017c, 2017a, 2017b, 2018e, 2018b; Tóth, Hajdu and Purczeld, 2017) and the quality and the transparency of the homepages of Hungarian local governments (Balogh, Fleck and Purczeld, 2016; Corruption Research Center Budapest, 2019). The existing results suggested that there are significant differences between the local governments' performances in terms of their online presence and also the analysis of public procurement has proven to be a fruitful field for research. Thereby the analysis of the tenders issued by the municipalities seems to be an important step in the work we have been doing for several years.

The study begins with a discussion of the relevant existing international and Hungarian literature. Firstly, a summary is presented of the most commonly adapted conceptualizations of corruption research. I focus on those studies that are relevant from the aspect of the public procurement corruption risk indicators. Secondly, I summarize

some of the most important studies about the challenges and problems of measuring corruption. The dominant methods are presented like the corruption perception indices, the survey methodologies, some objective measurements and also the corruption risk indicators among others. I also present the results of some studies evaluating the advantages and disadvantages of the different methods. Furthermore, a subchapter is devoted to summarising the literature discussing those features of the public procurement tenders which I consider corruption risk indicators. Then studies are presented investigating the relationship between corruption and social, political and economic indicators and phenomena, as the hypotheses of the present research are based on the findings of these papers.

The research questions and the hypotheses are elaborated in the '*Data and Methodology*' chapter. Also, distinct subchapters are dedicated to the introduction and the comparison of the different data sources for my dependent variables: the public procurement dataset built by the CRCB and the TED dataset containing the European tenders. Then the sources for the local socioeconomic independent variables (like the Regional Development and Territorial Information System, the Ministry of Interior, the Bisnode, the Hungarian Central Statistics Office and the National Election Office) are introduced. The chapter continues with a detailed presentation of the indicators that I analyse – both their methodological background and the descriptive statistics are summarized. The strategy for their analysis is also outlined here. Finally, I discuss the methodological background of the qualitative fieldwork.

The results of these analyses are discussed in the following chapter. The analytical part begins with a descriptive study of the tendencies of the public procurement corruption risks among the Hungarian municipalities. Then I present the outcomes of the bi- and multivariate hypothesis tests in this part of the study. Finally, I conclude the interrelatedness of the investigated socioeconomic factors and the public procurement corruption risks and also the applicability of the methodology.

The dissertation ends with broader conclusions, policy recommendations and propositions of further research possibilities in this field.

2. Literature review

What does corruption mean? And how can we measure it? Most of the research done regarding the phenomenon of corruption begins with the discussion of these questions as its proper conceptualization and operationalization is a challenging problem. The first part of the present chapter sums up the intense scientific dispute about competing definitions and methods. Emphasis is put on the findings that are relevant when the phenomenon is approached by the public procurement corruption risk indicators. By comparing the strengths and the weaknesses of the most commonly used methods for measuring corruption, the results of the dissertation can be put into a clearer context.

As corruption is a longstanding phenomenon with distinct characteristics in different societies, it is the subject of numerous international comparative pieces of research. Apart from the descriptive studies, many of them look for correlations between socioeconomic factors and corruption measured with indices that are more or less internationally comparable. Most of the hypotheses of the dissertation are derived from such cross-national studies, their background is clarified in the last part of the literature review.

Furthermore, as the dissertation is focused on public procurement corruption risks of the Hungarian towns, both the role and importance and some of the specialities of the public tendering and the local governments are discussed at the end of the section from the perspective of corruption research.

2.1 Conceptualizing and measuring corruption and corruption risks

A key problem of corruption research is the definition of the investigated phenomenon as numerous alternatives have been formulated (Johnston, 1996). These explanations often refer to or involve notions which are also hard to describe on objective bases, like private interest, public role and the public good. In addition, many different approaches exist as several disciplines deal with the topic: for instance, corruption can be regarded as a kind of behaviour but it can be also described as a procedure.

A commonly cited classical definition was formulated by Nye in the 1960s, regarded as a conceptualization referring to corruption as a behaviour according to Johnston (Nye 1967: 419):

‘Corruption is behavior which deviates from the formal duties of a public role because of private-regarding (personal, close family, private clique) pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence.’

However, to be able to perfectly understand the aforementioned definition the notion of ‘public role’ should be also elaborated – it is not surprising that the involvement of such abstract terms led to an intense debate concerning the description of corruption in the field of social sciences (Lambsdorff, 2007; Rothstein *et al.*, 2014), even though most of the contending conceptualizations are more or less overlapping with each other: typically there is a consensus that the presence of at least two actors is a prerequisite for corruption; that the actors involved are conscious of their involvement in corrupt transactions; that self-interest takes precedence over the interests of others and the public; and last but not least the corrupt transactions are illegal (Rose-Ackerman, 1978).

In the further parts of this section some of those conceptualizations will be reviewed which are closely related to the approach of the research, even though some scholars claim that it does not worth dealing with this problem (Lambsdorff, 2007: 15):

‘Definitions of corruption can be discussed at length without necessarily providing an actual value added to the reader. Still some researchers display their endeavors in this area. They are willing to go into time-consuming debate and are fierce in preferring one approach to another. Such debate, however, tends to absorb much of the energy that is desperately needed elsewhere. Recognizing this, some colleges have started to avoid definitions of corruption, claiming that most cases of corruption are unambiguously perceived by most observers.’

However, the same author formulated the following definition in the same book (Lambsdorff, 2007: 1):

‘Corruption, the misuse of public power for private benefit’

This description was found to fit the purpose of defining public procurement corruption by completing it with: ‘in procurement’ (Piga, 2011). The careful conceptualization is essential because the word corruption by itself can refer to many different things, but if it is exhaustively defined, then the largest possible set of fraudulent behaviours in public

procurement can be covered. If this is not done properly, then sometimes the likelihood of corruption may become exaggerated (Type I error), and also some of the corrupt cases may be missed from the scope of the study, even though they are relevant (Type II error).

The aforementioned definition of Lambsdorf seems to grasp public procurement corruption according to Gustavo Piga because of four reasons which will be discussed more thoroughly in the following paragraphs: the word ‘power’ involves both political and bureaucratic corruption (i); as it does not refer to a specific moment or case it includes all favours around the public procurement (ii); through the word ‘misuse’ it excludes those transactions which improve welfare (iii); through the word ‘private’ and the lack of the word ‘individuals’ the corrupt transactions favouring entities made up of several individuals also included who benefits with an overall welfare decline for society (iv).

These points are important, as bureaucrats and politicians are perfect complements of public procurement corruption: political corruption makes bureaucrats less concerned with the consequences of participating in criminal actions and in the meantime the representatives of the administrative bodies can help politicians to better mask corruption.

In addition, public procurement corruption is not limited to a single tender in many cases. The transactions are often repeated with the same actors involved. In addition, the way how they are conducted may change over time as the officials and politicians become more and more embedded and experienced as they spend more time in power. The anti-corruption policies and activities also need time to become effective.

In many cases what can be considered public procurement corruption technically, at first sight, it turns out that ‘corruption’ is only a tool to avoid red tape. If these cases arise to circumvent those regulations hindering the work of public bodies and not result in negative outcomes for society then it has to be carefully considered whether they can be defined as corruption. In addition, these situations raise questions concerning the reasons for having a burdensome legislative framework – such regulations may have been approved because of corrupt exchanges. Furthermore, the borders between lobbying and corruption can be blurry, however, the former affects all firms in a certain sector, but the return of the latter is private gain (Svensson, 2005).

As for the last point of Piga, public procurement is often the field of grand corruption involving large corporations (or their consortia) and political parties. Certainly, petty

corruption of individual bribe takers and givers can also occur, but grand corruption may be dominant, as the largest share by value in public procurement consists of big and complex contracts. The actors involved in these projects may organize themselves into networks making corruption more and more simple and organized. Such networks (which are not necessarily formalized into legal entities) can lower the probabilities of being detected, cheated on, charged or sentenced.

Defining the notion of corruption is not only the subject of scientific debates but also challenges for national and international organizations. For example, the OECD, the Council of Europe and the United Nations do not have a general definition but define offences deriving from corrupt behaviour (OECD, 2008). One of the working definitions of the OECD provided in its Glossary of Statistical Terms¹⁰ is widely used by the authors implementing corruption risk indices in their research and is strongly related to the conceptualization that was discussed in the previous paragraphs (OECD, 1997; Lambsdorff, 2007):

*‘(...) active or passive misuse of the powers of public officials
(appointed or elected) for private financial or other benefits.’*

In the context of public procurement corruption, for identifying the clear-cut cases when the misuse of public office undoubtedly exists, the following conditions should meet (Tanzi, 1998b; Søreide, 2002): the act must be intentional and violate the principle of objectivity in performing public services (i); the corrupt actor or his family, friends, tribe, party or another relevant group he or she belongs to must benefit from the transaction (ii); the advantage has to be a direct return from the corruption (iii).

Moreover, it is worth distinguishing between political or high-level and administrative or bureaucratic corruption (Tanzi, 1998a). The former may mostly take place during the budget preparation when the political decisions are made and the latter is typical when the budget is being executed. However, political corruption may also occur during the implementation of procurement for instance by the political disagreement with a contract assignment, if we accept that the notion of political corruption covers all the corrupt transactions performed by politicians (Amundsen, 1999).

¹⁰ <https://stats.oecd.org/glossary/detail.asp?ID=4773> (accessed: 12th March 2021)

In the cases of corrupt public spending what can be regarded as institutionalized grand corruption, the conceptualization has to cover high-level political corruption, also in those cases when even the legal environment could be changed to serve rent extraction (Fazekas and Tóth, 2016b). According to the study of Mihály Fazekas and István János Tóth, corruption can be defined from this perspective as

‘(...) the allocation and performance of public procurement contracts by bending prior explicit rules and principles of good public procurement such as public procurement laws to benefit a closed network while denying access to all others.’

This conceptualization goes beyond simple bribery and can fit well in those situations when political and technocratic actors have to cooperate (the importance of this factor was also emphasized by Piga, see his fourth point cited a few paragraphs before). It assumes that prior explicit rules and principles can provide a guideline to distinguish between the impartial and partial allocation of public funds – nonetheless, it should be added, that impartiality implies the absence of corruption, but if there is no corruption, then not all forms of partiality are necessarily prevented (Rothstein and Teorell, 2008) – and they make open and fair competition mandatory, so if corrupt groups would like to generate rents through the purchases of public bodies, the rules have to be violated.

Accordingly, the present research would follow these approaches to the notion of corruption. However, it must be emphasized that corruption cannot only be created in official positions but for instance also in the business sphere (B2B – business to business – corruption) (Tóth and Hajdu, 2018a).

As for defining the public procurement corruption risks, Fazekas, Tóth and Lawrence Peter King argue that to control rent extraction from public procurement in an institutionalized way, the winners of the tenders have to be pre-selected (Fazekas, Tóth and King, 2014). This means that open competition has to be bypassed during the procurement procedures to make sure that the contract will be awarded to the preferred bidder. Such endeavours can be completed in three primary forms which can be executed in different phases of procurement and can be certainly combined: limiting the set of applicants to the tenders during the submission phase (i); unfair assessment of the applications during the evaluation period (ii); ex-post modifications of the contracting conditions in the delivery phase (iii).

Carrying out these actions can be made easier and more effective under certain conditions of public procurement (for example if there is only one bidder or the tender is not open for every potential applicant) – the presence of such circumstances can be regarded as corruption risks (Tóth and Hajdu, 2016). The administrative data characterizing the public procurement contracts make it observable whether the circumstances facilitating corrupt transactions are present or not. Their existence does not mean automatically that corruption happened, as it can be the result of chance or intentions but without the idea of corruption. Also, even if these conditions are present because the actors would like to perform a corrupt transaction, it is possible, that finally for some reason the corruption itself does not happen. However, the systematic occurrence of certain characteristics of public procurement contracts can indicate the risk of corruption.

The measurement of corruption is also a controversial problem for researchers. There are three different methodological approaches (Tóth and Hajdu, 2018a): the investigations of perceptions related to corruption mostly based on questionnaires and interviews (i); research concerning attitudes towards the phenomenon, also based on survey fieldwork in most cases (ii); studies implementing objective indicators (iii) – the present dissertation will follow the latter method.

The analysis of relative levels of corruption in a cross-national context was begun based on the corruption perception indices prepared by business risk analysts and polling companies (Treisman, 2000). One of the main sources of data characterizing the level of corruption in different countries is the Corruption Perception Index (CPI) of Transparency International (Transparency International, 2017). The yearly publication of the CPI was begun in 1995 and its latest values were calculated for 176 countries. CPI is a widely-used tool by scholars, journalists and policy-makers for assessing the extent of corruption, even though it has several weaknesses leading to controversial results and interpretations (Barrington, 2014). In addition, the methodology of the CPI was revised several times, which affects the comparability of its values over time. (Rohwer, 2009)

The Control of Corruption index of Worldwide Governance Indicators (WGI) reported by the World Bank also includes data concerning the perceptions of corruption (The World Bank, 2017). The project covered more than two hundred countries since 1996, and its indicators are also constructed based on multiple perception-based data sources, like surveys of firms and households, subjective assessments of commercial business

information providers, NGOs, multilateral organizations and public-sector bodies (Kaufmann, Kraay and Mastruzzi, 2011). Certainly, this index is also affected by several methodological issues (Kaufmann, Kraay and Mastruzzi, 2006).

Some important points of the general criticism towards these subjective perception indices are that perceptions may or may not be linked to the experience (Rose and Peiffer, 2012); they may be distorted by developments in broader domains, for example by economic growth (Kurtz and Schrank, 2007); or because respondents who are taking part in corruption may be motivated to underreport its extent, or those who are not involved lack accurate information (Golden and Picci, 2005); instead of relying on own experiences, the respondents may formulate their opinions based on the media coverage of corruption cases (Lambsdorff, 2001); and that they tend to grasp the absolute and not relative levels of corruption, thereby the larger countries are portrayed in a more negative tone than they should be (Donchev and Ujhelyi, 2014).

Another important aspect of the critiques towards the perception indices bundle many different types of corruption into an overall score, however, corruption is a diverse phenomenon – for example, corruption related to elites or non-elites or involving theft or exchanges can be differentiated (Ang, 2020).

2.1.1. Table: Four corruption sub-categories according to Yuen Yuen Ang (2020, p. 28)

	Non-elites	Elites
Involves theft	Petty theft: street-level bureaucrats privately pocket illegal fees; extort street vendors for protection money; agencies coerce companies to pay for their services; take group vacations on public funds	Grand theft: top officials illegally siphon public funds into private accounts; create ghost payroll for family members; illegally keep state subsidized properties for themselves; executives in state-owned companies collude to embezzle funds
Involves exchanges	Speed money: citizens pay police bribes to avoid penalties; tips to receive basic medical services; private payments to expedite medical services; small bribes to speed up licensing process; excessive regulations to extract bribes	Access money: businesses directly pay massive bribes for deals; pay for politician's family expenses for deals; allocate corporate positions to family members of politicians; politicians build clientelist networks for indirect bribe-taking; lobbying for favourable regulations; revolving door; loose oversight and bailouts with impunity

Source: (Ang, 2020, p. 28)

Sik even went further and suggested as an axiom that it is impossible to measure corruption (Sik, 2002). As there is no commonly accepted definition of corruption and it is an illegal phenomenon a certain amount of it will always remain invisible to the researchers. Thereby only 'guesstimations' can be formulated, which can be done in two ways: the aforementioned corruption perception approach and the corruption-proxy method. According to Sik, the basic assumption of the former way is that a properly

selected sample of people can be a reliable source for estimating the level of corruption, as the more extensive the phenomenon, the more people will experience it. As for the latter method, the core assumption is that if a certain measured part of corruption is larger, then the volume of the general corruption is larger too (or if the research is aimed at a specific domain, then the phenomenon in that field may be more intensive).

Sik concludes that the corruption-perception method is inferior to the corruption-proxy approach – however, none of them can provide a reassuring solution for measuring the phenomenon – because corruption is a soft social phenomenon, its understanding may vary among the people, so their perceptions cannot be aggregated (1); the perceptions may be strongly influenced by the media coverage of the scandalous cases, controversially the existence of the well-functioning free press may increase the perception of corruption (Wallace and Haerpfer, 1999) (2); the wording of the questions and the interview situation itself can strongly influence the answers of people regarding their perceptions (3); the direction of the distortion of the corruption-perception method is ambivalent (4).

Heywood and Rose (2013) also dealt with the problem of measuring corruption with perceptual data. They argue that perception-based measurements of corruption which became the most widely used method in the 1990s may be reliable but not necessarily valid as the outcomes may reflect reality, that may not relate to corruption. The outcomes of such research – like the CPI of TI – give greater or smaller emphasis to qualitatively different domains of corruption but handling these biases is hardly guaranteed. For example, if there is a country with a low level of financial but severe political corruption, then it is questionable whether their controversial impacts on the final indices are in line with their actual importance. These problems may have caused serious disadvantages for the developing nations: the countries most affected by corruption may even be caught in a vicious cycle as without external support they are not able to tackle corruption, but much of the aid is made conditional on performing better on these subjective indices with serious methodological issues in the background (Andersson and Heywood, 2009). However, even though their pitfalls, the proliferation of perception-based cross-national studies after the Cold War could at least raise awareness of the issue of corruption.

The authors also claim that non-perceptual approaches have a narrower scope and also suffer from problems of definition. Such measures may not specifically differentiate

between corruption and other deficiencies and also may result in some perverse consequences if the officials would like to make progress regarding these perspectives. In addition, in those rare situations when objective hard data is available and the deviations from an expected distribution are analysed, researchers have to assume that such abnormalities are evidence of corruption, rather than indications of specific circumstances. This assumption can be put onto more solid bases if the objective measures are backed up with official investigations.

Before moving the focus to the methods dealing with objective data, it is worth discussing briefly attitude research which is also an important data source. Questions concerning opinions and feelings about corruption occur now and then in the Eurobarometer studies (European Commission, 2014b), but some of the waves of the World Values Survey and the European Social Survey also touch on this topic (Tóth and Hajdu, 2018a). The questions in these surveys mostly investigate how the respondents think about certain corrupt transactions – for example in the fifth wave of the World Values Survey the following question was raised¹¹:

‘Please tell me for each of the following actions whether you think it can always be justified, never be justified, or something in between, using this card. (...) Someone accepting a bribe in the course of their duties.’

In the field of the non-perception corruption-proxy methods, various endeavours were done for grasping the extent of corruption. They aim to register the corrupt transactions themselves or those circumstances that may favour them and can be regarded as corruption risks. As for the former, there are examples for investigating the parking violations by exempt diplomats in New York (Fisman and Miguel, 2006) or for analysing how the officials were bribed in African ports (Sequeira and Djankov, 2013) making it possible to quantify corrupt transactions and also to do international comparisons.

Fazekas, Tóth and King (2014) discussed a new, objective technique for assessing the potential presence of corruption in the domain of public procurement, called corruption risk indicators. Such indices are constructed by identifying ‘red flags’ at certain points of a purchase procedure that restrict transparency. They are mostly acknowledged by

¹¹ <http://www.worldvaluessurvey.org/WVSDocumentationWV5.jsp> (accessed: 12th March 2021)

international organizations and initiatives like the OECD, the European Commission and the Open Contracting Partnership. This method utilizes administrative data that is available in practically every developed country and avoids many of the pitfalls of both perception-based indicators and the previous ‘objective’ measures of corruption. It creates an estimation of institutionalized grand corruption concerning public procurement that is consistent over time and not only across countries but also between issuers and winners. A similar approach was taken a few years before by authors who examined corruption in public procurement and bidding markets based on the differences between the quantity of infrastructure and public spending on it (Golden and Picci, 2005), the use of exceptional procedure types (Auriol, Straub and Flochel, 2016), the frequency of explicit scoring rules instead of spending the public funds efficiently by awarding the lowest – i.e. the economically most advantageous – bidder (Hyytinen, Lundberg and Toivanen, 2008) or political office holders’ positions on the winner companies’ boards (Goldman, Rocholl and So, 2013). In addition, the OECD defined a set of risk or red flag indicators for procurement practitioners that may help detect corruption risks in 2009 (OECD, 2009).

The current research will rely on this assumption, corruption risks will be taken into consideration based on public procurement data. This kind of information can be used as proximity measures for the level of potential corruption and the quality or transparency of bureaucracy. In addition, it is applicable for not only inter- but intranational comparisons, which the present dissertation is intended to do.

Based on the empirical research experiences of our existing joint work with my supervisor it can be concluded that the methodology concerning the public procurement corruption risk indicators is proven to be a fruitful field for research on the domains of public procurement (Tóth and Hajdu, 2016, 2017a, 2017b, 2018a). The empirical findings are mostly in line with the expectations based on theorems, the corruption risks can be reduced with transparency, however, it has to be noted that such measures may not essentially capture corruption, but a lack of good governance in terms of administrative quality and integrity of public bodies (Bauhr *et al.*, 2019). Moreover, there are some sporadic pieces of evidence, that corruption risks tend to be higher in the cases of those public procurement contracts that later became the subjects of the investigation of the Hungarian Competition Authority: collusion was suspected during certain public tenders of Hungarian hospitals which differed significantly from the rest of the procurement

carried out within the same sector in terms of the corruption risks suggesting that these markers can truly identify problematic purchases (Tóth and Hajdu, 2018e).

International empirical findings also support that certain ‘red flags’ can effectively identify corrupt public procurement tenders (Ferwerda, Deleanu and Unger, 2017): after the analysis of 28 ‘red flag’ indicators between the groups of corrupt, grey and clean public purchases deriving from eight member states of the European Union (including Hungary) and across five sectors, it turned out that 18 of them were significant predictors of the occurrence of bid rigging, conflict of interest and kickbacks (see the explanation of these forms of public procurement corruption in Chapter 2.3.) – indicators characterizing the transparency proven to be the most useful in the identification of the corrupt cases.

As it was stated previously, those features of public procurement that are regarded as corruption risk indicators by a group of corruption researchers to which I intended to connect with my dissertation, are also understood as ‘red flags’ by the European Commission (EC). The EC has established its Single Market Scoreboard (SMS) system in 1997 for monitoring the compliance of the member states with the single market legislation (European Commission, 2020). It contains 179 indicators, covering numerous domains, such as services provided for citizens and business, cooperation between national authorities, collaborative economy and public procurement of course. Regarding the public tenders, the SMS has 12 individual performance indicators¹²: single bidder (i), no calls for bids (ii), publication rate (iii), cooperative procurement (iv), award criteria (v), decision speed (vi), small and medium-sized enterprises (SME) as contractors (vii), SME bids (viii), procedures divided into lots (ix), missing calls for bids (x), missing seller registration numbers (xi) and missing buyer registration numbers (xii).

These indicators characterize the members of the European Single Market every year, however, the underlying microdata based on their public tenders is also available for analysis in the TED for measuring procurement performance. This data is not only regarded as corruption risk indicators but also measures characterizing whether the issuers of the tenders could maximize value for money (VfM) (Flynn, 2018). Six of the abovementioned performance indicators can be regarded as gauges of the VfM

¹²

https://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm#indicators (accessed: 12th March 2021)

procurement, which relate to the number of bidders for a contract, open advertising of contracts, aggregation of demand (how often contracting authorities buy together as a consortium), type of award criteria used (whether supplier selection is based on quoted price only or if the quality is also considered – the latter is associated with VfM), decision speed and reporting of information about contract awards. But since public procurement can be a policy tool also for promoting the objectives of different ‘horizontal’ policies like the economic development of disadvantaged social groups (Arrowsmith, 2010), the indicators can be analysed from many further perspectives apart from corruption research.

The elementary indicators may be grouped into four groups according to the components essential for corrupt public procurement contract allocations: tendering risk indicators, contracting body risk indicators, supplier risk indicators and political connection indicators (OECD, 2019). Tendering risk indicators cover those micro-level aspects of public tenders that may facilitate the modification of tender conditions to fit a single company in an otherwise competitive market, like the occurrence of exceptional procedure types, negotiated procedures and single bidding – indicators analysed in the dissertation belong to this group. Contracting body risk indicators capture certain organisational features of the contracting body and are key to the possibilities of public funds misallocation, such as transparency index scores, auditing information, and prosecutions. Supplier risk indicators characterize the winner companies and signal when they are used as vehicles of rent extraction; firms taking part in corrupt deals are supposed to be different from their peers participating in competitive tendering, for example, they tend to be young companies with suspiciously high profitability and high rates of single bidding – financial information, ownership and management data may reveal such characteristics. Political connections indicators suggest the existence of particularistic ties between the owners or managers of the bidders and political office holders who can influence the public procurement process; these relationships have diverse nature; they may be established in institutionalized forms but in other cases, they are informal and thereby hard to measure. Nonetheless, many of the aforementioned indicators may signal risk even in non-corrupt circumstances – i.e., they give false positive alarms – which can be eliminated by the careful selection of the indicators and pulling them into a composite measure.

Such composite indicator was constructed by Fazekas and Kocsis (2020) with the following components: no call for tenders (i), using less open and transparent procedure

types (ii), too short advertisement period (iii), subjective, hard-to-quantify evaluation criteria (iv) and excessively short or long time used to decide on the submitted bids (v). According to the cross-national associations with these micro-level objective corruption proxies based on the TED data and widely used survey-based macro-level corruption indicators the validity of both the composite index and the single bidder indicator in itself can be underpinned. This implies that the corruption risk indicators proxy corruption rather than other phenomena like limited administrative capacity (Fazekas and Kocsis, 2020).

However, the relevance of the existing red flags has to be critically investigated and their revision should be a continuous duty of researchers and practitioners referring to them (Tátrai and Németh, 2018); a red flag tool may be excessively sensitive, signalling corruption risks in every situation and vice versa, and the extent of such problems may vary due to regulatory and cultural differences and changes – even if countries have to combat similar institutional problems related to corruption and face with the necessity of the implementation of systematic detection of risk patterns in public procurement data, implying that public tendering presents several procedural similarities across countries and subnational units (Velasco *et al.*, 2021). Comparison of single- and multi-bidder contracts in Russia with machine learning techniques also challenges the common assumption that the single-bidder rate can serve as a good proxy of corruption in public procurement (Goryunova, Baklanov and Ianovski, 2021), even if there is empirical evidence, that this indicator serves as a good basis for corruption research in dozens of countries around the world (Dávid-Barrett *et al.*, 2020); meanwhile, more and more emphasis is being put on data mining techniques in the identification of the riskiest tenders¹³ (Bratsas *et al.*, 2021). It is also debated whether the features of public procurement understood as corruption risk – mostly the single-bidder indicator – should be measured on the level of contracts or procedures (Rigó and Kugler, 2021). One of the aims of the present dissertation is to provide insights into the validity of the two most commonly cited red flag indicators.

The present dissertation focuses on the number of bidders and the open advertising of

¹³ The EC also has its own data mining project for identifying risk indicators preventing fraud with data mining techniques, called ARACHNE – see: <https://ec.europa.eu/social/main.jsp?catId=325&intPageId=3587&langId=en> (accessed: 18th March 2021)

contracts. Within optimal circumstances there are many bidders to select from, however, there is a bigger divide between competition and no competition than between perfect and imperfect competition (Caldwell *et al.*, 2005) – this manifests also in the phenomenon that the number of bidders had a material impact on prices and more bidders contributed to driving prices down in Brazilian public procurement, although the relationship was non-linear (Borges de Oliveira, Fabregas and Fazekas, 2019). Therefore, fewer tenders with a single bidder are better in terms of performance, but purchases with no competition do not necessarily mean that the issuer and the winner tried to create favourable circumstances for corruption or were not engaged in maximizing VfM. In the 1990s, an alternative, collaborative modern procurement model emerged instead of the traditional approach adversarial and competitive approach (Loader, 2005). Many of the differences between the two models (see Table 2.3.1.) imply the limitation of the number of bidders even without any immoral intention and may result in narrow specifications and contract aggregation which is understandable from the transaction cost perspective but leads to a tendering deficit for the SMEs (Loader and Norton, 2015).

2.1.2. Table: Differences between the traditional and modern approaches to purchasing according to (Loader, 2005)

Traditional approach	Modern approach
Price is a dominant decision factor	Cost, value and quality all are significant to the decision
This approach typically is short-term in nature	Long-term relationship development with suppliers
The approach is typified by an adversarial relationship between purchaser and supplier, an arm's-length relationship	The partnership is advocated, and relationships are collaborative and cooperative
Suppliers are sought through competition	Supplier sourcing can take a variety of forms
Competition is open and should not be influenced by past performance	
There is likely to be multiple sourcing	This approach produces a narrower supply base
There is little information exchange between parties	Knowledge sharing is key
Trust not required	Built upon trust

Source: (Loader, 2005, p. 18)

In peripheral and remote areas competitive public procurement systems may make the situation of the local suppliers disadvantaged by their location worse, as they will have to compete with more prepared businesses operating from more developed areas (Cabras, 2011). The cost-effectiveness arguments may be politically and practically dominant in public tenders, but it is questionable whether they produce positive economic effects on the local supply chain in peripheral and remote areas. Also, the number of bidders may be related to whether issuers interact with the supply marketplace and generate awareness

and interest among firms about available opportunities.

It is worth mentioning that the number of bidders and the transparency of the procedure type can be also understood as measures of the institutional quality and their cross-national comparison may provide insights concerning the convergence between countries, at least in the European Union (Tóth and Hajdu, 2021). Empirical evidence based on these indicators suggests that governments should consider whether the regulations on non-open procedures are proper and the European Union should inquire if its policies did set sufficient conditions for real and effective reforms at the national level or not.

According to the EC, the single bidder – or by its terminology the one bidder – indicator

‘(...) reflects several aspects of procurement, including competition and red tape. More bidders are better, as they give the public buyers more options, and thus lead to better value for money.’ (European Commission, 2014a)

The procurement directives of the EC contain some derogations from publicly advertising the requests for tenders¹⁴, but invigorate continent-wide competition between suppliers by proposing open tendering. However, ever since the 1970s there are problems with compliance with these directives across the EU (Gelderman, Ghijsen and Brugman, 2006), which partly occurs due to the lack of adequate training and education of public purchasers, but preferential purchasing is also an important reason (Martin, Hartley and Cox, 1999). The EC describes the measure of the occurrence of non-transparent purchasing procedures – by its terminology the ‘No Calls for Bids’ indicator – as the following:

‘This indicator reflects important aspects of transparency and competition. Calling for bids is better, as it makes the bidder selection process more transparent and raises the number of bids. This leads to better value for money. No Calls for Bids measures the proportion of procurement procedures which were negotiated with a selected company without being preceded by a call for tender.’ (European Commission, 2014a)

¹⁴ See for instance the Article 31 of Directive 2004/18 and Article 40 (3) of Directive 2004/17.

According to empirical evidence related to the public procurement in the European Union the aforementioned two features of the tenders – namely the number of bidders and the award mechanism – are interrelated, abuse what may be manifested in terms of the limited number of bidders are concentrated on non-transparent award mechanisms (Chong, Klien and Saussier, 2016).

Finally, it is worth noting that even if certain public procurement practices are against corporate malfeasance during the tenders, and even if there are low rates of recidivism regarding corruption, they may have a bad reputation in society (Williams-Elegbe, 2020). In addition, the beneficiaries of such actions – like corporate debarments and negotiated settlements – tend to be larger companies reinforcing the public perception of ‘too big to fail, too big to debar and too big to be held to account’. This phenomenon may not only harm public trust in the procurement system but also provide a reputational risk to firms.

From the methodological perspective, it is important to note that the network science perspective became more and more present in the most recent public procurement corruption research. The issuers and the winners of the contracts can be understood as bipartite networks thus the distribution of the aforementioned corruption risks can be mapped within the procurement markets (Wachs, Fazekas and Kertész, 2021). The tools of natural language processing are also regarded as promising new methods in the field of corruption research, however, their application is not very widespread in this area yet (Katona and Németh, 2021).

2.2 Relationship between corruption and social, political and economic indicators and phenomena

Numerous cross-national comparative studies aimed to analyse the relationship between corruption and certain economic, social and political indicators on the macro level whose findings provide partly the base for the hypotheses of the dissertation. Most of these papers focus on the consequences of corruption, the ones that study the causes of it based on empirical evidence seem to be rare. Although, it has to be emphasized, that these causal links are not always clear; for instance, studies suggest that corruption is lower in populations are more educated (Treisman, 2000), but papers are pointing out that corruption hurts public spending efficacy in education (Suryadarma, 2008) and also on enrolment rates (Dridi, 2014). Moreover, the majority of the papers discussed below aim to find a correlation between corruption and certain macro indicators that tend to focus

on economic characteristics, and not on socio-demographic features.

As for the socio-economic factors mitigating or obstructing corruption, empirical evidence suggests that countries with protestant or British traditions, the more developed economies and the ones with higher imports – and thereby more affected by spill-over effects – are less corrupt (Treisman, 2000). Furthermore, the democracies that exist for a long time seem to be less corrupt, however, the current degree of democracy is not a significant predictor of the level of corruption. In addition, federal states are proven more corrupt. Moreover, it has been pointed out that higher perceived corruption is linked to lower investments and economic growth (Mauro, 1995). In addition, countries with more corruption tend to have larger shadow – or in other terms unofficial – economies (Johnson, Kaufmann and Zoido-Lobaton, 1998) and public debt (Cooray, Dzhumashev and Schneider, 2016). Also, concerning the post-communist countries, it can be concluded, that corruption was a key obstacle in the consolidation of democratic institutions and open market economies (Shleifer, 1997).

Several recent studies concentrate on the Central and Eastern European region but still focus on the economic relations of corruption. For instance, Gamberoni, Gartner, and Giordano (2016) investigated the role of corruption in the business environment in explaining the total factor productivity (TFP) in nine Central and Eastern European countries in the period 2003-2012. They found a positive relationship between corruption growth and both labour and capital misallocation dynamics. These links are stronger the smaller the country, the lower the degree of political stability and civil liberties, and the weaker the quality of its regulations. As input misallocation is one of the determinants of productivity growth, the study points out that the relationship between changes in corruption and TFP growth is negative.

Ethnic fractionalization also tends to be correlated with the level of corruption (Cerqueti, Coppier and Piga, 2012). A U-shaped relationship exists between the two phenomena as corruption is high in homogeneous or very fragmented countries, but low where fractionalization is intermediate. Where the extent of ethnic heterogeneity is not extremely small or large constituencies may act as a check and balance device to limit corruption.

An analysis of partisan favouritism and corruption risks in public procurement that was

done by Dávid-Barrett and Fazekas (2016) compares Hungary and the United Kingdom – so this study consists of two within-country analyses. They pointed out that public procurement is highly vulnerable to political influence in Hungary. However, in the United Kingdom, there was no evidence of systemic political control, the isolated instances of opportunism or oligopolistic structure emerging in some markets for government contracts are more likely. Around 50-60 per cent of the market is controlled by companies that win despite a lack of prior success and exhibit high corruption risks in their tenders in Hungary. This ratio is about 10 per cent in the United Kingdom. Politicians may influence procurement to achieve partisan and favouritist aims by shaping the procurement laws, through the influence over bureaucrats administering the purchases and by disabling the institutional controls that hold power to account (Dávid-Barrett and Fazekas, 2020).

Public procurement of municipal governments is also affected by political influences within Italy (Gagliarducci and Coviello, 2010). Based on the tenders administered between 2000 and 2005 it can be concluded that there is a relationship between the length of time politicians remain in power and the quality of the public procurement. Political longevity hurts the efficiency of public spending by the decrease of the number of bidders applying for the tenders and thereby the price competition too. A possible explanation of the phenomenon might be that if the mayors have time to repeat transactions with certain contractors, the chances of collusion may rise.

Regarding the effect of elections on political corruption empirical results from Indonesia and the Philippines suggest that elections increase the extent of public procurement corruption risk in the immediate year before the ballot (Fazekas and Hellmann, 2019). In addition, this effect is stronger when elections are highly competitive, but in authoritarian regimes where the electoral process is manipulated, the effect is weaker. Furthermore, the increase in corruption risk in immediate pre-election years is greater when the party system is characterized by medium levels of institutionalisation and when incentives to steal public resources in the run-up to elections are particularly strong in contexts where politicians mobilise voters through the clientelist distribution of localised club goods, like the construction of roads, public utilities, sporting facilities, with the involvement of companies complying with the clientelist strategy. These findings suggest that the periods before the elections should be dissected and analysed separately.

This suggestion is underpinned also by empirical evidence based on the public procurement data from the United States (Dahlström, Fazekas and Lewis, 2019). Political factors may lead to deviations from competitive goals – or corruption risks – in public procurement both in terms of the single bidder and non-competitive process indicators. This may be motivated by political favouritism, as presidents and political parties striven to boost support before and to recompense their loyalists after the elections. This can result in tactical spending of public money instead of focusing on the very reason for procurement. In addition, electoral turnover can profoundly impact corrupt public procurement networks, as buyers issuing tenders with increased corruption risks tend to have significantly different contractual relationships after the government changes (Fazekas and Wachs, 2020).

Recent results can also be cited characterizing relationships between corruption and some other social phenomena, therewithal, on the level of local governments. A paper investigated whether social capital influences corruption risks in Hungarian towns (Wachs *et al.*, 2019). As for characterizing the local social capital, the data of a now non-operational Hungarian social networking site called ‘iWiW’ was used. A serious limitation of the study is deriving from this fact, as only approximately 40 per cent of the adult Hungarian population was registered to the iWiW, and presumably, there are important differences between the users and non-users of the site. Regarding the corruption risks, very similar data and indicators are used in the study to the present dissertation, so from this perspective, its findings primarily suggest that it is worth investigating the public procurement corruption of the town municipalities and trying to explain the underlying factors of this phenomenon. Moreover, according to the results, it can be concluded that social capital measures have substantial but differing effects on corruption risks. Elevated bonding social capital – when people form dense, homogeneous communities – tends to cause higher corruption risks, but in the meantime increasing bridging social capital – when people connect from different social groups – decreases the corruption risks.

Funds received from higher levels like the national governments or international organizations may also have effects on the level of corruption. There is empirical evidence that such exogenous revenues may induce more corruption in municipalities as the incumbents can seek rent without having their voters disappointed (Brollo *et al.*, 2013). Moreover, this rent-seeking activity proves to be attractive for individuals with

lower quality which leads to the deterioration of the performance of the official bodies. These two effects may strengthen each other: if an incumbent has opponents who lack professional skills, then he can grab more rent and increase his re-election chances in the meantime. The effects of these aids can be very similar to the so-called Dutch disease when the booming extraction of natural resources leads to decreasing political stability and increasing corruption among other consequences mostly in those countries where the traditions of the rule of law and the democratic institutions are not so long (Holden, 2013). Aids may have a positive impact on growth in developing countries with good fiscal, monetary and trade policies which are themselves important for growth but has little effect in the presence of poor policies; however, the quality of policy has only a small impact on the allocation of aid which would be more effective if they were more systematically conditioned on good policy (Burnside and Dollar, 2000).

Political favouritism may also affect how the municipalities reach central funds. Hungarian empirical evidence suggests that settlements led by mayors endorsed by the governing parties were more successful on the tenders related to the dispersion of the European Union's Structural and Cohesion Funds between 2004 and 2012 (Muraközy and Telegdy, 2016). In addition, findings indicate that EU funding increases corruption risks in some EU member states, on average they have a negative effect across the EU in this term (Fazekas and Tóth, 2016a). Furthermore, some of our existing work with my supervisor at the CRCB also shows that political favouritism exists in Hungarian public procurement (Tóth and Hajdu, 2018d).

Important subnational differences were shown through the European Quality of Government Index what defined as exercising power and implementing policies in an impartial, non-corrupt, and efficient way and is based on large-scale survey data deriving from 21 European countries (Charron, Lapuente and Rothstein, 2019). This indicator is highly related to socio-economic development across space and time – regions with higher social trust, gender equality and economic development tend to have better government institutions, while there is a negative correlation with the risk of poverty –, and also it seems that instead of regional convergence, there is an increase in regional divergence in terms of economic growth, productivity, and employment in Europe. Fazekas and Czibik (2021) found that the quality of public spending in terms of transparency, competition, efficiency and corruption is associated with the gross domestic product per capita, the aforementioned European Quality of Government Index and public

sector meritocracy and also confirmed large within-country regional variations.

2.3 Importance and specialities of public procurement from the perspective of corruption research

As was highlighted in the introduction, public procurement is an ideal field for those corrupt transactions when the potential of gaining private wealth and the misuse of public power are both existent (Rose-Ackerman, 1978). In the meantime, in most countries such tenders account for a considerable part of the gross domestic product (see Figure 1.1.), so policymakers and researchers make great efforts to gather and analyse as much information about public procurement corruption as it is possible. In addition, public procurement systems were already present in the ancient societies of Greece and the Roman Empire (Szilovics, 2014), as corruption was, consequently studying their relationship is a research topic with long traditions.

Commonly cited examples for illustrating the phenomenon of public procurement corruption are the Italian public construction projects from the early nineties. In 1991 the construction cost of the subway in Milan was \$227 million per kilometre which fell to \$97 million until 1995 after some anti-corruption investigations (Rose-Ackerman, 1999). Also, the cost of a railway fell from \$54 million per kilometre to \$26 million and a new airport terminal was estimated to cost \$3.2 billion initially, but in the mid-nineties, it was expected that \$1.3 billion will cover its budget (Rose-Ackerman, 1999). When the best briber wins instead of the best offer in terms of the price-quality ratio systematically, non-optimal choices of contractors can have noticeable effects on the economy (Søreide, 2002).

Nonetheless, certain types of public procurement are more, and others are less prone to be affected by corruption (Rose-Ackerman, 1999; Søreide, 2002). According to Susan Rose-Ackerman, four categories can be distinguished from this perspective: purchases requiring specialised research and development activities, when it can be difficult to write a contract for something not yet developed (i); complex, special purpose projects that do not involve advances in technology but need managerial and organizational skills, when procedures like the International Competitive Bidding (ICB)¹⁵ can be implemented (ii);

¹⁵ It has to be followed by the borrowers of the World Bank during their procurement and promotes fair and healthy competition between the bidders.

acquisition of standard products also sold in open markets, when mostly the main aim is to reach the lowest price possible, even by discounts that may be given for large purchasers (iii); and purchasing customised variants of these products which can be more problematic (iv).

Different corrupt schemes can be also distinguished by how the public and private sectors may manipulate public procurement, however, they cannot be dissected clearly in many cases. Bribes and kickbacks may have to be paid by bidding companies to representatives of the public sector (or ‘kickback brokers’) to obtain a government contract, gather inside information or have tailor-made bidding specifications (Rose-Ackerman, 1999; Williams-Elegbe, 2018). Political pressure, conflicts of interest and fronting may also affect the procurement process – politicians involved in public tendering may use contract awards to repay political favours or their approval is often used as a bargaining tool or as means of exchanging and there may be contracts earmarked for top officials to be awarded to their nominees, or political pressure may emerge when procurement officers are forced to award contracts to companies in which officials and politicians have interests (Ware *et al.*, 2007; Williams-Elegbe, 2018). Fronting occurs when there are seemingly private companies winning public contracts but acting as a front for politicians or particular companies not eligible to apply for a tender but benefit from political favour (Williams-Elegbe, 2012a, 2012b, 2018).

Bid rigging is also a common scheme for manipulating the procurement process with the aim that a preselected bidder obtains the contract and with the result of restricted competition and increased prices (Ware *et al.*, 2007; Williams-Elegbe, 2018). In addition, there are schemes whereby contractors may sell the benefits and burdens of the contract they obtained to a third party for a fee (‘sale of contract papers’); the contracts over thresholds above which they are subjected to more formal and stringent processes are split into several lots to avoid them – after such thresholds were introduced in Hungary, the cumulation of contracts with values just below the thresholds could be observed (Tóth and Hajdu, 2017c)¹⁶; contractual variations and price increases approved after the conclusion of the contract may take place; deliberately poor contract management may

¹⁶ Also see these articles in the Hungarian press: <https://g7.hu/kozelet/20180419/meger-egy-kis-raforditast-hogy-egyszerubben-menjen-a-korrupcio/> (accessed: 23rd June 2021) <https://g7.hu/kozelet/20180206/005-szazalek-tanitani-valoan-trukkoznek-a-kozbeszerzesekkel/> (accessed: 23rd June 2021)

permit contractors to skimp on quality, submit fraudulent invoices and documents certifying the completion of their work or breach the procurement contract without consequence (Aguilar, Gill and Pino, 2000; Williams-Elegbe, 2018); poor planning, misrepresenting urgency and inflating prices (Williams-Elegbe, 2018).

The intentions behind participating in a corrupt transaction may also vary. In many – mostly developing – countries bureaucrats take part in bribery not only because of human greed but also due to their needs as the wages they get are not sufficient to maintain a satisfactory living standard (Søreide, 2002). Companies may pay bribes to ensure their success on the public tenders which can be compelling because of the costly and time-consuming bidding procedures, moreover, bribery may allow the winners to improve their situation on the market without real economic performance. However, in many cases the motivation is simple: if there is a belief that everyone is involved in corruption then applicants for the tenders will seek the possibility to pay a bribe to improve their chances to win in comparison with the others.

Public procurement corruption might also be motivated by the ruling politico-governmental systems. The entwining of the political and the business spheres became unusually strong in Hungary (Kornai, 2016b), leading to state expenditures being spent in a biased way. Firms or empires of companies related closely to the governing party can apply for public tenders bent to ensure their success, furthermore, they can be sure that the police and the state prosecution will not seek evidence of corruption, even if it is apparent – all in all, certain firms may benefit from the selective law enforcement tailored to political interests (Magyar, 2015). It is worth noting that public procurement is only one channel to favour certain businesses, re-regulating and restructuring certain markets by the introduction of new laws may also result in benefits for selected firms (Laki, 2015).

In exchange for these benefits, the receivers become loyal supporters of the ruling political group, and a patron/client relationship develops between them. This phenomenon is referred to as clientelism – when the distribution of selected goods is targeted to supporters in exchange for their loyalty which gives a strong advantage to clientelist organizations in the political competition (Grzymala-Busse, 2008) – and cronyism or crony capitalism – when the state allocates its resources to the individuals and groups closely related to its leader or in extreme cases to the dictator (Haber, 2002). However, if the head of a business group aims too high then he may become punished

instead of being rewarded; the retaliation for those who might have got too wealthy or powerful may occur by limiting their success on public procurement tenders.

The phenomenon sheds light on the tendency that not only certain capitalist groups can make the legislation tailored to their needs by corrupt transactions (what is known as state capture) within such circumstances, but the opposite effect is common too when the business realm is captured by the state (Kornai, 2016a). The leaders of the companies appointed by the government leaders and such interventions to the normal functioning of the business sectors may have effects on lower levels of management of the firms. Moreover, by channelling public money through public tenders to the preferred businesses, the selected companies or businessmen may quickly become rich and powerful oligarchs, but if the government decides to take vengeance, then this privileged situation suddenly diminishes. The merger of the political ruling group and the business world and the former's dominant role in the corruption is well captured by the term mafia state (Magyar and Vásárhelyi, 2013).

The transparency of public procurement can be safeguarded by formalized procedures, such as open tenders and incentives for bidders to reveal their true costs (Tran, 2010). However, the administrative costs of the issuers and the bidders rise due to the formal requirements of the transparent purchase methods in terms of money and time, and the information asymmetries and non-contractible features of the goods and services may justify simpler and less open ways of public procurement (Manelli and Vincent, 1995; Tadelis and Bajari, 2001; Kang and Miller, 2017). Apart from the supportive regulations, the organizational culture of the issuers should be also shaped to curb corruption: better decision-making and quality processes related to procurement procedures may result in the limited impact of potentially corrupt behaviour and can avoid technically unacceptable outcomes of a purchase (Csáki and Gelléri, 2005). It should be also added, that Central and Eastern Europe are of particular interest to researchers as the European good practices and new rules against corruption in public procurement produced mixed results with the most adverse outcomes present in this region (Popescu, Onofrei and Kelley, 2016).

A reform took place in 2011 in Hungary, allowing the issuers of public procurement to choose an invitational procedure instead of an open auction if the value of the purchase

falls below a certain threshold, specifically 25 million forints.¹⁷ The policy change created a good opportunity for issuers and winners to avoid transparent public procurement, for example by splitting larger tenders into several smaller ones not exceeding the aforementioned value limit. Empirical evidence suggests that this loophole was systematically seized allowing the issuers to make discrete decisions more frequently. The distortive behaviour increases the prices of contracts and decreases the productivity of contractors (Szűcs, 2017), and results in a lower intensity of competition and a higher level of corruption risks (Tóth and Hajdu, 2017c).

The phenomenon is not a Hungarian speciality at all. In 2006 new public procurement types were introduced in the Czech Republic. These forms of purchase were also assigned to value thresholds and some of them allowed the issuers to free themselves from the rules which regulate the transparent contract-awarding process (Palguta and Pertold, 2017). Procurement contracts were bunched just below the thresholds as happened in Hungary after the new regulation took effect in 2011, suggesting that procurement officials manipulated the tenders. Among manipulated contracts, a significant increase was measured in the probability that tenders are allocated to anonymous firms, which can hide their owners, mostly in construction work and services, and to a lesser degree, in goods.

Public procurement corruption generates public losses due to ineffectiveness¹⁸ and inefficiency¹⁹; in eight member states of the European Union in 2010 13 per cent of the public procurement could be attributed to corruption resulting in cost overruns, delays in implementation and loss of effectiveness (PricewaterhouseCoopers and Ecorys, 2013). The total direct costs of public procurement corruption were estimated to be between €1.4 to €2.2 billion in five sectors – road & rail, water & waste, urban/utility construction, training and research & development – of these eight countries which occurred mostly due to four main types of corrupt practices: bid rigging²⁰ (what encountered more

¹⁷ This was introduced by the act no. CVIII. of 2011.

¹⁸ The projects may not (fully) reach their objectives.

¹⁹ The outcomes of a project may be inconsistent with the contract value; the costs are higher than the market prices or project outcomes are of inferior quality.

²⁰ The contract is ensured to be awarded to one contractor, with or without the consent of the public body issuing the tender. Can take the form of bid suppression, complementary offers, bid rotation and subcontracting.

frequently in Hungary), kickbacks²¹, conflict of interest²² and other methods, including deliberative mismanagement and ignorance²³. These findings are partly based on the analysis of corruption risk indices – or red flags – and the TED dataset that will be taken into consideration in the present dissertation.

2.4 Roles of towns and local governments

As the present research focuses on the public procurement corruption risks of the Hungarian towns, the last section discusses their roles. Municipalities may be under pressure from both the central government and the local citizens having huge amounts of duties to execute by limited financial means. Due to these burdens, the locals may perceive the presence of institutional corruption regardless of the performance of the local government (Beerli and Navot, 2013). Such gaps between the real institutional performance and its public reception may motivate local government officials to take part in corrupt transactions.

There are ambiguous findings in the literature on whether the decentralization of power from the national government to the local authorities results in reduced corruption or not. Both the positive relationship between the delegation of issues to the local level (Jiménez, Villoria and García, 2012) and the limitational effects of decentralization on corrupt practices (Fisman and Gatti, 2002) are underpinned by scientific studies. Also, results are suggesting that the moderately centralized (or decentralized) models are ideal for limiting corruption (Shleifer and Vishny, 1993). Furthermore, different patterns can be observed regarding the effects of decentralization on corruption among developed and developing countries, however, it can be concluded that if local governments receive a larger part of locally generated income, their bribe extraction is reduced (Fan, Lin and Treisman, 2009). In addition, local budget constraints related to austerity measures might induce municipalities to curb expenditures in a way that reduces their exposure to corruption (Daniele and Giommoni, 2020).

Some existing studies investigated public procurement corruption risks of municipalities.

²¹ The public official demands or is willing to accept a bribe accounted for in the tendering process, including administrative processes.

²² The issuer has private interests in the winning company.

²³ The issuer does not properly follow the procedures or tolerates deliberate mismanagement by a winner.

Swedish municipal data from 2009 to 2015 demonstrates that when one party dominates local politics, procurement quality decreases and corruption risks increase suggesting that entrenched parties can exert control over public procurement (Broms, Dahlström and Fazekas, 2017) – the relationship between the local political competition and the local public procurement corruption risks has been also revealed on Hungarian data²⁴.

The Hungarian local governments quickly lost many of their roles and responsibilities after the government change in 2010 (Pálné Kovács, 2016), however, this tendency exists since the middle of the 1990s. With the centralization and uniformization, the municipalities were divested of many of those competencies that were related to the management of locally available public services. Due to the fast and extraordinary changes, the importance of the local governments decreased, besides losing many of the functions and financial responsibilities their prestige also shrank among the citizens. The volume of the changes can be illustrated by the fact the ratio of public expenses belonging to the competence of the local governments decreased from 20 to 11-12 per cent between 2010 and 2013 (Sivák, 2014).

However, empirical findings suggest that local government corruption became widespread in Hungary in the 2000s, before these changes (Szántó, Tóth and Cserpes, 2010). Middlemen had to be involved even in simple transactions that could be arranged bilaterally before, businesses were created around corrupt dealings. Thereby, to a certain extent, corruption became institutionalized on the level of the municipalities.

There was a big progress in the spread of measures supporting integrity in the Hungarian local governments since 2010 according to the study of the State Audit Office of Hungary²⁵, however, its audit in 2020 revealed a high level of integrity risks at six per cent of the municipalities (see Table 2.4.1.).

²⁴ It was the main finding of the master thesis of Olivér Pilz supervised by Mihály Fazekas submitted to the Central European University School of Public Policy, see: http://www.etd.ceu.edu/2020/pilz_oliver.pdf (accessed: 18th March 2021)

²⁵ <https://www.asz.hu/storage/files/files/jelentes/2021/21005.pdf?download=true> (accessed: 12th March 2021)

2.4.1. Table: Distribution of the grades characterizing the integrity within the Hungarian local governments

Grade	Frequency	Percentage
1	202	6.3%
2	99	3.1%
3	210	6.6%
4	818	25.6%
5	1868	58.4%
Total	3197	100%

Note: The higher grades indicate stronger integrity.

Source: State Audit Office of Hungary

Corruption cases in municipalities revealed or covered by the authorities and the media also exemplify the existence of fraudulent behaviour in local governments. The municipality of Döge, a Hungarian village on the coast of the Tisza issued a public tender for the renovation of the building of the local elementary school in 2004. The mayor asked for a 20 million HUF kickback from the winner of the contract worth 226 million HUF, however, after the project had been launched, it turned out that the construction company did not have enough cash for fulfilling his request which led to a debate between them. Finally, the case went to court and the mayor was convicted²⁶.

In the town of Izsák, the mayor applied for monetary support from rural development funds with his company in order to build a hunting lodge. He was also a member of the committee evaluating the applications, and his project won the grant. The construction was finished in 2015, but despite the fact the new building was supposed to be a public accommodation attracting tourists, the mayor moved into it. He is being prosecuted for budget fraud and other criminal acts.

²⁶

https://korrupciomegelozes.kormany.hu/download/e/75/e1000/Klotz%20P%C3%A9ter_Esettanulm%C3%A1ny_D%C3%B6gei%20eset.pdf (accessed: 10th March 2021)

There are also several examples of white elephants – investment projects with a negative social surplus²⁷ – conducted with the contribution or by the initiation of local governments (Tóth and Matuz, 2019). In the village of Tyukod, eleven lookout towers were built from the funds of the EU after 2013, even though the settlement is situated in the Great Plain. The local entrepreneurs said that they had built the towers because the funds were available for this purpose and not due to the need or demand for such buildings in Tyukod – more than 264 million HUF was spent on these projects. A viewpoint was also built in Bodrogkeresztúr, a village on the coast of Bodrog by the local government with a height of 39 centimetres and for 39 million HUF, involving EU funds. The list could be continued with further cases like an unusable adventure park and bicycle track.

Furthermore, it can be supposed that in those years when local government elections took place the municipal public procurement was more affected by irregularities than in the ordinary years – empirical evidence underpinning this assumption was found during the analysis of the public procurement of Zagreb between 2011 and 2016 (Tóth, Hajdu and Purczeld, 2017) what also matches with some scientific results concerning the effects of electoral cycles and public expenses (Belo, Gala and Li, 2013; Bove, Efthyvoulou and Navas, 2017).

²⁷ https://scholar.harvard.edu/files/jrobinson/files/jr_WhiteElephants.pdf (accessed: 10th March 2021)

3. Data and methodology

As the research aims to explain the differences in terms of corruption risks on the sub-national level with hard statistical data and narratives from experts and also to gather some empirical insights concerning the method of analysing public procurement corruption risks, mixed – both quantitative and qualitative – methods are going to be implemented. The goal behind extending the quantitative analysis with the planned qualitative study is to enrich the narratives of the statistical findings and to shed light on the advantages and the limitations of the investigations based on public procurement risks. Consequently, the empirical analysis will follow the explanatory sequential design of the mixed methods (Király *et al.*, 2014); the quantitative part precedes the qualitative one: the construction of the sample and the interview guide for the latter is going to be based on the results of the former.

Even though in most cases mixed methods research begins the qualitative fieldwork to generate a hypothesis for the quantitative study, in my view, for the present research the arrangement of the two empirical phases outlined in the previous paragraph suits better. The hypotheses are formulated by considering existing findings of corruption research, and qualitative interviews aim to gain insights for a better understanding of the corruption risk indicators. In addition, the interpretation of the hypothesis tests can be enriched with narratives gathered from the interviewees.

Much of the empirical research about the relationships between the level of corruption and certain socioeconomic indicators mostly in terms of cross-national data which were introduced in the third subchapter of the literature review can be carried out on an intra-national basis. However, due to the limitations regarding the availability of hard data on the level of municipalities, it is reasonable to underpin the statistical results with such soft, non-quantifiable outcomes that can only be derived from interviews. In addition, measuring corruption risks by quantitative means is a highly debated topic, as was discussed in Chapter 2, therefore the validity of the statistical findings (and also of the further studies implementing the method of analysing public procurement corruption risks) can be assessed in the light of the interviews – so the results of the research may contribute to the methodological discussion on the field of corruption research too.

Ergo the dissertation will implement quantitative tools to check the relationship between

certain relevant local socioeconomic factors and the public procurement risks and then some additional information planned to be gathered and summarized from public procurement experts and decision-makers of local governments through semi-structured interviews in order to enrich the explanation and to assess the validity of the statistical findings.

In the first parts of the present chapter, I introduce the scope and the data sources of the study and my hypotheses to clarify the focus of the research. Then I provide a detailed overview of the background of the indicators examined as dependent and independent variables. In addition, a subchapter is dedicated to presenting some previous experiences with handling unclear causal relations, a common problem of empirical corruption research – even though, unfortunately during the present analysis, I have very limited opportunities to apply the developed modelling approaches discussed here. The chapter will end with a description of the methodology of the semi-structured interviews.

The research is done respecting the clauses of the Code of Ethics of the International Sociological Association²⁸ which sets high scientific standards for the study and ensures the protection of the research subjects.

3.1 The scope and the data sources of the quantitative study

The dissertation investigates how certain factors affect the public procurement corruption risks of local governments of the Hungarian towns. Even though there were 3155 Hungarian settlements in 2020 according to the data of the Hungarian Central Statistics Office (HCSO)²⁹, the present research will exclude the villages and Budapest, thereby it is focused on the remaining 345 towns. The reason behind this restriction is the very limited procurement activity of the smaller settlements and the excessively different functioning of the local government of the capital in comparison to the other towns and cities.

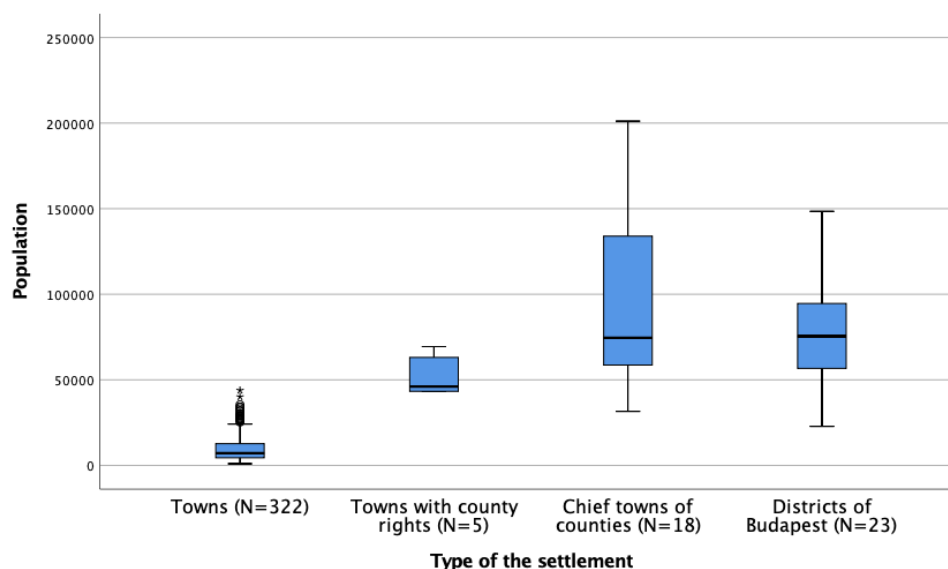
A major difference is that Budapest itself has its local government, but the 23 districts of the capital also have their local governments with distinct public procurement activities in parallel. In addition, the capital is an outlier in the structure of the Hungarian settlements, as its population was about 1.7 million people in 2020 (the population of its districts ranges from 22,847 to

²⁸ <https://www.isa-sociology.org/en/about-isa/code-of-ethics/> (accessed: 10th April 2021)

²⁹ https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_wdsd005c.html (accessed: 10th April 2021)

148,474), but for the second biggest Hungarian settlement (Debrecen), this figure was about 200,000 according to the data of the HCSO. Nonetheless, in terms of the local population, the district municipalities are similar to the provincial towns (see Figure 3.1.1.).

3.1.1. Figure: Distribution of different Hungarian settlements in terms of their size



Source: Detailed Gazetteer of Hungary, HCSO

The corruption risk indicators characterizing the public procurement conducted by the local governments are based on hard microdata gathered from official sources. Even though the HPPA itself does not provide an official dataset containing the Hungarian public tenders that can be the subject of statistical analyses – i.e., a data matrix in which the tender contracts are the cases and their characteristics are the variables –, several data sources are characterizing the public procurement of Hungary which are ideal for such purposes.

As was outlined in the Introduction and the Literature Review, the TED dataset released by the EC is an important source for researchers in this field, the vast majority of cross-national comparative studies implementing the scoreboard or the corruption risk methodology frequently rely on it. The most important fields from the contract notices and contact award notices issued in the countries of the European Economic Area, Switzerland, and the Republic of North Macedonia between 2006 and 2019 are organized into data matrices.³⁰ Generally, countries are required to publish data in the TED of

³⁰ The CSV files are available here: <https://data.europa.eu/euodp/en/data/dataset/ted-csv> (accessed 16th March 2021)

tenders above procurement thresholds³¹ which are defined by the EU law, these purchases are presumed to be cross-border interest. However, many below-threshold tenders are present as well in the TED dataset, to which national rules apply, but their publication depends on the local awarding authorities.

The TED data is a common and acknowledged official source for many quantitative studies conducted in this field (in addition, it is the base of several monitoring tools supporting the fight against corrupt procurements³²), so to make my results embeddable in the scientific discussion related to the scoreboard and the corruption risk indicator methodology, I will use it too. However, there are further datasets covering the national public procurement activity both below and above the thresholds of the European Union. The Opentender portal³³ was launched to provide such data for 33 countries³⁴ within the Digiwhist project³⁵ funded by the European Union's Horizon 2020 research and innovation programme. Hungarian data is available for the years between 2009 and 2020 on the Opentender, which is extracted from the homepage of the HPPA with web scraping methods. A similar endeavour was done by the CRCB where a dataset is also available containing the features of the Hungarian public procurement contracts issued between 2005 and 2020 when the quantitative analysis of the present dissertation was done.³⁶ The data is collected from the distinct websites of the portal of the HPPA dedicated to publishing the basic details of the public procurement tenders in a more or less formalized way³⁷.

³¹ See thresholds themselves and their regulatory background on these links: <https://simap.ted.europa.eu/web/simap/european-public-procurement> (accessed 16th March 2021) https://ec.europa.eu/growth/single-market/public-procurement/rules-implementation/thresholds_en (accessed 16th March 2021)

³² For example see: <https://www.redflags.eu> (accessed 10th April)

³³ <https://opentender.eu/> (accessed 16th March 2021)

³⁴ The EU members and the UK, Norway, Iceland, Switzerland and Georgia, and also the organizations of the EU.

³⁵ <http://digiwhist.eu> (accessed 16th March 2021)

³⁶ The public procurement dataset of the CRCB is under constant development with new periods regularly being added and problems of the earlier versions being resolved; in the present study I use the version of the CRCB's dataset released on the 7th March 2021. Due to the aforementioned evolution of the CRCB's dataset, there is a possibility that the analyses of its other versions lead to different results.

³⁷ For example, a page presenting the result of a randomly selected Hungarian public procurement contract can be accessed here:

Technically, the data characterizing the public procurement is available on the level of the public procurement contracts in all these datasets, i.e., the unit of observation is the public procurement contract. After the selection of the contracts of the Hungarian towns, I assign the socio-economic characteristics of the towns issuing the tenders to them. Unfortunately, many of the background variables are not available as time series, so even if the procurement data would be suitable for panel analyses, due to the lack of such explanatory variables, the applicable methods are limited.

It is important to note that there are some defects in the data publication method of the public procurement mostly due to the alphabetic storage of certain information. For example, the issuers of procurements are stored alphabetically, there are no identifier codes available to be able to quickly and punctually recognize them. This leads to several parallel forms of how the names of the actors are spelt which may have been created both accidentally (mainly because of typos) and on purpose (e.g. several cities used to be villages even in the recent years and during such transformations, the name of municipalities changed), thereby a lot of data preparation and processing had to be done before the analyses, what could have been scarcely completely automatized, so human coding was needed during the identification of the contracts issued by local governments.

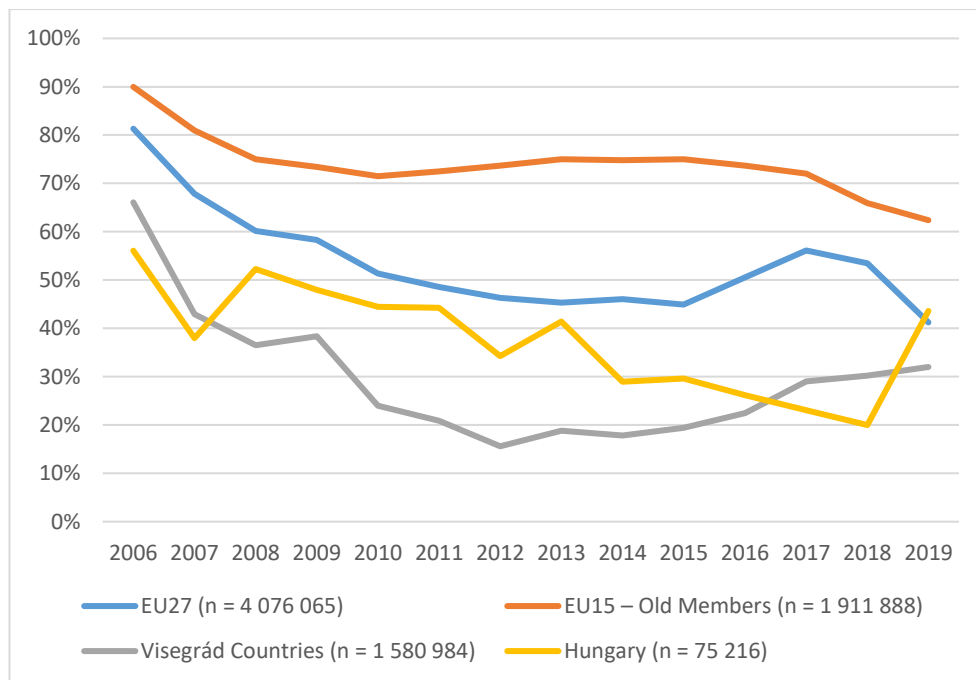
The awkward official data publication practices lead to further problems regarding the public procurement datasets. The TED data only includes the contracts exceeding the EU thresholds for sure, the coverage of the tenders below these values is dubious. In addition, it is a common phenomenon that important features of the tenders³⁸ remain unpublished in the contract award notices – 73.3 per cent of the contract award notices contained information in all the key fields between 2005 and 2018 in Hungary (Tóth and Hajdu, 2018c). This is not a Hungarian speciality, missing information in contract award notices is much more typical in the old member states of the EU than among the Visegrád countries or Hungary according to the TED data (see Figure 3.1.2 – and keep in mind, that the TED covers only a part of the national public procurement tenders causing the discrepancy between the Hungarian figure cited before and trend below). It is worth mentioning that there is a slow but improving tendency regarding this issue across the

https://www.kozbeszerzes.hu/ertesito/2018/0/targy/portal_434/megtekint/portal_5887_2018/
(accessed 29th March 2021)

³⁸ Like the issuer, the winner, the contract value or the number of bidders.

EU, however, in 2019 there was a weighty relapse in Hungary.

3.1.2. Figure: The ratio of contracts with at least one important feature remained unpublished



Source: own calculation based on the data of the TED, framework agreements filtered out

Note: the following key characteristics of the contracts were taken into consideration: the issuer, the winner, the final and the estimated contract values and the number of bidders.

Additionally, to the TED database, I do the quantitative analyses based on the CRCB's public procurement data to be able to cover tenders that were not published in the system of the EC – certainly, the dataset of the Opentender would be a great alternative, but during my previous research activity, I have already dealt with the CRCB's dataset for several times, so it is a reasonable choice from the practical point of view. I filter out the framework agreements, as they only establish the terms of governing the final contracts between an issuer and a winner during a certain period. In the TED dataset, I used the 'b_fra_agreement' variable for the identification of the framework agreements. In the CRCB's dataset, there is a variable for the identification of the framework agreements based on the data collected from the website of the HPPA processed with functions allowing to search for certain words and expressions (or parts of them) indicating that a framework agreement was awarded (Corruption Research Center Budapest, 2016). The differences in terms of the coverage of the public tenders between the TED and the

CRCB's dataset are summarized in Table 3.1.1.

3.1.1. Table: The total number and value of contracts (excluding framework agreements) contained by the potential data sources

	TED		CRCB		Sum of public procurement value according to the HPPA
	Number of contracts	Sum of net contract value (billion EUR) ³⁹	Number of contracts	Sum of net contract value (billion EUR)	
2005			3783	3.57	5.21
2006	3597	2.76	5700	4.24	6.38
2007	3538	2.23	4287	2.92	6.05
2008	4898	2.59	9838	6.46	5.64
2009	5841	3.20	16880	9.08	6.45
2010	5545	2.76	20771	6.49	5.43
2011	5458	2.24	13744	2.26	5.22
2012	4212	2.84	13402	5.04	4.61
2013	5820	4.72	20569	7.71	8.06
2014	5042	3.40	21523	6.60	6.92
2015	5317	3.18	21456	5.40	6.23
2016	4863	3.24	15780	5.93	6.44
2017	5447	4.63	15360	10.35	11.74
2018	8042	4.54	20844	9.11	10.33
2019	7596	5.49	18163	8.95	10.54
2020			14974	7.68	5.21

Source: TED, CRCB, HPPA

Note: the CRCB and the HPPA published the contract values in Hungarian forints – for the conversion rates see the Appendix. The HPPA published the sum of the public procurement value in its yearly reports – for their links see the Appendix.

The previous table reveals discrepancies in the data publication occurring because of the multitude of different dates – for example, the dates of the announcement of the tender, the deadlines for the bids, the publication of the results and the fulfilment of the project – related to a public tender. This phenomenon leads to those differences which are observable between the yearly total public procurement value calculated by the HPPA and could be estimated based on the CRCB's data – in the case of the latter, the year of the tender is identified based on the reference number, but the HPPA presumably uses another date. Discrepancies may also occur because it is not known how the HPPA handles the different VAT-rates, the contract values defined in foreign currencies and

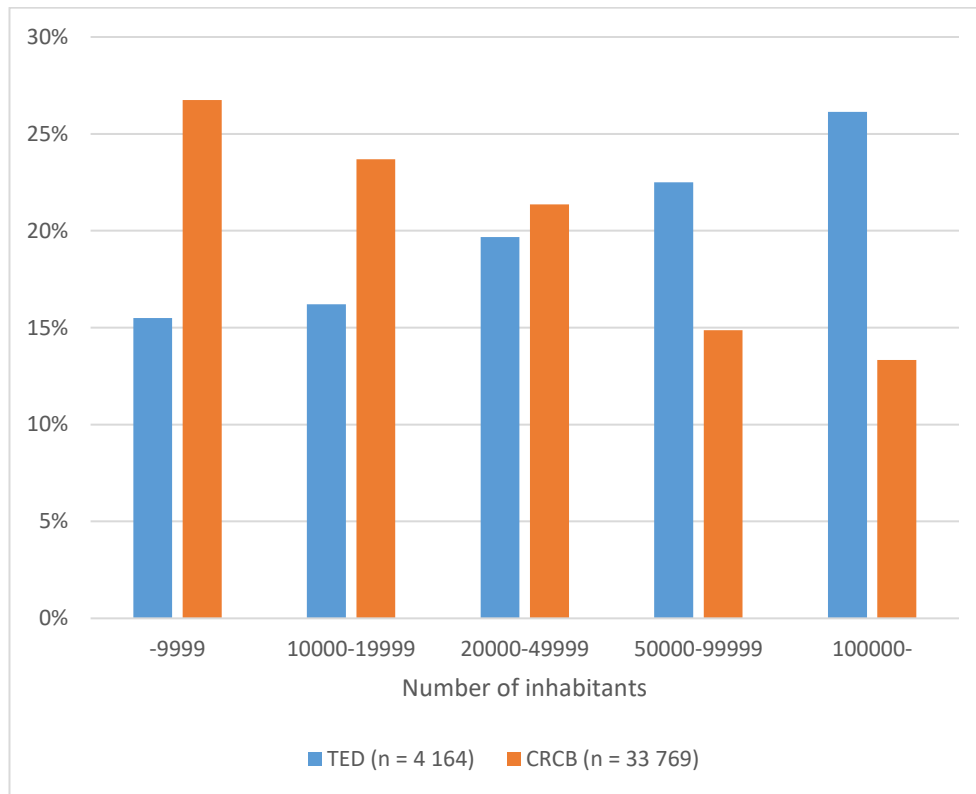
³⁹ The calculation is based on the 'award_value_euro' variable.

further data inconsistencies⁴⁰ that may affect the yearly sums of the public procurement value.

As it was outlined in Table 3.1.1. the TED database covers only a subset of the public procurement contracts which implies the need for the inclusion of a further data source covering tenders executed in the national regime. By focusing on the purchases issued by the local governments the deficiencies of the TED database become more challenging, as the number of related contracts is very limited, moreover, some of the local governments have not issued contracts published in the TED at all. This phenomenon convincingly justifies the involvement of the CRCB's public procurement dataset in further analyses. In addition, contracts related to major towns may be overrepresented in the TED dataset, as indicated in Figure 3.1.3.: most of the contracts related to the local governments in the TED database are issued by larger towns in terms of the number of inhabitants, however, in CRCB's public procurement dataset that covers contracts falling out of the scope of the European Union's official data source most of such contracts are issued by smaller municipalities. The importance of extending the analysis with the CRCB dataset is also underpinned by the fact that the TED dataset contains contracts of only 239 towns, but in the CRCB dataset contracts are present from all of the 345 local governments falling into the scope of the present study.

⁴⁰ For a particular example, see: http://www.crcb.eu/wp-content/uploads/2014/03/kb_adatok_2010_9riport_140331.pdf (accessed 23rd August 2022)

3.1.3. Figure: The ratio of contracts issued by towns of different sizes in terms of the number of inhabitants in the TED and the CRCB datasets, within the tenders issued by the local governments



Source: TED, CRCB

Table 3.1.2. summarizes the yearly number and value of contracts issued by local governments in the TED and the CRCB datasets. During the selection of these contracts, I had to consider that most of the local governments have several organizations related to themselves, for example, kindergartens, schools, local healthcare facilities, etc. Some of these actors have names referring to the municipality they belong to, but not all. As the aim of the present study is to focus on the local governments, their firms had to be carefully filtered out⁴¹. So, after looking for the public procurement contracts issued by actors with titles containing the names of the Hungarian settlements, it had to be checked whether a given contract truly belongs to the local government or its companies.

⁴¹ Firstly, the reason behind this decision is that the study is intended to be focused on the institutional quality of the local governments themselves, and not their companies. Secondly, there is a practical reason: it would be a demanding work to identify all the companies run by local governments because many of them have names without referencing exactly to the municipality they are related to what exceeds the capacities of the current research. Thirdly, relationship between these organizations and the local governments is not standard, it may vary between the different types of institutions and also in time.

Furthermore, those contracts issued by several cooperating local governments were also dropped from the analyses.

3.1.2. Table: The number and the value of public procurement contracts issued by the Hungarian towns

	TED		CRCB	
	Number of contracts	Sum of net contract value (billion EUR)	Number of contracts	Sum of net contract value (billion EUR)
2005			592	0.59
2006	204	0.31	1082	0.60
2007	196	0.17	638	0.42
2008	313	0.20	1030	0.36
2009	453	0.47	2808	1.22
2010	666	0.40	3884	1.15
2011	434	0.25	2789	0.39
2012	237	0.19	2063	0.49
2013	279	0.40	2880	0.76
2014	220	0.21	3197	0.69
2015	294	0.18	2696	0.53
2016	194	0.20	1870	0.40
2017	125	0.15	1642	0.44
2018	200	0.32	2477	0.98
2019	349	0.49	2641	1.02
2020			1480	0.65

Source: own calculations based on the data of the TED and the CRCB

The background variables are collected from various data sources but their scarcity on the level of the settlements imposes some important restrictions regarding the feasibility of sophisticated statistical methods (for details see Chapter 3.4.); many of them are available or valid only for limited and non-overlapping periods. An illustrative example of this problem is related to one of the key demographic background variables: the educational attainment of the residents. The HCSO provides information about the ratio of the adult population with different educational attainment per municipality based on the Hungarian population census held in 2011 – unfortunately, more recent information is not available regarding this feature, and such data is only collected every ten years. The same conclusion can be drawn regarding the ethnic homogeneity of the towns.

Settlement-level data characterizing the local business sector is available only sporadically too. Information about another important variable, the weight of companies

owned by foreign entities in the local economy is derived from Bisnode's PartnerRadar company register⁴², which contains information about the owners of the companies and thereby the ratio of firms with foreign ownership in their backgrounds can be calculated on the level of the settlements. I collected this data in the last quarter of 2018 from the company register, as such information is not published regularly and officially to my knowledge – so there is a lack of longitudinal data about this important feature of the towns also.

More details of the background variables will be outlined in the next subchapter introducing the hypotheses of the quantitative research. Technically the settlement-level explanatory variables will be introduced to all tenders of the settlement during the bi- and multivariate analyses. Much of the official Hungarian territorial statistics are published in the Regional Development and Territorial Information System (TeIR)⁴³, the variables I refer to in the dissertation are downloaded from it if they are made available in this data repository.

3.2 Research questions, hypotheses and variables

The dissertation investigates how certain factors affect the public procurement corruption risks of local governments of the Hungarian towns. Based on the results deriving from existing corruption research presented in the literature review and the available data concerning the background characteristics, several research questions and hypotheses are formulated. During the formulation of the research questions and the hypotheses the perspectives of sociology and institutional economics were both taken into account, in addition, the same stands for the methods implemented for the analysis; however, following the approach of Jon Elster concerning the different disciplines on the field of the social sciences this kind of mixture is acceptable, as they are strongly interrelated with each other (Elster, 2007).

As it was outlined earlier, in the present dissertation the corruption risk is understood in terms of two features of the public procurement contracts, the single bid (SB) and the no call for bids (NCB) indicators, which are also referred as corruption risk indices. These

⁴² <https://www.partnerradar.hu> (accessed 29th March 2021)– the access to the register was granted by the G7.hu news portal.

⁴³ <https://www.teir.hu> (accessed 29th March 2021)

indicators are established according the following rules⁴⁴:

SB = 0, if the tender was conducted with more than one bid.

= 1, if there was only one bid.

NCB = 0, if the tender was announced for all the potential bidders.

= 1, if the tender was not announced for all the potential bidders.

The first and main research question verifies most of those preceding findings concerning the relationship between the level of corruption and socioeconomic indicators between countries, which were presented in Chapter 2 on the sub-national level in Hungary by the corruption risk indicators. It was found that the less vulnerable societies and the more developed economies with several companies embedded in the international market (and thereby benefiting from the spill-over effects) are less prone to corruption (Treisman, 2000; Suryadarma, 2008; Dridi, 2014). The first research question aims to investigate whether these findings can be revealed on the level of settlements in Hungary:

RQ1: How do the socioeconomic conditions of the settlements affect the corruption risk indices (CRIs)?

I assume that the level of corruption risk is higher in the settlements with lower human capital levels because of two potential mechanisms: if the level of education is higher in a town, then it is easier for the local government to recruit well-educated public procurement experts from the local labour market, who will be committed to act efficiently and help the municipalities to control corruption in public procurement more effectively (1); and if a town has a higher level of education, it is more likely that the local citizens can force the local authorities to control corruption – as a type of white-collar crime, public procurement corruption is often carried out through complex transactions only comprehensible for better-educated people. Also, public procurement corruption requires knowledge of abstract concepts (e.g., market price, competition, rent, welfare loss, etc.), which are more understandable to the educated. All in all, in towns with insufficient education, the local actors who may enforce corruption control may become

⁴⁴ More details of these variables are discussed in Chapter 4.1.

weaker, so my first hypothesis is the following:

H1.1: Public procurement contracts issued by settlements with better-educated residents score less on the CRIs.

The educational attainment of locals is operationalized in terms of the ratio of the population holding at least high-school graduation⁴⁵ per municipality. The ratio of college or university diploma holders was also taken into consideration during the operationalization of the educational level, but its variation is slightly lower than the spread of the high-school graduates⁴⁶, so finally, I chose the latter to analyse to be able to grasp more differences among the towns in terms of the educational level. The source of this variable is the HCSO and its time reference is 2011, as was indicated a few paragraphs before.

The control of corruption may also be enforced by a strong local business sector, with competitive companies interested in well-established infrastructure and good governance. Where there are more companies and they perform better, the number of potent applicants for the tenders of the municipalities may also rise, which is another perspective from which more control over public procurement corruption may emerge. In addition, more companies with international backgrounds may spread best practices in their environment which may affect the tendering activity of the local government also. So, I formulated three hypotheses related to different relevant aspects of the local business activity:

H1.2: Public procurement contracts issued by settlements with more foreign companies score less on the CRIs.

H1.3: Public procurement contracts issued by settlements with higher business density score less on the CRIs.

H1.4: Public procurement contracts issued by settlements with the business sector produce more value-added score less on the CRIs.

Apart from the ratio of the companies owned at least partly by foreign entities – the origin

⁴⁵ 'Érettségi' in Hungarian.

⁴⁶ The standard deviation of the ratio of adult population holding at least high-school graduation within the 345 Hungarian towns is 0.11; the standard deviation of the ratio of college and university diploma holders in the population at the age above 25 is 0.06.

indices on the level of local governments and international data suggest that the persistence of uncontested seats and one-party dominated councils at the local level – or weak electoral accountability in other terms – lead to substantially higher corruption risk (Fazekas, 2015; Broms, Dahlström and Fazekas, 2017; Fazekas and Hellmann, 2019). So, I have the following hypotheses in connection to the local political competition:

H2.1: Public procurement contracts issued by settlements where the mayor tends to be re-elected score more on the CRIs.

H2.2: Public procurement contracts issued by settlements with more competing candidates score less on the CRIs.

As for the former hypothesis I take into consideration the length of the tenure in terms of the years of the mayor who was in office when the public procurement was issued. The related information is extracted from the Wikipedia sites of the Hungarian municipalities as there is a lack of proper official data⁴⁹. Regarding those years when the mayor was changed, I took into consideration the tenure of the preceding mayor, as the local government elections are held in the Autumn.

In the case of the latter one, I will refer to the ‘effective number of candidates measure (Laakso and Taagepera, 1979) calculated based on the results of the preceding mayoral elections. The effective number of candidates provides for an adjusted number of runners in the elections by counting them and, at the same time, weighting the count by their relative strength in terms of their vote share. The number of candidates equals the effective number when all of them have equal strength, but in any other case, the effective number of candidates is lower than the actual number of potential mayors. If all candidates except one have zero vote share, then the indicator will be equal to one. The related formula is the following:

$$N = \frac{1}{\sum_{i=1}^n p_i^2}$$

where n is the number of candidates with at least one vote and p is the candidates’

⁴⁹ The National Election Office provides datasets on its homepage about the results of the regular elections, but the by-elections are not covered by them; the aforementioned OSAP database contains information about the actual mayors of the settlements, but its releases from the previous years are only available sporadically.

proportion of all votes. The background data for this calculation is derived from the National Election Office⁵⁰, and I assign the measure to the public procurement contracts characterizing the last election⁵¹ before the year of a given tender.

In addition, I assume that there will be a significant interaction between the aforementioned variables as those mayors who tend to be re-elected in elections with intense competition may run the municipalities successfully and transparently.

As was outlined in the literature review, increased exogenous revenues may result in corruption (Burnside and Dollar, 2000; Brollo *et al.*, 2013; Holden, 2013) – or ‘aid capture’ (Andersen, Johannesen and Rijkers, 2020) –, and corrupt public procurement may serve as potential means for channelling funds provided by donors to the political elites (Dávid-Barrett *et al.*, 2020). The last research question investigates whether the municipalities which are less dependent on the local tax revenues (i.e., the share of external funds and financial aid is higher in their budget) are more prone to issue public procurement contracts with increased corruption risks. In addition, I suppose that public procurement contracts which are at least partly financed by the European Union tend to have more corruption risks.

RQ3: Is there any relation between the weight of external funds in the local governments’ tenders and the corruption risk indices?

H3.1: Public procurement contracts issued by settlements with a higher share of external revenues in their budget score more on the CRIs.

H3.2: Public procurement contracts funded by the European Union have higher CRIs.

The structure of the revenues of the local government is available in the T-STAR system of the HCSO, an annual official data collection of settlement level data. Nevertheless, there are some discrepancies in the data. For the years between 2005 and 2011, the sum of the revenues from the local taxes and the total income is available in the TeIR, thereby the share of the incomes from the local taxes could be easily calculated. But there is an interruption in the data between 2012 and 2013. In 2014 the data is available in the

⁵⁰ https://www.valasztas.hu/1990-2019_eredmenyek (accessed: 6th April 2021)

⁵¹ General local government elections which are relevant from the perspective of the dissertation were held in 2002, 2006, 2010, 2014 and 2019.

dissemination database of the HCSO⁵², but the total local tax income is not calculated. Conversely, incomes deriving from different local taxes are indicated, so I summed the revenues from the personal income tax and the motor vehicle tax assigned to local governments, the local tax on company sales and the local tourism tax and calculated their proportion to the total revenues. From 2015 and 2016 the data is available only in the dissemination database of the HCSO too, but the tax revenues are summed by the statistical office. Then for the years between 2017 and 2019, the data is available again in the TeIR.

The presence of the EU funds in a tender is indicated in the public procurement databases as a characteristic of a given contract like its issuer or winner.

3.3 Problems deriving from unclear causal relations during the quantitative analyses

As the causal relations are unclear among the dependent and the independent variables and the presence of endogeneity and omitted variable bias cannot be ruled out, the modelling method should be chosen very carefully. Cooray, Dzhumashev and Schneider provided a brief overview of the possible modelling approaches related to these problems in their study about the effects of corruption on the public debt (Cooray, Dzhumashev and Schneider, 2016). As they involve corruption as an independent variable, their methodology cannot be directly applied to the investigation of all of the proposed research questions. However, their careful methodological guidelines are worth to be considered.

They applied four methods for their investigation among 126 countries: the ordinary least squares (OLS) regression (1), the fixed effects estimation (2), the system General Method of Moments (GMM) (3) and for the further testing of endogeneity, the instrumental variables (IV) estimation (4). The authors note, that in the case of the first preliminary OLS modelling approach the extremely small R^2 indicates that important factors are missing and if the unobserved explanatory variables are correlated with the measurement error, the regression slope will be biased toward zero; however, the authors could reveal the aggravating influence of corruption on public debt.

The second and the third approaches also led to the same conclusion, but with the

⁵² The technical identifier of the annual statistical data for the Hungarian settlements is TA2019_W.

involvement of several controlling factors. Fixed-effects models can be applied in the case of panel data and can control for unobserved-but-fixed characteristics of the observations (Joshua D. Angrist and Pischke, 2008). In addition, system GMM combines the observed data with the information in population moment conditions to produce estimates of the unknown parameters of the model (Zsohar, 2012). This additional information is also derived from the observable variables. By implementing this method, the estimation will be less likely to be incorrectly specified. In addition, the GMM estimation does not impose strict requirements concerning the distributions which makes it a good alternative in many situations. A possible pitfall of the GMM analysis is that more model conditions may be allowed than the number of parameters to estimate. To reveal this phenomenon, over-identification tests have to be done, as the authors did.

The fourth approach of Cooray, Dzhumashev and Schneider is the application of instrumental variables to correct the results for endogeneity. Their instruments had to be correlated to corruption and not influence public debt through other channels. They chose the settler mortality rate and latitude as instruments, which are commonly used variables for IV estimations in corruption research. This decision is also empirically justified, as based on the results of the Cragg–Donald Wald F statistic and Kleibergen–Paap Wald F statistic the instruments identify the endogenous regressor and the Hansen J-test suggests that they do not vary systematically with the disturbance term in the second stage equation.

The article of Treisman assessing the causes of corruption in a cross-national context (Treisman, 2000) also raises the problem of omitted variable bias and endogeneity. He also considers the OLS regression as an essential starting point that needs to be enhanced by techniques aiming to explore the direction of causation. Because of the lack of proper instruments, the approach of instrumental variables was only applicable in the case of testing one out of twelve hypotheses; the distance from the Equator seemed to be a suitable instrument for log per capita GDP, so the link between economic development and corruption was assessed by an IV estimation. However, it should be noted, that Cooray, Dzhumashev and Schneider used latitude as an instrument for corruption (Cooray, Dzhumashev and Schneider, 2016), as it was mentioned in the previous paragraph.

The other technique applied by Treisman is running a series of nested regressions

beginning with the most plausibly exogenous variables and attempting to move down the causal chain by including more and more variables. More practically, this means that he began with the inclusion of long-predetermined historical, cultural or ethnic parameters, like the legal system, colonial heritage, religious affiliation, ethnolinguistic fragmentation and natural resource endowments. Then he created four further estimations with the involvement of more and more explanatory variables, which are increasingly endogenous (for example, the frequency of turnover in government leadership). In addition, Treisman repeated the estimations for several different corruption perception indices (which are strongly correlated with each other) and he developed and tested several alternative indicators for the independent variables to check the robustness of his results. Furthermore, weighted least squares estimations were carried out, weighting cases by the inverse of the variance of ratings for that country on the corruption perception indices to be more focused on those countries which obtained more similar (and thus presumably more reliable) ratings.

The article of Paolo Mauro cited earlier (Mauro, 1995) also raises the problem of endogeneity, however, it considers the level of corruption as an explanatory variable for the economic growth of countries. The ethnolinguistic fractionalization that Treisman used as an exogenous independent variable in his nested regressions is applied as an instrument in the two-stage least squares (2SLS) estimations conducted by Mauro. The reason why he found it a good instrument is that it is in negative and significant correlation with institutional efficiency and corruption but is unrelated to the economic characteristics of the investigated countries other than through its effects on the explanatory variables.

Overall, it is a challenging methodological issue to find a proper way in handling the uncertain causal directions and the endogeneity; the review of the papers assessing the causes and the effects of corruption suggests that there is no obvious solution for the problem, but there are several possible approaches with different advantages and disadvantages.

Unfortunately, some of the independent variables of the present research are not available even on a yearly basis – for example, the data characterizing the educational attainment of the local citizens are gathered during the censuses repeated at the beginning of every decade –, thereby the methods require panel data cannot be implemented. However, the

strategy of Treisman can be at least partly followed, certain kinds of panel regressions can be run with time-invariant variables also. Furthermore, as the observations can be assigned to distinct locations, regressions on a dataset aggregated to the level of towns can be also run. The results deriving from different approaches can verify and reinforce each other, but also, if ambivalent outcomes turn out, then it may raise uncertainties concerning the findings.

3.4 The methodological background of the semi-structured interviews

The semi-structured interviews are recorded with public procurement experts or specialists, the related decision-makers at local governments and also with entrepreneurs who applied to municipal public tenders. Because of the sensitivity of the topic, the respondents are recruited by two convenience sampling methods from the practical perspective: snowball sampling or chain-referral sampling beginning with interviewing people involved in local government public procurement with whom I have contacted previously and then reaching out for their professional connections (1), sending the local governments an invitation for participation through their official email address⁵³ (2).

The feasibility of the qualitative fieldwork became problematic due to the COVID-19 pandemic. Apart from the threat caused by the virus, the local governments also faced extreme problems and workload as they had to organise the local precautionary measures against the epidemic, but in the meantime, their incomes were cut as the government channelled some of the local taxes into the central budget⁵⁴. Therefore, the qualitative fieldwork that was scheduled originally for the Spring of 2020 – this period seemed to be ideal as there were local government elections in the Autumn of 2019 – had to be postponed. This postponement finally lasted for nearly two years, as I tried to avoid online interviewing. Due to the excessive sensitivity of the topic, I concluded that online fieldwork methods are inappropriate in the case of the present research, as chances of fear and thereby misreporting may be high (however, finally, some of the respondents insisted on the organization of online meetings and I certainly adapted to their request). Unfortunately, the periods when the severity of the pandemic decreased mostly

⁵³ The contact information is gathered from the OSAP 1621 data collection and the homepages of the towns.

⁵⁴ <https://www.kormany.hu/hu/miniszterelnokseg/hirek/663-milliard-forint-kerul-a-jarvanyugyi-alapba>
<https://www.parlament.hu/irom41/10710/10710.pdf>

overlapped with the summer holiday seasons in both 2020 and 2021, at which time local government officials proved to be hard to reach despite my efforts.

At the beginning of 2022, I could start organizing the interviews, so the qualitative fieldwork was conducted between January and August 2022. Upon ensuring the anonymity and the aggregated analysis and presentation of the findings deriving from the qualitative fieldwork for the participants, instead of recording the conversations, I took notes during the conversations, however, four respondents indicated that they have no objections regarding the recording – in such cases I made audio-recordings, what fortunately did not prevent the interviewees from an honest and open conversation⁵⁵. So, most of the quotations I cite in the analysis are recalled by myself based on my notes and memories just after the interviews, but I would not be able to insert literal quotes anyway as the conversations were in Hungarian.

I could conduct eleven interviews in terms of the qualitative fieldwork. My original intention was to invite only mayors to participate in the research, but in some of the local governments they recommended contacting other high-ranking officials (e.g., notary, mayoral adviser, head of the cabinet, chief of staff) with less busy schedules or deeper insights related to the public procurement, and as I faced with difficulties related to the organization of the interviews, finally I accepted these options. Another important methodological problem of the qualitative research is related to the honesty of the interviewees, as the representatives of the municipalities may tend to provide biased answers for such sensitive questions which were raised during the interviews, mostly in a turbulent period like the one in which the research was done. Due to these uncertainties, I found it important to involve additionally three entrepreneurs who participated in public tenders of local governments also, and therefore gather insights from another perspective, moreover, I interviewed a public procurement expert for the same reasons. They may have provided socially desirable and dishonest answers too of course, but the common set of conclusions formulated based on the interviews with issuers and winners of tenders might be closer to the reality.

Even though the number of interviews is limited, the amount of new information and insights related to the topic significantly reduced during the last conversations I had. This

⁵⁵ In my view this experience indicates the extreme differences in trust towards researchers within the municipal leaders, entrepreneurs and public procurement experts.

suggests that the actual extent of the qualitative fieldwork is enough to formulate well-grounded conclusions – from this perspective, the present fieldwork can be understood as grounded theory research, with purposive or theoretical sampling, as I tried to follow the basic principles of the deviant case sampling and the maximum variation (Vicsek, 2006; Chun Tie, Birks and Francis, 2019), and conducted interviews with new participants until I could reach the theoretical saturation, moving back and forth between the analysis and the collection of data until failing to gather new information with subsequent interviews.

Due to the sensitivity of the topic, several interviewees asked me to provide as a limited amount of information about the municipality they are affiliated with as possible. The size of the municipalities involved in the sample ranges from approximately 10,000 to 100,000 in terms of the number of inhabitants, thus the midmost part of the distribution of the Hungarian local governments (see Figure 3.1.1.) is represented from this perspective. I also tried to ensure the variation of the municipalities covered by the sample regarding the development of the region where they are situated.

A key problem of the interviews was the distinction between the public procurement tenders and purchases with a monetary value under the threshold of the public procurement procedures. I emphasized before and during the conversations that my dissertation is focused on public procurement, which the respondents mostly respected, but I had to remind them sometimes. In addition, some of the mayors said that they are not competent in the details of public procurement – as I have already indicated, in some cases they forwarded my invitation to their colleagues mostly due to this reason –, but during the interviews, it turned out, that they are familiar with those principles of the local practices in which I was interested. Another practical problem was related to the snowball-sampling method: when I asked for contacts of potential further respondents at the end of the interviews, the interviewees mostly recommended mayors of similar towns to the one they led. Thus, apart from a few instances, I could not rely on this method, to preserve my resources for interviews at municipalities differing from each other.

The length of the interviews themselves⁵⁶ ranged between 60 to 90 minutes. During the interviews, we talked about the preparations before launching or applying to a public tender, the key interests of the issuers and bidders related to public procurement and the

⁵⁶ Without the pauses caused by the disturbances discussed in the next paragraph.

aspects and features of the tenders they take into consideration. I also asked the respondents to share their thoughts related to the public procurement corruption risk indicators and regarding the possible distinction between the undoubtedly corrupt and the 'directed' tenders⁵⁷ with the consideration of the public interest (see the interview guide in the Appendix). It is important to note, that most of the interviews were conducted in the offices of the respondents, even in the cases of the online meetings they mostly logged in from their workplaces (one interviewee was at home) – unfortunately during the organization of the meetings I had to adapt to the interviewees, even if their wishes were not optimal from the perspective of the research, as making appointments with high-ranking officials requires compromises. However, there were three exceptions: these interviews took place in cafes, resulting in conversations with a much less formal tone in comparison to the other ones in the offices.

Aside from the potential effects of the official environment on the honesty of the respondents, most of the interviews conducted there became fragmented as they invited me to visit them during their working hours. Phone calls and the arrival of different colleagues for brief discussions disturbed the conversations quite frequently, so the total time I spent with the interviewees was considerably higher than the duration of the interviews. There was one extreme case when I had to suspend the interview in the middle because of an extraordinary meeting, and then we had to schedule a new appointment with the interviewee which lasted for two weeks. Two meetings were postponed by the interviewees just before the original appointment, but fortunately, no one cancelled the interview after accepting my request.

As for the tone of the interviews, also in three cases, I had an impression that during the organization of our meeting and at the beginning of the interview the respondents felt uncomfortable, however, finally, all of them were keen on answering my questions. I had open and honest conversations in good mood despite the sensitivity of the topic, I could understand the opinions and the attitudes of the interviewees concerning public procurement corruption, but certainly, the results of the qualitative analysis have to be interpreted carefully, keeping in mind the potential presence of the social-desirability

⁵⁷ In the Hungarian public procurement jargon by 'directed' tenders (or 'irányított beszerzés' in Hungarian) it is meant when an issuer customizes a tender in favour of a company, however, this may happen not only because of immoral intentions but also because of keeping the interests of local people in focus.

bias. Furthermore, the respondents might have concerns about the consequences of the research – if the outcomes of public procurement corruption research lead to any kind of change in the current system, it may result in unwanted administrative difficulties making the actors counter-interested in dealing with this topic.

4. Results

The present chapter summarizes the results of the uni- and multivariate quantitative analyses providing evidence or disproof for the hypotheses and will present the insights gathered from the interviews enriching the narratives of the statistical findings. Tendencies characterizing the public procurement of the Hungarian local governments are presented in the first subchapter, and then the outcomes of the deeper multivariate analyses are summarized in the second subchapter. These subchapters summarize the results of the parallel quantitative analyses of the TED and the CRCB's public procurement databases. Finally, in the third subsection, I review the experiences of the interview research.

During the quantitative analyses presented in this chapter, the framework agreements were filtered out due to those reasons which were discussed in Chapter 3.1.

4.1 Tendencies of the public procurement corruption risks in the Hungarian local governments

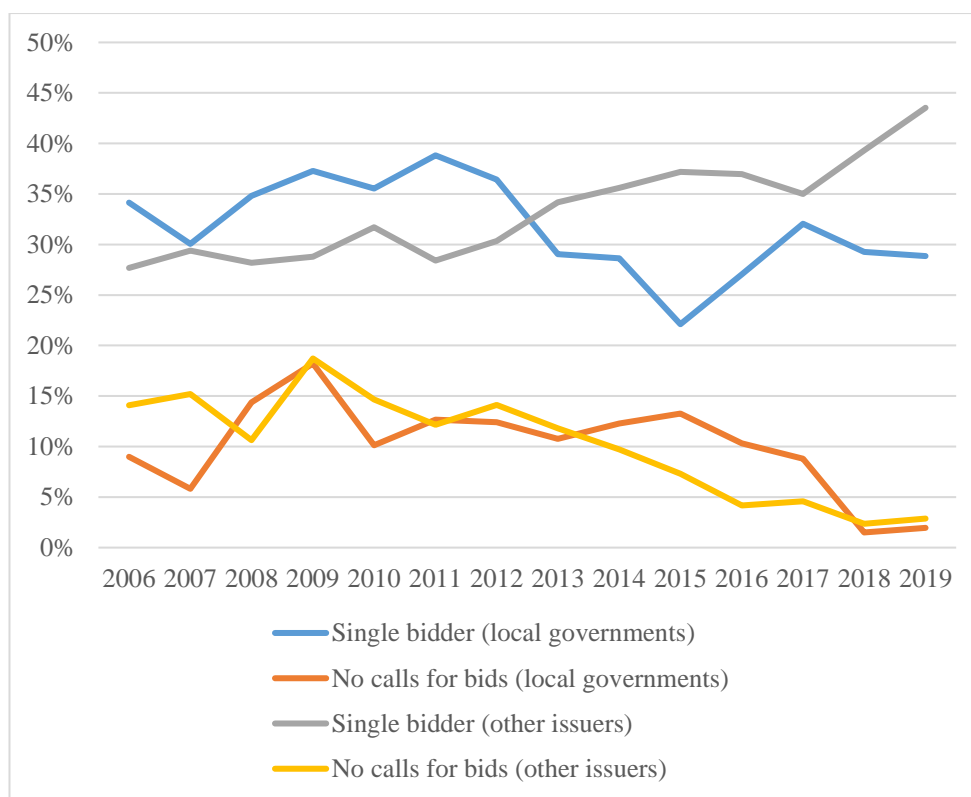
The data published in the TED suggests that corruption risks tended to be higher within the contracts related to the local governments in comparison to the tenders of other issuers, in the period between 2006 and 2013 in terms of the ratio of contracts with only a single bid⁵⁸ (see Figure 4.1.1.). In recent years, the municipalities tend to perform better from this perspective than the rest of the issuers. Regarding the yearly ratios of the single bidder indicator, a slightly decreasing tendency can be observed among the municipal contracts but among the tenders issued by further public bodies, the ratio increased. As for the procedure types, it can be concluded that the local governments tended to launch tenders without calls for bids⁵⁹ with a similar frequency as the further public institutions did except for the period between 2014 and 2017 when the municipal contracts showed more corruption risks for this perspective. A decreasing trend can be observed regarding

⁵⁸ The single bidder variable is a dichotomous characteristic of the contracts. It takes 0 if the 'number_offers' variable in the original TED dataset holds a value above 1 and takes 1 if this variable indicates that there was only one offer.

⁵⁹ The no calls for bids variable is also a dichotomous characteristic of the contracts taking 1 if the 'AWP', 'NOC' or the 'NOP' string is recorded in the 'top_type' variable of the original TED dataset indicating that the type of the procedure was 'award without prior publication of a contract notice' or 'negotiated without a call for competition'. For all the further procedure types the variable takes 0.

the 2010s in the ratio of contracts without any kind of announcement.

4.1.1. Figure: The ratio of contracts with a single bidder and deriving from procedures with no calls for bids in the TED dataset



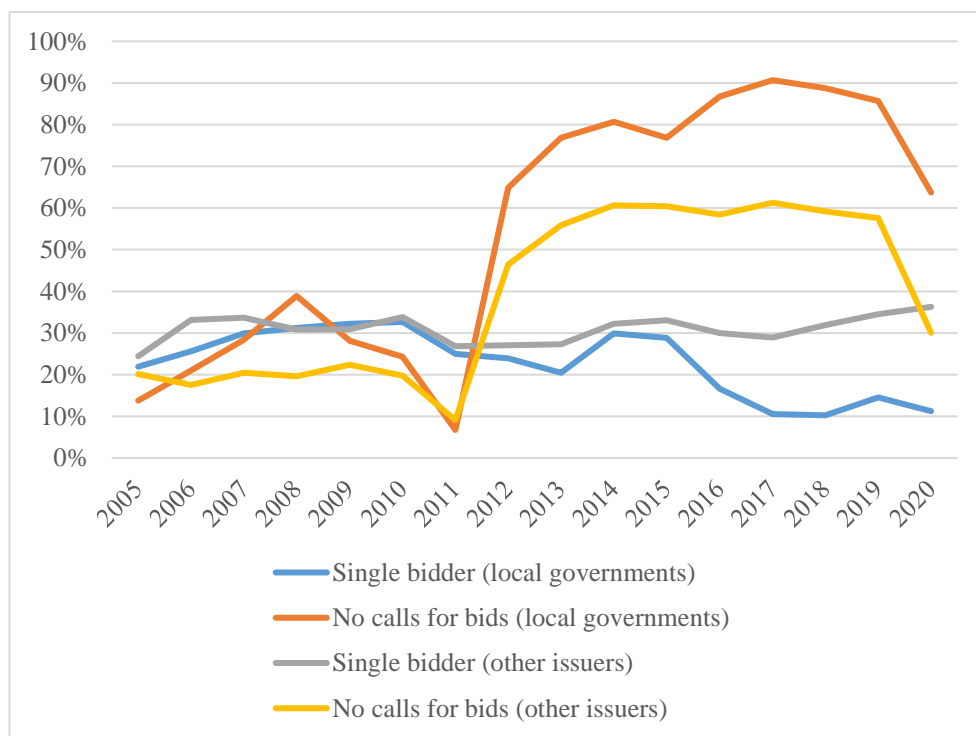
Source: own calculations based on the data of the TED

It is worth highlighting that the single bidder indicator identifies more corruption risks in the public, as it varies between 22 and 39 per cent per year among the local governments' contracts in comparison to the no calls for bids indicator ranging from 1 to 18 per cent per year.

Based on the dataset of the CRCB we can have significantly different findings as it contains public procurement tenders issued in the national regime too. As it was outlined in Table 3.1.1. and Table 3.1.2 this dataset contains much more contracts than the TED dataset does, furthermore the tenders are more heterogenic, for example, due to the existence of public procurement procedures that can be only applied to public procurement conducted in the national regime. In general, it can be concluded, that the

SB indicator⁶⁰ characterizing the tenders issued by the local governments varies between 10 and 33 per cent per year and the NCB indicator⁶¹ ranges from 7⁶² to 91 per cent; within the tenders issued by other public organizations the yearly ratios of the contracts with single bidder tends to be higher than within the contracts of the local governments but as for the NCB indicator municipal tenders tend to perform worse (see Figure 4.1.2.).

4.1.2. Figure: The ratio of contracts with a single bidder and deriving from procedures with no calls for bids in the CRCB dataset



Source: own calculations based on the data of the CRCB

It is important to note that there was a significant increase in the ratio of contracts deriving

⁶⁰ This binary indicator takes 0 if in there was more than one bidder for the tender according to the information recorded in the 'A beérkezett ajánlatok száma:' (number of received offers) field on the homepage related to the given tender and it takes one, if there was only one bidder.

⁶¹ The NCB indicator takes 0 if the tender was announced and takes 1 if there was no call for bids. The indicator is based on the information recorded in the 'Eljárás fajtája' (procedure type) field on homepage of the given tender. For the details of the classification of the procedure types applied in the present study (this may differ from the categorizations used in the analyses of the CRCB and further papers referring to the CRCB's dataset) and the related problems see the Appendix.

⁶² This extremely low ratio was observed in 2011, when the field characterizing the public procurement procedure type did not contain any information in the cases of the vast majority – 69 percent – of the contracts. Presumably the lack of this information was not independent from the procurement procedure type.

from procedures with no calls for bids. In addition, if we compare the TED and the CRCB data, great differences can be observed mostly regarding the NCB indicator. This is mainly due to the different public procurement procedures that can be launched in the national and the EU regime. Furthermore, the effects of the changes in the legislation regulating public procurement are visible in terms of the frequency of the procedures without announcement. A new Public Procurement Act came into effect in 2011⁶³ leading to a significant increase in the ratio of tenders without calls for bids. Then, the Public Procurement Act changed again in 2015⁶⁴, which resulted in a further rise of tenders launched without announcement in 2016, by the introduction of novel procedure types⁶⁵ with limited transparency (CRCB, 2016). At the end of 2019, the procedure types were cancelled⁶⁶, therefore the ratio of tenders without announcement decreased in the subsequent year.

The differences in terms of the frequency of contracts with no calls for bids between the two data sources can be better explained if we distinguish between those which were announced in the Official Journal of the European Union and the Hungarian Public Procurement Journal in the CRCB dataset⁶⁷. Due to the uncertainties in the data publication⁶⁸, we cannot observe completely identical figures related to the NCB indicator based on the TED dataset and the subset of those contracts in the CRCB dataset which were announced in the Official Journal of the European Union, however, the ratios of tenders without call for bids is rather similar (see Figure 4.1.1. and 4.1.3.). As for those

⁶³ CVIII. Act 2011 – see: <https://mkogy.jogtar.hu/jogszabaly?docid=a1100108.TV> (accessed: 28th April 2021)

⁶⁴ CXLIII. Act 2015 – see: <https://www.kozbeszerzes.hu/torveny/act-cxliii-of-2015-on-public-procurement/> (accessed: 28th April 2021)

⁶⁵ These were introduced in the Article 113 and the Article 115 of the Public Procurement Act – these procedures are classified as procurement types with no calls for bids.

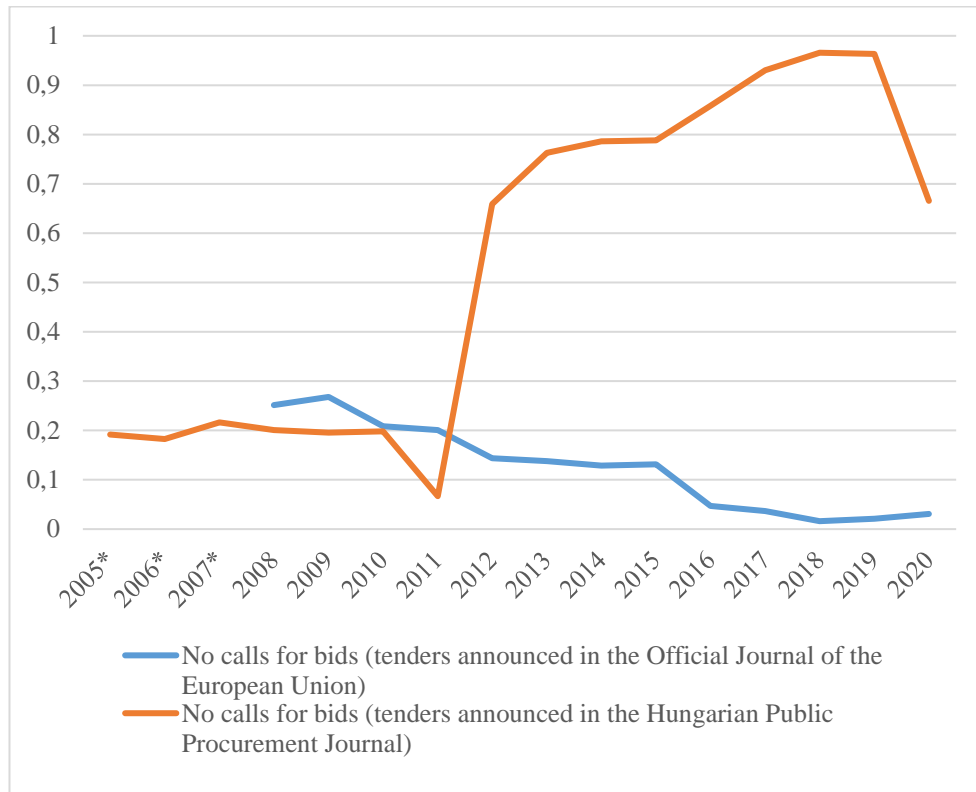
⁶⁶ CXX. Act 2019 – see: <https://mkogy.jogtar.hu/jogszabaly?docid=A1900120.TV> (accessed: 28th April 2021)

⁶⁷ This distinction can be done by analysing the contents of the 'Hirdetmény típusa' (announcement type) field – the publication of the tenders in the Official Journal of the European Union is indicated by the 'EUHL' abbreviation here (it abbreviates the 'Európai Unió Hivatalos Lapja' term what stands for the Official Journal of the European Union in Hungarian).

⁶⁸ We cannot suppose that there is an unequivocal correspondence between the tenders published in the TED dataset and the tenders to which the 'EUHL' indication was assigned in the CRCB dataset. In addition, the handling of the dates in the two datasets may also differ. These discrepancies are indicated by the lack of contracts with the 'EUHL' abbreviation in the announcement type field between 2005 and 2007.

contracts which derive from tenders announced in the Hungarian Public Procurement Journal, the proportion of contracts with no calls for bids tends to be considerably higher, mainly in those years when the aforementioned dubious procurement types were in force.

4.1.3. Figure: The ratio of contracts deriving from procedures without calls for bids in the CRCB dataset



Note: in the years marked with asterisks () no contracts published in the Official Journal of the European Union could be identified.*

Source: own calculations based on the data of the CRCB

4.2 Multivariate analyses

As was outlined in Chapter 3.3., handling the uncertain causal directions and the endogeneity between the variables involved in the research would be an important aim during the selection of the modelling technique, but such methods are mostly prerequisite panel data. Unfortunately, the present study does not involve such data since the observational units in both the TED and the CRCB datasets are the contracts issued by the municipalities, the dependent variables are the corruption risk indicators and the independent variables are the characteristics of the towns where the tenders were issued. However, the observations are nested within the issuers, so even if the structure of the data cannot be understood as a panel, furthermore, some of the independent variables are

time-invariant due to the lack of frequent updates, it is worth supplementing the basic logistic regression analyses with random effect models (as the effects of the time-invariant variables cannot be estimated by the fixed effects models, I choose the random effect modelling method).

So, I will create multivariate binary logistic regression models with and without random effects to investigate my hypotheses with the STATA 16 software. I will present the outcomes of the models in terms of the coefficients focusing on their signs. An alternative could be for instance the computation of the average marginal effects, as their range is limited and thereby they can be interpreted better, furthermore, they provide a better measure for the comparison of the strength of the relationships revealed by the models (Bartus, 2003), but they are usually harder to interpret if continuous independent variables are involved, what I have in my models and my only intention is to reveal the direction of the relationships.

It is also important to note, that the datasets I refer to in my dissertation cannot be regarded as random samples. The TED dataset is supposed to contain all the purchases valued above the EU threshold, but tenders below the threshold may be also submitted voluntarily. The CRCB dataset theoretically contains all the Hungarian public procurement contracts, however, according to the aforementioned uncertainties and problems concerning the data publication of the public tenders there might be contracts missing from this dataset also. These issues raise concerns regarding the interpretation of the p-values related to the coefficients and the odd ratios of the logistic models; basically, the data sources should be regarded as complete universes of the investigated contracts, but we cannot surely claim that all contracts are included in them, furthermore, it is questionable whether the inclusion or the exclusion of the contracts is the result of a random procedure. All in all, I will indicate the p-values in the tables summarizing the results of the models – mostly for characterizing the strength of the relationships –, but I refrain from their analysis due to these reasons assuming that the following results are relevant even if they characterize only those contracts which are included in the TED and the CRCB datasets.

In addition to the independent variables related to the hypotheses, I include three control variables in the models: the population of the settlement (i), the subject of the contract

according to the CPV codes⁶⁹ (ii) and the year when the tender was issued (iii). I also considered the inclusion of the values of the contracts as control variables, but as different procurement types can be applied below and above certain thresholds, implying that the contract values may determine the dependent variables, I rejected this option finally. Furthermore, as the independent variables are mostly the features of the local governments, at the end of the section I present models run on a dataset aggregated to the level of the towns as this approach is more in line with the independent variables characterising the towns and the hypotheses. In the cases of these models, I involved the ratios of the single bidder contracts and the contracts deriving from tenders without calling for bids as dependent variables. These analyses were conducted on the CRCB dataset as many towns do not show up in the TED dataset at all (for details, see the next few paragraphs).

The results based on the TED dataset indicate that in settlements where the locals are better educated the corruption risks tend to increase, mostly in terms of the NCB indicator, which contradicts my expectations. Regarding the relationship between the corruption risk indices and the presence of foreign companies the modelling led to ambiguous coefficients indicating that where more foreign companies operate the risks according to the SB indicator tend to be lower – which matches with the related hypothesis –, but a slight increase can be observed regarding the NCB indicator. Conversely, the occurrence of contracts with a single bid tends to be higher to some extent with the increase of the business density. As for productivity, it can be concluded that with its increase the corruption risks also tend to increase, mostly the occurrence of tenders with only one bidder. However, the number of local minorities forming self-governments is negatively correlated with the corruption risk indicators, as it was assumed.

As for the hypotheses related to the relationship between the local political competition and the public procurement corruption risks, it turns out based on the models that the length of the tenure is negatively correlated with both the SB and the NCB indicators, indicating that where the mayor has been in position for a longer period when a tender is issued, then the corruption risks tend to be reduced. This finding is contradicting my hypothesis, however, there are several mechanisms which may explain it – for instance,

⁶⁹ The Common Procurement Vocabulary (CPV) is a codification describing the type of supplies, works or services defining the subject of the contracts.

transparent public procurement may have perceptible consequences what the voters reward with the re-election of the mayor, and also those mayors who have been in a position for a long time may have more opportunities to develop a well-performing public procurement system. The relationship between the intensity of competition in the elections in terms of the effective number of candidates and the SB indicator is negative as was assumed by the hypothesis, but the NCB indicator is positively correlated with this characteristic – however, these associations are quite weak.

Regarding the relationship between the corruption risk indicators and the variables characterizing the presence of external funding it can be concluded that contracts issued by local governments with a higher ratio of revenues from taxes in their budget tend to have limited corruption risks, which is in line with the expectations: where state subsidiaries and other external sources have more weight in the local budget, the corruption risks tend to be higher. The EU funds have controversial effects: contracts financed by the European Union tend to have fewer corruption risks in terms of the SB indicator and vice versa, more corruption risks according to the NCB indicator.

Many of the findings seem to be contradictory – they are not in line with the hypotheses and the coefficients related to the two corruption risk indicators have different signs in several cases. It should be kept in mind that the TED dataset contains only a certain subpart of public procurement contracts as was indicated before – 106 towns do not show up in the TED dataset at all, and 37 of them occurred only by one of their contracts, hence nested regression analyses were not done – so it is worth to repeat this analysis based on the data of the CRCB covering the public procurement contracts issued in the national regime.

4.2.1. Table: The coefficients of the logistic regression modelling the corruption risk indices based on the TED data

Independent variable	SB		NCB	
	Coefficient	P-value	Coefficient	P-value
Ratio of the population holding at least high-school graduation	0.1304	0.83	3.2857	0.00
Ratio of the companies owned at least partly by foreign entities	-1.1993	0.36	0.2212	0.92
Number of business units per capita	0.3011	0.79	-2.8237	0.13
Gross value-added per 1000 employee	0.0188	0.13	0.0089	0.66
Number of local minorities forming self-governments	-0.0551	0.01	-0.0409	0.18
Length of the mayoral tenure	-0.0307	0.00	-0.0352	0.00
Effective number of mayoral candidates	-0.0326	0.64	0.0348	0.75
Ratio of revenues from taxes	-0.7410	0.09	-0.1978	0.77
EU-fund	-0.1527	0.09	0.3522	0.01
Population (1000 inhabitants)	-0.0017	0.24	-0.0021	0.32
Year (reference category:2006)				
2007	-0.0798	0.73	-0.2762	0.50
2008	0.5725	0.01	1.0333	0.00
2009	0.5264	0.01	0.9331	0.00
2010	0.5677	0.00	0.5997	0.05
2011	0.7345	0.00	1.1591	0.00
2012	0.6163	0.01	0.9039	0.01
2013	0.3742	0.10	0.8137	0.02
2014	0.4867	0.04	1.1143	0.00
2015	0.3239	0.18	1.6974	0.00
2016	0.4931	0.06	0.9786	0.01
2017	0.5372	0.05	0.6059	0.17
2018	0.6534	0.01	-1.0977	0.10
2019	0.4468	0.05	-0.9826	0.05
Sector (reference category: agriculture)				
Energy and mining	-1.0871	0.00	-1.1884	0.04
Manufacturing	1.1217	0.00	0.1992	0.56
Construction	0.5913	0.00	1.7002	0.00
IT hardware and software	1.0929	0.17	*	
Financial, business and real estate services	1.3390	0.00	1.7939	0.00
IT services	2.9935	0.00	3.1331	0.00
Other services	1.4361	0.00	2.5774	0.00
Constant	-1.3369	0.00	-5.3767	0.00
N	4073		4121	
Pseudo R ²	0.0924		0.1734	

*: Only 7 observations belong to this category predicting the dependent variable, so it was excluded.

Source: own calculations based on the data of the TED

The results based on the CRCB's dataset indicate that there is no clear relationship between educational attainment and the SB indicator as the models with and without random effects lead to contradicting results, but with high p-values. The stronger presence of foreign capital tends to be associated with more corruption risks in terms of the SB indicator, which is mostly shown by the random effects model. The intensity of the local corporate activity is positively correlated with the corruption risk index, indicating that higher business density does not seem to reduce corruption risks as was supposed. The productivity of the local economy is also in positive correlation with the SB, which is not in line with the related hypothesis. In the case of the number of local minorities forming self-governments a negative association can be also observed with the SB indicator – this finding is in line with the related assumption.

The length of the tenure of the mayor who was in position in the year when a given tender was issued is negatively correlated with the SB indicator. This means that longer mayoral terms may lead to limited corruption risk – or where the public procurement tends to be more transparent, the mayors may be re-elected with a higher probability. This finding contradicts the related hypothesis, the empirical results indicate that the mayors who become more embedded by being on duty for longer periods do not misuse their power more often than those who become changed after shorter tracts. The correlations indicated by the two models between the political competition in the mayoral elections measured by the effective number of candidates and the SB indicator are controversial.

Local governments with a higher share of tax revenues in their budget tend to issue fewer single bidder contracts, which is in line with the related hypothesis: if the weight of the external funds at a local government decrease, then it may become more conscious of how the monetary resources are used. However, the SB is also negatively correlated with the presence of the EU funds, which is not in line with the assumptions, but this can be explained by the different procedure types that may be implemented for the EU-funded tenders.

It should be added that the explanatory power of the models discussed in the preceding paragraphs is very poor (the model explaining the SB indicator based on the TED dataset performed slightly better from this perspective, but it could only explain a small extent of the variance of the dependent variable too) despite the relatively large number of independent variables. This means that the investigated social, political and economic

characteristics tend to be indifferent from the perspective of the SB indicator, or in other words, it can be concluded that whether there is only one or more applicants are present on the local governments' tenders depend on other factors.

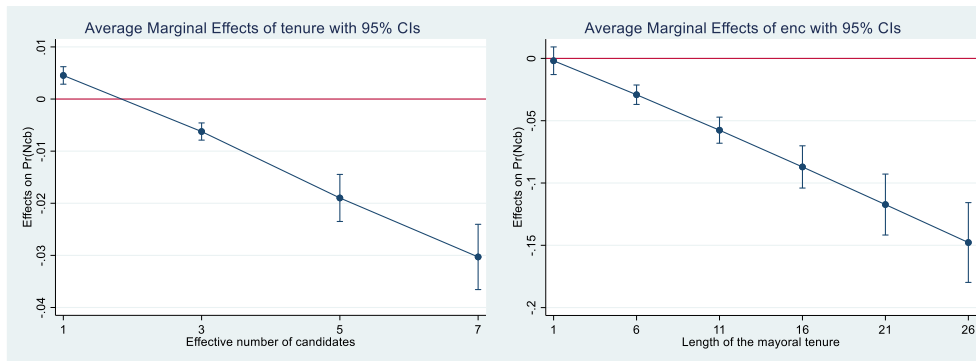
4.2.2. Table: The coefficients of the logistic regressions modelling the SB indicator based on the CRCB dataset

Independent variable	Without random effects		With random effects	
	Coefficient	P-value	Coefficient	P-value
Ratio of the population holding at least high-school graduation	-0.2659	0.17	0.0393	0.92
Ratio of the companies owned at least partly by foreign entities	0.2514	0.54	1.4002	0.09
Number of business units per capita	0.1547	0.63	0.1197	0.84
Gross value-added per 1000 employee	0.0000	0.21	0.0000	0.19
Number of local minorities forming self-governments	-0.0376	0.00	-0.0322	0.22
Length of the mayoral tenure	-0.0099	0.00	-0.0007	0.84
Effective number of mayoral candidates	-0.0425	0.07	0.0190	0.51
Ratio of revenues from taxes	-0.9710	0.00	-1.1016	0.00
EU-fund	-0.3483	0.00	-0.3666	0.00
Population (1000 inhabitants)	0.0000	0.46	0.0000	0.74
Year (reference category:2005)				
2006	0.3175	0.02	0.3152	0.02
2007	0.4151	0.03	0.3721	0.05
2008	0.5986	0.00	0.6129	0.00
2009	0.6363	0.00	0.7194	0.00
2010	0.6804	0.00	0.7269	0.00
2011	0.2804	0.02	0.3340	0.01
2012	0.2329	0.05	0.2759	0.03
2013	0.0515	0.66	0.0870	0.49
2014	0.6233	0.00	0.6498	0.00
2015	0.5531	0.00	0.5720	0.00
2016	-0.1687	0.19	-0.1326	0.33
2017	-0.5335	0.00	-0.5203	0.00
2018	-0.4561	0.00	-0.4591	0.00
2019	-0.0563	0.65	-0.0656	0.62
2020	-0.6040	0.00	-0.5924	0.00
Sector (reference category: agriculture)				
Energy and mining	-2.5652	0.00	-2.3908	0.00
Manufacturing	-1.0674	0.00	-0.8659	0.00
Construction	-1.6172	0.00	-1.3616	0.00
IT hardware and software	-0.9535	0.00	-0.7577	0.02
Financial, business and real estate services	-0.9260	0.00	-0.7036	0.02
IT services	-0.5176	0.10	-0.2685	0.41
Other services	-0.8721	0.00	-0.6142	0.04
Constant	0.5476	0.08	-0.2223	0.00
N	32699		32699	
Pseudo R ²	0.0646			

Regarding the NCB indicator, the models run on the CRCB's dataset indicate a negative relationship between the corruption risks and the ratio of the population holding at least a high school diploma, which is absolutely in line with the expectations. The outcomes of the models concerning the presence of foreign capital are ambiguous, the business density seems to be positively correlated with the NCB indicator and the coefficients related to the local productivity show different signs in the models with and without random effects – so it can be concluded that hypotheses related to these economic factors are not supported by the data. Discrepancies can be seen in the cases of the coefficients related to the number of local minorities forming self-government the length of the mayoral tenure is in a clear negative relationship with the NCB indicator. These findings do not support, or even contradict the related hypotheses – the empirical results indicate that the mayors who become more embedded by being on duty for longer periods do not misuse their power more often than those who become changed after shorter tracts. This means that longer mayoral terms may lead to limited corruption risk – or where the public procurement tends to be more transparent, the mayors may be re-elected with a higher probability. The political competition between the mayors measured by the effective number of candidates is negatively correlated with the corruption risk index according to both models, which is in line with the assumptions.

Significant interaction can be found between the length of mayoral tenure and the effective number of candidates in the models describing the NCB indicator (for details of the models including the interaction term, see the Appendix). This result suggests that the length of mayoral tenure has slightly different relationship to the NCB indicator depending on the level of the effective number of candidates occurred on the mayoral election, and vice versa, the length of the tenure moderates the effect of the strength of the competition on the election on the NCB indicator. Generally speaking, with an increase observed on one of these variables, the negative effect of the other one gets stronger on the corruption risk index.

4.2.1. Figure: Average marginal effects of the variables involved into the interaction analyses



Source: own calculations based on the data of the CRCB

Returning to the original models, it can be also concluded, that local governments with a higher share of tax revenues in their budget tend to issue more tenders without calling for bids, indicating that even if the municipalities have to rely more on their monetary sources, they do not tend to implement transparent procedures more often – this empirical result contradicts the related hypothesis. However, the presence of the EU funds is positively correlated with the NCB indicator, as was assumed.

The performance of the models explaining the NCB indicator was better than the models related to the SB indicator, nonetheless, if we take into account the number of the independent variables, the achieved explanatory powers are still relatively small. This means that the NCB indicator can be somewhat better described in terms of the investigated background characteristics of the local governments in comparison to the SB indicator, but it depends on further factors to a great extent too.

4.2.3. Table: The coefficients of the logistic regressions modelling the NCB indicator based on the CRCB dataset

Independent variable	Without random effects		With random effects	
	Coefficient	P-value	Coefficient	P-value
Ratio of the population holding at least high-school graduation	-1.5235	0.00	-1.8940	0.00
Ratio of the companies owned at least partly by foreign entities	-0.7500	0.14	1.0690	0.36
Number of business units per capita	0.5259	0.20	1.9592	0.01
Gross value-added per 1000 employee	-0.0353	0.00	0.0000	0.00
Number of local minorities forming self-governments	0.0448	0.00	-0.0081	0.82
Length of the mayoral tenure	-0.0072	0.02	-0.0072	0.09
Effective number of mayoral candidates	-0.2314	0.00	-0.3035	0.00
Ratio of revenues from taxes	1.1546	0.00	0.8387	0.00
EU-fund	0.1004	0.01	0.0318	0.42
Population (1000 inhabitants)	-0.0002	0.00	0.0000	0.41
Year (reference category:2005)				
2006	0.5451	0.00	0.5411	0.00
2007	1.0610	0.00	1.0766	0.00
2008	1.5979	0.00	1.5886	0.00
2009	1.0639	0.00	1.0745	0.00
2010	1.1140	0.00	1.1034	0.00
2011	-0.5596	0.00	-0.6807	0.00
2012	2.9244	0.00	3.0387	0.00
2013	3.4970	0.00	3.6861	0.00
2014	3.7471	0.00	3.9230	0.00
2015	3.6200	0.00	3.8207	0.00
2016	4.4279	0.00	4.7072	0.00
2017	4.7103	0.00	5.0655	0.00
2018	4.1177	0.00	4.4145	0.00
2019	3.8498	0.00	4.0709	0.00
2020	2.6792	0.00	2.8225	0.00
Sector (reference category: agriculture)				
Energy and mining	-3.6856	0.00	-3.9685	0.00
Manufacturing	-2.1099	0.00	-2.1018	0.00
Construction	-0.9744	0.13	-1.0944	0.10
IT hardware and software	-1.6965	0.01	-1.8526	0.01
Financial, business and real estate services	-0.5611	0.39	-0.5709	0.39
IT services	-0.8162	0.22	-0.7043	0.30
Other services	-1.4829	0.02	-1.5531	0.02
Constant	0.5412	0.42	-3.9685	0.00
N	26415		26415	
Pseudo R ²	0.2986			

Neither of the linear regression models run on the panel dataset aggregated to the level of the towns without or with random effects reveal any kind of substantial relationship – the related coefficients are positive, contradicting the hypothesis, but very close to zero – between the ratio of the population holding at least high-school graduation and the SB indicator (see Table 4.2.4.). As for the ratio of the companies owned at least partially by foreigners, both models indicate a positive relationship with the SB indicator, which contradicts the related hypothesis. Both coefficients related to the number of business units per capita are negative, which is in line with the hypothesis but are very close to zero again. The productivity of the local business sector does not seem to limit single bidding.

The signs of the coefficients related to the number of local minorities forming self-government are inconsistent between the two models and also very close to zero. But the length of the mayoral tenure is negatively correlated with the SB indicator – this is against my hypothesis, however, as it was indicated earlier, voters may re-elect mayors if the local government they lead has better public procurement. The relationship between the SB indicator and the effective number of candidates in the mayoral elections is characterized by negative coefficients, as it was assumed, nonetheless the p-values indicated that the coefficients are close to zero.

Municipalities, where the weight of the tax revenues is higher in the local budget tend to issue fewer tenders with a single bid, as was assumed. The importance of the EU funds is also negatively correlated with the SB indicator – this contradicts the related hypothesis –, so it cannot be concluded, that municipalities more dependent on their funds issue more contracts with competition between the bidders.

4.2.4. Table: The coefficients of the linear regressions modelling the SB indicator based on the CRCB dataset aggregated to the level of towns

Independent variable	Without random effects		With random effects	
	Coefficient	P-value	Coefficient	P-value
Ratio of the population holding at least high-school graduation	0.0201	0.72	0.0190	0.79
Ratio of the companies owned at least partly by foreign entities	0.3717	0.00	0.3969	0.01
Number of business units per capita	-0.0680	0.43	-0.0782	0.47
Gross value-added per 1000 employee	0.0000	0.67	0.0000	0.58
Number of local minorities forming self-governments	-0.0002	0.97	0.0000	1.00
Length of the mayoral tenure	-0.0018	0.02	-0.0018	0.03
Effective number of mayoral candidates	-0.0063	0.32	-0.0046	0.50
Ratio of revenues from taxes	-0.1485	0.00	-0.1520	0.00
EU-fund	-0.0604	0.00	-0.0661	0.00
Population (1000 inhabitants)	-0.0002	0.44	-0.0002	0.56
Year (reference category:2005)				
2006	0.0237	0.42	0.0294	0.30
2007	0.0584	0.10	0.0586	0.09
2008	0.0827	0.01	0.0878	0.01
2009	0.1318	0.00	0.1371	0.00
2010	0.1243	0.00	0.1302	0.00
2011	0.0148	0.59	0.0194	0.48
2012	-0.0103	0.71	-0.0043	0.88
2013	-0.0364	0.19	-0.0311	0.26
2014	0.0914	0.00	0.0970	0.00
2015	0.0675	0.02	0.0718	0.01
2016	-0.0592	0.04	-0.0573	0.05
2017	-0.1222	0.00	-0.1179	0.00
2018	-0.1325	0.00	-0.1263	0.00
2019	-0.0841	0.00	-0.0786	0.01
2020	-0.1448	0.00	-0.1401	0.00
Constant	0.3000	0.00	0.2935	0.00
N	4145		4145	
Adjusted R ²	0.1044			

Source: own calculations based on the data of the CRCB

The explanatory power of the regressions modelling the NCB indicator is considerably higher than the models related to the SB indicator – the performance of the models is summarized in Table 4.2.5. is good from this perspective. Both of the models without and with random effects support the hypothesis that where the residents are better educated, corruption risk tends to be smaller. The assumption that the presence of the (at least partly) foreign companies may have a limiting effect on public procurement corruption risk is also validated by the models explaining the NCB indicator on the town-level data to some extent, however, the related p-values are quite high. Both the number of business units per capita and the gross value added per 1000 employee tends to be in a positive relationship with the NCB indicator (according to the p-values the latter correlation could be interpreted as a significant one), contradicting the related hypotheses.

The number of local governments forming self-governments seems to be in a positive relationship with the NCB indicator, and correlation with the length of the mayoral tenure can be characterized by coefficients with ambivalent signs, however, the p-values are high – leastwise these results indicate that the related hypotheses cannot be accepted. Conversely, the intensity of the competition in the mayoral elections in terms of the effective number of candidates is in a negative (and significant according to the p-values) relationship with the NCB indicator, as was assumed.

The positive coefficients related to the ratio of revenues from taxes do not match the assumptions, but the positive (and significant) coefficients related to the EU funds support the hypothesis stating that increased external financial sources may be associated with greater corruption risk.

4.2.5. Table: The coefficients of the linear regressions modelling the NCB indicator based on the CRCB dataset aggregated to the level of towns

Independent variable	Without random effects		With random effects	
	Coefficient	P-value	Coefficient	P-value
Ratio of the population holding at least high-school graduation	-0.1289	0.02	-0.1326	0.02
Ratio of the companies owned at least partly by foreign entities	-0.0596	0.61	-0.0512	0.68
Number of business units per capita	0.0141	0.87	0.0272	0.77
Gross value-added per 1000 employee	0.0000	0.01	0.0000	0.02
Number of local minorities forming self-governments	0.0013	0.71	0.0012	0.76
Length of the mayoral tenure	0.0000	0.96	-0.0001	0.93
Effective number of mayoral candidates	-0.0271	0.00	-0.0273	0.00
Ratio of revenues from taxes	0.0575	0.17	0.0557	0.20
EU-fund	0.0605	0.00	0.0602	0.00
Population (1000 inhabitants)	-0.0007	0.02	-0.0007	0.03
Year (reference category:2005)				
2006	0.0443	0.11	0.0440	0.11
2007	0.1446	0.00	0.1451	0.00
2008	0.1615	0.00	0.1609	0.00
2009	0.1203	0.00	0.1205	0.00
2010	0.1041	0.00	0.1036	0.00
2011	-0.0990	0.00	-0.1005	0.00
2012	0.4789	0.00	0.4775	0.00
2013	0.6011	0.00	0.5998	0.00
2014	0.6628	0.00	0.6613	0.00
2015	0.6543	0.00	0.6530	0.00
2016	0.7834	0.00	0.7822	0.00
2017	0.7953	0.00	0.7941	0.00
2018	0.7667	0.00	0.7653	0.00
2019	0.7593	0.00	0.7581	0.00
2020	0.5734	0.00	0.5717	0.00
Constant	0.2785	0.00	0.2794	0.00
N	3724		3724	
Adjusted R ²	0.5761			

Source: own calculations based on the data of the CRCB

All in all, the models explaining the corruption risk indicators based on the CRCB's dataset indicate that where the residents are better educated the tenders without call for bids tend to be less frequent and the political competition for the mayoral position has such limiting effects on the frequency of the less transparent public procurement procedures also. In addition, EU-funded tenders – or in other terms, municipalities more dependent on EU funds – are more affected by the risk related to procurement without a call for bids, however, one modelling attempt did not reveal this association. As for the single bidding, we can conclude, that its chance may be limited in towns more dependent on their revenues. Furthermore, it is worth mentioning that one model revealed a correlation between the productivity of the local business sector and the NCB indicator matching the assumptions, and in terms of another one, a relationship in line with the hypothesis between the number of local minorities forming self-government and the SB indicator can be observed – nonetheless, as these two relationships cannot be regarded as proofs for the hypotheses as they are not confirmed by the majority of the models.

The underlying mechanisms and potential reasons why some of the results match with the hypothesis and others are not in line with expectations, and can the NCB indicator be regarded as a more valid measure of public procurement corruption risk due to the better performance of the models dealing with it instead of the SB indicator will be discoursed in the next part of the dissertation summarizing the findings of the qualitative fieldwork.

4.2.6. Table: Number of associations revealed matching the hypotheses

Independent variable	SB	NCB
Ratio of the population holding at least high-school graduation		4
Ratio of the companies owned at least partly by foreign entities		
Number of business units per capita		
Gross value-added per 1000 employee		1
Number of local minorities forming self-governments	1	
Length of the tenure		
Effective number of candidates		4
Ratio of revenues from taxes	4	
EU-fund		3

Note: those associations were taken into consideration in this table that were characterized by coefficients with signs matching the related hypotheses and p-values lower than 0.05.

Source: own calculations based on the data of the CRCB

4.3 Results of the interview study

In the present chapter, I summarize the results of the semi-structured interviews I conducted with the representatives of issuers and winners of the local governments' tenders. My main aim is to reveal those factors that may lead to tenders with a single bidder or without an open call for applications. In addition, I would like to disclose the way how these actors who launch and apply for public tenders understand the corruption risk indicators. It is important to note that the experiences of the present study can be applied only to the Hungarian local governments'⁷⁰ public procurement, and not to all public tenders issued in Hungary.

I summarize my experiences in terms of general statements and I support them with quotes from the interviews. Since the interviews were conducted in Hungarian and most of them were not recorded, I cannot include literal quotes in the study, however, I try to recall and translate the most characteristic sayings to illustrate the opinions and attitudes of the interviewees.

I begin the analysis by discussing how local governments prepare public tenders and how

⁷⁰ With the exclusion of villages.

issuers apply to them. I go into details of difficulties occurring due to the public procurement regulation and the funds to which the municipalities may apply. In addition, I discuss the main aspects that local governments can and would like to take into consideration during the selection of winners. Furthermore, I present the insights of the interviewees related to the execution of the awarded projects and the effects of the national and European funds.

Moreover, I introduce the understanding of public procurement corruption risk indicators within those actors who deal with such tenders in the field. I also present the aspects of the distinction between the corrupt and the ‘directed’ tenders with the consideration of the public interest with special emphasis put on those potential observable markers related to tenders that researchers may also take into consideration.

As some of the interviewees were indeed concerned about the anonymity, in the cases of the quotations I only indicate whether they derive from the representatives of the local governments, the companies or the public procurement experts. Therefore, I also refrain from the detailed comparison of the statements that arose from different kinds of local governments.

4.3.1 Announcing and applying to local governments’ tenders

‘Great hesitation begins when public procurement takes place.’

/Local government/

Most of the interviews began with complaints about the complicated public procurement regulation. This problem mainly affects smaller municipalities and companies without permanent human resources dealing with public procurement, where it does not worth the employ experts in this field due to the limited number of purchases or applications – this can be traced by the coefficients related to the population size of the settlements indicating that in bigger towns the corruption risk tends to be lower keeping all the further involved features constant in most of the models presented in Chapter 4.2.

In addition, the difficult rules – many of which came into force to curb corruption according to the interviewees – tend to change frequently, so the actors cannot be sure that the processes related to a given tender can be applied to the next one too. Furthermore, the announcement of the tenders is not free, so it requires not only human but financial

resources too, which may matter in the cases of local governments with a smaller budget. On the contrary, a mayor of a settlement in the central region with a better financial situation added, that as they may learn from the experiences of unsuccessful tenders and can reuse the related documents, the costs of issuing a tender do not count.

All in all, most of the interviewees agreed that generally, the procurement procedures take approximately a half year in fortunate cases if we take into consideration the time elapsing between the formulation of an idea – what mostly happens during the planning of the annual budget – and awarding the related tender to the winner company. Mostly the following steps are done during this period: searching for external funds, planning, requesting the needed permissions and announcing the public procurement tender.

‘We have to adapt to the system of the public procurement what is like the Titanic: it can turn only very slowly, even if it approaches an iceberg. In addition, it is not user-friendly at all.’

/Local government/

Two mayors added that if a public procurement is initiated then they have to involve and manage several people with very different perspectives and interests related to the project, like project managers, public procurement experts, technical inspectors and planners. However, as the only elected person is the mayor among these people who have to collaborate, if a debate or a problem occurs, then the responsibility will be shifted to the mayor, so public procurement is a very sensitive procedure from this perspective.

The procedure type affects the complexity of a tender, the conduction of open procurement is much more difficult than the restricted tenders, which is a strong counter-incentive against open tenders. If the regulations of the European Union have to be also taken into consideration because of the high value of the purchase or involvement of the EU funds then the administrative burdens continue to increase. All in all, smaller actors – be it the issuer or the bidder – may face with disproportionate workload related to public procurement tenders.

‘The basic problem is that sometimes the rules change every month, and you really have no idea what to follow. If you read the instructions and descriptions related to a tender, then you will feel that they are about the formalities and not the professional, technical questions. To

apply and then to do the project itself all the way through according to the documentation is like trying to fight a firefight. All in all, it is more important to fulfil the formal requirements than doing a quality job for a reasonable price.'

/Entrepreneur/

The burdens caused by the bureaucratic formalities – which occur to a greater extent in the cases of the procurements funded by the EU – apply to all the documents ranging from the methodological descriptions of the project to the CVs of the personnel who will participate in the execution of the project. These difficulties may discourage smaller companies from such tenders and also may lead to the overpricing of the public procurement in comparison to the purchases of private actors, as the costs of the project management related to the public tenders formally cannot be added to the budget – in most of the cases only a very limited amount of money can be dedicated to project management in the budget of public projects what also result in overpricing the other elements of the financial plan. Therefore, the bidders – mostly smaller companies without permanently employed procurement professionals – have to apply a margin covering such administrative expenses during the determination of the prices, so firms employing such experts permanently are in a more advantageous situation.

The lengthy procedures also result in increased prices in comparison to the normal purchases on the market, as the bidders have to be prepared for the changes in the exchange rates and inflation, furthermore, in general, uncertainty tends to be associated with public tenders within entrepreneurs, what also result in increased prices as it turned out during most of the interviews. In addition, in some cases the issuer may simply not be able to devote as much time for the purchase as much is needed to carry out an open procedure – for example, if an existing supplier has to be changed for some reason, then the municipality has to make sure that there will be no outages and sometimes this can be only guaranteed by restricted tenders with short deadlines, however, later a transparent tender can be launched.

'During the renovation of the municipally owned rental flats, people's housing could be at stake if we do not act quickly in some extreme situations.'

/Local government/

A typical argument against the open procedures – upon the aforementioned bureaucratic burdens – is that in most cases the final decision between the bidders is mostly based on the price they offer. If one offers an unrealistically low price, then he has to be awarded, so by choosing an open tender procedure type the local government risks someone taking advantage of this condition and the project will result in a scam. A potential and simple way to preclude the application of such shady companies is launching restricted tenders and inviting reliable bidders with whom a local government has good experiences. Some of the local governments try to gather as much information about the bidders as possible to be able to get prepared for such problems – a mayor of a small town said that they can only use Google to check the applicants, which illustrates the lack of resources for such tasks. Despite these efforts, all interviewees reported experiences when their municipality took hard knocks.

‘A construction project had to be awarded to a bidder who offered a suspiciously low price on an open tender. He went bankrupt during the execution of the project, so another company finished the project after a new open tender. This company seriously abused the vulnerable situation of the town, as we had external deadlines related to the project. Because of the bad quality of the construction, we sued the company.’

/Local government/

‘We never invite companies to tenders, even if there are potential bidders with whom we have a very good experience. Sometimes this practice leads to troublesome situations that could be avoided by restricted tenders. Two of our medical stations had to be renovated subsequently, the first one was done properly, and we were absolutely satisfied with the contractor. But unfortunately, the second tender had to be awarded to another company and that project became a tribulation. All in all, the transparency is important, but sometimes involves painful causalities.’

/Local government/

'We awarded the renovation of a building to a company which offered a very low price. Then the winner requested additional work, but we rejected the claim. Afterwards, the company tried to deceive us in terms of the quality of the construction, but fortunately, as we have enough capacity for regular quality control, we could gather enough evidence in order to terminate the contract. However, it resulted in a great delay in the renovation while the prices increased considerably, so we lost money and time.'

/Local government/

Such abuses may also occur if more or less well-known middle or large-sized companies win the tenders according to some interviewees, but the difficulties mostly arise at the very beginning of the cooperation: even signing the contracts may be problematic, as such bidders tend to respond slowly due to the lack of administrative capacities and competences, they do not attend the consultations and submit the documents with long delays.

Two mayors added that during the restricted, invitational procedures they can negotiate with the potential bidders which may help them to better understand the professional and the technical background of certain works.

'I am not an expert in road works, medical services and so on, so how could I responsibly procure any kind of goods or services without cross-checking the purchase with actors professionalized in these fields?'

/Local government/

Another difficulty occurs mostly in the cases of the open procedures that a procurement expert has to be issued for such tenders. Even though the relationship between the expert and the municipality should be truthful and effective, these professionals have to be selected through a call for tenders too – the issuers cannot appoint the same expert several times without tendering –, which makes the procedure much more complicated and some dubious practices may also occur during the selection of the expert.

'The public procurement experts have trustful relationships with the issuers, this is a well-known fact to everyone who is engaged in public procurement., If an expert is required to tender then it is not uncommon that a local government asks for intentionally losing applications.'

/Public procurement expert/

Larger municipalities may afford to have their own public procurement office and hire an independent and accredited public procurement expert.

'Instead of contracting with an external public procurement adviser, we decided to create our own procurement office, as we had worse and worse experiences with these companies. It is very hard to find, attract and hire a good expert due to the tight labour market conditions, a smaller municipality has no chance of doing so.'

/Local government/

A procurement expert typically working with local governments added, that most of the workload related to the open procedures and the potentially increased number of bids has to be borne by them and not the local governments' officials, however, he agreed that the less transparent procurement types can be conducted faster and there is less to deal with them what can be a very important feature if there are deadlines related to external funds or political reasons – or celebrations and holidays, an interviewee cited several instances when shoddy contractors could not meet the deadline what resulted in scandalous losses of prestige for the municipality as the lack of the developments became more apparent.

Interviewees from the local governments of larger towns agreed, they also claimed that the municipalities tend to have enough resources even for transparent, open procedures, furthermore, they have departments and committees dealing with public procurement. Also, if there are companies owned by municipalities to which certain activities are delegated (e.g., asset management, maintenance) they may participate in the local public procurement. It is worth noting also that recently a new open procedure became available allowing the issuers to provide detailed evaluation only for the most favourable bid what moderate significantly the administrative burdens.

Despite the difficulties caused by the open procedures, three interviewees indicated that

the municipalities – two of them situated in the more developed central and one in the less developed Eastern region – to which they are related are committed to launching open procedures and doing their utmost to stimulate competition, they only deviate from this general rule in extraordinary cases but after an open and transparent discussion in the municipal assembly. Such commitments were made in the 2000s too, with the accession to the EU, and mainly for symbolic reasons, to avoid any suspicion that cronies may be preferred on the local tenders.

‘It is not enough of the fair-minded, the gestures are also important. Even if a local government would announce a public procurement for a restricted group of bidders with the utmost benevolence, it must consider what the public thinks, so the procedures must be flawless in all respects.’

/Local government/

Another interviewee from the group of the three representatives of municipalities committed to open tenders added that since his town is situated in the central, developed region of the country, where on average there are 8-10 bidders for their tenders, restricted tenders would be simply immoral. However, in those parts of the country where the business activity is limited, encouraging companies to bid by inviting them restricted – and therefore simpler and more predictable – tenders can be somewhat reasonable.

‘There is really no justification for the restricted procedures, it is unlikely that anything will be needed quickly in budgetary institutions, as budget planning requires forethought in the local government. If a contract is cancelled by the authorities, then a fast-track tendering may become more important, but then at most the deadlines may change, the procurement type has to be the same as it was in the case of the original tender.’

/Local government/

During the preparation for the tenders, the issuers also have to determine an estimated price for the purchase, with the involvement of market experts and in some cases independent specialists, and the representatives of civil organizations too. Bidders tend to understand this as an indication of the budget that is available for the project, so even if

they could profit from the job at lower prices, they tend to submit a price close to the estimated value, which leads to the distortion of the prices and the competition. However, recently as the inflation rate increased, the estimated prices turned into technical or formal requirements instead of meaningful figures, as they quickly become outdated – furthermore, an interviewee added, that if they rely on national or European funds, they usually have to request additional support because of the steep rise of the prices what results in significant extra administrative burdens.

‘We have to take into account that everything becomes more expensive between the beginning and the end of a project. Both the issuers and the winners have to be prepared for this.’

/Local government/

Nonetheless, as the financial conditions of the local governments became worse during the pandemic, if the prices offered by the bidders exceed significantly the estimated prices, then the municipality has to invalidate the tender. An interviewee added that the invalidation of tenders – what may occur due to the lack of several bids or the high prices – lead to the growth of the administrative costs, and the delay of the execution of the procurement while the prices may continue to rise. A notary added that in addition to the estimated price they indicate the contingency fund and the penalties in the announcement of tenders to avoid conflicts with the contractors.

‘We describe the budget of the projects, the financial caps, so the bidders cannot raise the prices in cartels.’

/Local government/

The potential bidders mostly look for public tenders to which they may apply in the official gazette of public procurement⁷¹, and they consider financial and professional aspects before deciding to apply. The expectations mostly placed on the companies are related to their revenues in the past few years, their references and sometimes the qualification of their employees. In many cases, smaller companies have to form consortia to be able to apply for tenders. In addition, the bidders have to request – or in some cases buy – the documentation of the tenders. The price of these documents may also deter

⁷¹ Közbeszerzési Értesítő in Hungarian.

smaller actors with limited financial means from the application, however, the number of such requests may signal the degree of interest for the issuers before receiving the applications. A public procurement advisor emphasized that an important feature of a professionally initiated and conducted tender is that the communication between the issuer and the bidders has to take a written form even from the very beginning, as it is the common interest of all actors to make the outcomes of such consultations traceable any time during the cooperation.

Furthermore, entering the public procurement market requires more and more effort for new companies. They have to proceed through a kind of ladder of success according to the entrepreneurs I interviewed: firstly, they may participate in public projects as subcontractors, then they may be invited into consortia as members and after gaining enough reference and experience related to public tenders they may apply on their own, finally they become eligible to participate in externally funded projects as the general contractors. But many of the bidders tend to remain on the level of the swindlers according to most of the interviewees.

‘There is a lot of frivolous bids, some entrepreneurs think come what may, they try to apply to tenders to which their companies fit even just minimally – hit or miss.’

/Public procurement expert/

The bureaucratic burdens also affect the issuers, as if there are more bidders, then an increased number of applications will have to be evaluated, and the announcement and the implementation of open tenders are typically more demanding in comparison to the less transparent procurement types. In the meantime, they have to schedule the projects according to their mostly yearly budget cycles, the timing related to external funds and also the political or electoral cycles – these constraints make the public procurement similar to the planned economy according to two interviewees, but both of them added that overall, the faster procedures tend to be more advantageous to the contractors than to the issuers. The original timing of the project – and also the prices – may become challenged if a loser company files a complaint against the result of the tender, as it may result in a bureaucratic procedure lasting for years. Such complaints may also lead to penalties that have to be paid by the issuer, and its probability is certainly higher in the cases of open procedures as more companies may be aware of the purchase – however,

interviewees at local governments committed to open tenders claimed that this risk must be taken what is also an important message to the market.

‘The proceedings after a complaint lasted for several years, and it turned out that everything was fine with our procedure. However, we were worried whether the original winner can still undertake the job without changes in the prices. Fortunately, this company really wanted to collect references for municipal projects, so we could agree on the original prices.’

/Local government/

‘A company won a procurement after a legal remedy because it was not brought out as a winner firstly, but after the complaint, the local government had to choose this particular firm. So, the cooperation did not start with friendship. the company then asked for additional work related to every possible little issue⁷². Finally, an informal deal was made: the contractor promised that it will never apply for the tenders of the municipality if it accepts all the requested additional work.’

/Public procurement expert/

An interviewee also added that potentially cluttered companies may be deterred if the issuers explicitly reserve the rights in the announcement of the tender for inspections related to the legal relationship between the company and the employees, the occupational safety regulations on the site of the project or delivery papers of the materials used, however, the local governments – mostly the smaller ones – have barely enough capacities for such examinations. A foreigner practice, that the second lowest bid should win was cited too as a potential remedy for this problem. In addition, an interviewee mentioned, that the bids with extremely low prices in comparison to the others can be excluded from the procedure, but this may lead to another possibility of fraud: if there is a cheap bid without any corrupt intention, then other actors who are informed about this application may bid at much higher prices letting the issuer to exclude the original bid with relatively low value, and finally an overpriced contract can be awarded to a crony

⁷² The role of the additional work will be also discussed in the section 4.3.3.

company.

From the perspective of the issuers beyond the potential intent of corruption and the aforementioned bureaucratic consideration, several further aspects were mentioned during the interviews which may affect the parameters of a purchase. For example, if there is a plan or design ready what is the intellectual property of a company matching all the expectations of a municipality or there is a design studio with which a municipality had already cooperated then for the sake of maintaining a unified image, tenders may be directed towards these actors. Another example may be related to construction, as if a company is already working at a site for a local government, then it may be worth giving further minor tasks to this actor during its presence at a settlement, even informally, as an extension of the original project instead of announcing a new open tender ensuring competition.

In addition, the number of potential bidders from the local economy strongly depends on the sector and the value of the purchase: for minor construction projects in smaller municipalities typically more companies are eligible to bid, but the group of firms which may be capable of fulfilling a procurement of specific goods or services tends to be more limited. Another perspective that might be considered is the stimulation of the local economy by awarding contracts to local companies – this may result in their development leading to the increase of the local tax revenues which may make it possible for the municipalities to initiate more projects, so theoretically both the local governments and the local businesses could benefit from such principle. However, an interviewee argued that the exclusion of companies from further regions would result in the decline of the cost-effectiveness and the quality of the public projects in the long run.

‘In many settlements awarding contracts to local Roma entrepreneurs would be the most sensible choice, as they are involved in most of the construction projects, but only as subcontractors and within unfavourable conditions. But if a local government would direct its tenders towards these entrepreneurs and would also help them in the application, then accuses of corruption would emerge.’

/Local government/

Nonetheless, some of the interviewees could cite empirical evidence supporting the

benefits of open and transparent procurement. At a local government in the central region of Hungary, the public procurement practices were completely revised when a new mayor came to power. For example, companies that renovated the municipally-owned rental flats were selected mostly by restricted procedures without announcement, but with the invitation of five or six bidders typically from the group of well-known Hungarian construction firms. After a new mayor came to power, open tenders were launched and the number of flats which were covered by a contract was reduced to allow smaller companies to apply. This change resulted in an approximately 25 per cent price drop despite the inflation. The municipality has similar experiences when they began with the open tendering of the road works, however, in some very specific cases, generally, when they purchase services related to intellectual work, they cannot avoid the restricted tenders and the invitation of capable companies.

Some of the entrepreneurs and interviewees from the local governments mentioned potential workarounds to balance the open and restricted procurement types. Some municipalities create lists of companies with whom they prefer to cooperate and they announce restricted tenders and invite at least 5-7 bidders from these groups. The set of the preferred companies may change, winners of tenders with whom it was difficult to collaborate may be removed and new actors with good references (e.g., based on projects of neighbouring municipalities or by participating in local developments as subcontractors) may be added – however, these modifications have to be justified. Those interviewees who cited this idea during our conversations agreed that such lists of reliable companies – and maybe also blacklist those businesses which should be avoided – may lead to a purged market as companies will become more interested in doing high-quality jobs and can be a good compromise on the transparency and the feasibility of the tenders.

‘In the cases of some quick and small projects we prefer the restricted procurement procedures but we invite companies from a transparent list.’

/Local government/

An alternative solution is the request of indicative bids before the tender, from the preferred companies, and thereby they can be informed about the procurement, and an interviewee added, that they try to promote the transparency of their tenders within the potential bidders to encourage them to apply. Framework agreements may also lead to

compromises; however, companies tend to form cartels in the cases of such tenders according to an interviewee. A mayor indicated that certain markets are divided by the potential bidders and the municipalities cannot have any influence on the selection of the winner. His example for this phenomenon is the healthcare service, as on the related tenders only one company tends to bid – he also added that it might be worth taking a deep look at the open tenders with a single bid in certain sectors to reveal such collusions between the companies.

Another feedback related to the potential development of the public procurement procedures – upon the desperate need for a more simple and persistent regulation – is to give more decision-making rights to the procurement committees in the local governments, which should consist of the mayor and the municipal representatives who are elected by the residents, and of the technical and architectural experts. Several interviewees indicated that members of the municipal assembly and the board members of the municipal companies take part in the announcement of the public tenders, in the evaluation of the bids and in any kind of amendment, so the decisions related to public procurement already depend on the agreement of several officials, many of them elected by the voters.

4.3.2 The effects of the national and the EU-funds

External funding may also result in unusual and difficult situations: if such – mostly national or EU-related – financial aids are involved in a project, then issuers will have to adapt to the conditions of those calls for proposals by which these funds can be accessed. In some cases, these tenders provide funds for aims that are impossible to reach or meaningless from the perspective of some local governments, however, with some creativity, they may still apply for these funds and use them for their goals. An illustrative example of this phenomenon is the case of a new bus stop in Nyugotszenterzsébet, a village in southwestern Hungary: there were no funds available for building a new bus stop, but there was a tender for the construction of lookout towers, so the local government decided to apply for it resourcefully and finally built a hybrid of a bus stop and a lookout tower⁷³. Mostly the leaders of smaller towns located in less developed regions argued that a responsible local government has to apply for every potential fund,

⁷³ For details see the news report of the Euronews: <https://www.euronews.com/2018/01/11/why-lookout-towers-are-the-new-bus-stops-in-this-hungarian-village> (accessed: 4th May 2022)

even if it has to be spent for unnecessary aims, because all the opportunities should be seized which may result in jobs or any kind of direct or indirect social or economic improvement. However, several interviewees added, that in such cases the local governments adapt to these external funds and may attempt to encourage the awarded companies to extend the project with tasks which meet with needs of the issuer – this can be mostly done if there is a good, confidential relationship between the issuer and a winner, and such cases are on the fringes of corruption.

‘Someone in the EU’s bureaucracy figured out to start digitizing farms and provided funds for it. If money is available for this purpose, even those local governments will apply for it which do not need such developments, because they can spend the money of others, perhaps, with the hope that somehow, they may benefit. In the end, we can see the most recent John Deere tractor models in the poorest regions, because support was available for them.’

/Entrepreneur/

‘There was a strange job, EU funds were available for the renovation of the mayor’s office buildings, but the municipality needed a kindergarten, so it wanted a building that would have to accommodate a kindergarten. This was obviously indescribable in the documentation of the public procurement, and so it was rather unpleasant for the contractor who won the construction and learned on the go that the second floor had to be designed in a suitable way for the kindergarten.

Or in another case funds were available for buildings accommodating micro-regional events, but the settlement just needed a new mayor’s office. Then a building was built which housed the micro-regional events on fifty square meters and the mayor’s office too on the area remaining.’

/Entrepreneur/

‘If one has an idea on improving country, then there will be money for it and everyone has to do it. These are often completely hopeless ideas, for example, local governments were granted for helping local

businesses to run appropriately, like the blind leading the blind. So then if a municipality needs something, and if it can only apply for a business incubator, then it will go for it, and finally somehow adapt. Is this a corruption situation now or not?’

/Entrepreneur/

‘If there is funding for improving the accessibility of a building but actually it needs to be completely renovated, the rational decision serving the public interests on the local level is to withdraw the money and renovate as much of the building as possible on the pretext of establishing ramps and elevators. Or another typical example is when a municipality has to renovate a road, but there is only funding to make intersections safe, then it may be to build a worthless roundabout, but at least there will be a new road surface. Up to ninety per cent of the money spent in this way may be pointless, but the local government can spend the remaining ten per cent on achieving the original, meaningful goal that could not be reached without these funds.’

/Public procurement expert/

‘A bike path was built next to the main road, and no one understood the idea behind this project. Even a public forum was organized against the construction because it seemed absolutely pointless, there was no space for the path, and its track was strange. Then it turned out that the municipality just wanted to fix the sidewalk, but funding was available only for the construction of bike paths. So, in fact, the bike path was built for the pedestrians.’

/Local government/

‘The projects are very rigid and their match the needs of the local governments to the extent of 10 percent approximately. We would like to have new windows fit in the office building, but if we apply for European funding, solar panels and a new boiler have to be installed, even if the one we have actually is only ten years old. My predecessor just wanted to renovate the roads in the segregated parts of the town,

and in order to do so, he applied to a giant project aiming to catch up the locals. It happened several years ago, and we still struggle with the completion of the project.'

/Local government/

On the other hand, several interviewees cited more or less well-known Hungarian projects in which governmental or EU funds were misused, one of the commonly mentioned examples was the viewpoint built in Bodrogkeresztúr in 2007 – its height is 40 cm, and its budget was 39 million HUF, provided by the EU.⁷⁴ However, all of them shared the view, that the grantor is responsible for the outcome of the funded project too.

'Seizing the opportunities is not a problem, even, if it needs some creativity. If there is a clear theft, that is problematic. But distinguishing these two scenarios as an outsider is very difficult. The funds for touristic developments are in a grey zone, for example, it is very hard to judge them on an objective basis.'

/Local government/

Though the interviewees agreed that most of the funds are provided for lifelike aims, all of them could cite examples like the aforementioned extremities, but they are not ordinary at all. In some cases, the municipalities decide on postponing the less urgent projects until the announcement of funding that may be used for them. Furthermore, they may try lobbying for funds that can be used for their actual aims or tenders, mostly through the Member of Parliament (MP) of the region. An interviewee added that a potential solution would be the direct application for the EU funds with the omission of the bodies related to the Hungarian central government – in that way the actual lack of financial resources could be also better managed by the municipalities according to his opinion. In addition, some of the interviewees think that the original intentions of the project initiated by the EU are good, but as many intermediary organisations – which they sharply criticized – have to be involved in the distribution of the funds, they finally miss their point, furthermore, sometimes, in the end, it becomes impossible to meet with all the conditions

⁷⁴ For detail see the article of the Index (in Hungarian): [https://index.hu/belfold/2009/10/05/nem akartak nagyobbat mint 40 centis kilatot/](https://index.hu/belfold/2009/10/05/nem_akartak_nagyobbat_mint_40_centis_kilatot/) (accessed 15th May 2021)

set by the different actors.

'It is a stupid, difficult system without flexibility how the European funds are distributed, what no one knows really, not even the authorities, who struggle even if they have to penalize us.'

/Local government/

An interviewee added, that local governments in a bad financial situation may use the external funds available for a certain purpose to finance their immediate expenses. The project for which the actual external fund was provided may be financed than in fact by another grant, and once a local government cross-finances expenses from funds dedicated for different aims, it may easily step on a slippery slope. Finally, if this happens, then the winners of tenders of the funded projects will have to be involved in the management of this situation, which may also result in doubtful relationships between the issuers and the entrepreneurs.

Furthermore, interviewees tended to agree that procurement backed up with funds of the EU or the central government tends to result in more severe administrative burdens, as the documentations and the inspections are more complex. Most of the interviewees said that this may cause concerns for all actors involved in a procedure, there is even a group of lawyers and public procurement experts specialized in dealing with the common problems of such tenders, like the requirements related to the monitoring. But all in all, these issues distort the competition for such externally funded tenders, as typically the bigger companies have enough resources for handling them. One mayor added that before the economic crisis in 2008, the municipalities could use bank loans for financing their public procurement so they had more influence on the parameters of the tenders in that era in comparison to the period after the recession when instead of the disappearing loans the central and the European funds with serious constraints became more important.

Lastly, several interviewees emphasized that the new members of the European Union strongly depend on the EU funds, therefore they are much more exposed to the bureaucratic difficulties that are related to them in comparison to the Western European countries, where the economic forces related to the normal market equilibrium tend to have more influence on the public procurement. A practical consequence from the perspective of the local governments that illustrates this phenomenon according to one

interviewee is that since more external funds are available for the construction of new objects in the new member states, municipalities located in this part of the continent are less interested in the maintenance of the existing ones while in the Western countries the local governments spend more money on preservation, what is more rationale on the whole.

4.3.3 The conditions of the execution of the projects favouring corruption

The regulations forbid the issuers and the winners from deviating from the documentation of the tender and the contracted terms, furthermore, formally they cannot negotiate the conditions of the cooperation. These constraints may not only enhance the transparency of the public procurement but also harm the interests of the local governments: if the issuers did not specify carefully all the important details of a project in the documentation and the contract, then the winner of the tender can take advantage on the other party, and execute the project according to his interests, for instance by requesting additional work. The problem of such requests is quite common, most of the interviewees agreed.

‘Deviations from the documentation and the contract can only be made if an unexpected, previously unknown circumstance occurs, such as the occurrence of archaeological finds on a construction site.’

/Public procurement expert/

Even the most fundamental and trivial parameters should be carefully specified, like the normal use of building in the intended applications, because if the awarded companies would like to save money on the reduction of the materials, they may refer to reasons related to the lack of thorough technical description of to the project after it is finished, and they also know how to cheat the inspectors during the execution of the work.

Companies trying to increase their earnings by requiring additional work take a great risk as the obstruction of a project can easily result in a penalty, but this does not deter all the entrepreneurs from doing so, as it turned out from most of the interviews.

‘Even though the additional work has to be justified technically, the issuers can be squeezed by such requests, so the companies can successfully increase their gains in the end.’

/Public procurement expert/

Nonetheless, the interviewees agreed that additional work provides an opportunity for misuse of public money, so they have to be avoided as much as possible. An alternative can be the establishment of a contingency fund, which can be determined and managed transparently.

Another opportunity for the companies to abuse a tender is the notification – if the contractor indicates that the work has to be suspended for reasons beyond its control, then the deadlines will automatically extend. If an entrepreneur cannot finish a project on time, then he may bring a bogus case as a notification and can avoid the penalties. Certainly, if real complications occur, then an uncompromising contractor may seriously hinder the execution of a project, but professional and competent companies tend to be flexible on such issues.

‘Sometimes there is really nothing to do, for example, when it turns out that important underground cables are installed where the local government intended to build a house, but they were not indicated on our maps accurately.’

/Local government/

Still, the issuers may decide or become forced to modify the budget of a project or also it may happen that the awarded company changes but the authorities are not eager on supporting such variations. In addition, the national and the EU funds may become repayable or unavailable if the number of such alternations exceeds a threshold. Using these funds in financing a procurement may result in stricter and shorter deadlines, not only the winners but the issuers also suffer from time pressure during the tenders when they apply for external financial aid. All these factors lead to the deterioration of the bargaining power of the local governments against the awarded companies.

The relationship between the prices and deadlines may also lead to challenging situations. Elongated deadlines for the applications and then for the realization of the purchase would be preferred from the perspective of the transparent market competition, but if a project lasts for a long time, then the original budget may become outdated, the prices may increase and other circumstances may also change leading to the increase of the costs: e.g., in the cases of renovations the condition of the affected buildings and objects may deteriorate further during a long procurement procedure or the product range may change

during the purchase of electronic devices and finally the issuer may become forced to buy outdated models at high prices.

The interviewed entrepreneurs added that the awarded companies may contact and consult with the issuers only in a very formal and strictly regulated way. Since the middle of the 2010s, with the emergence of the recruitment difficulties in the labour market the fluctuation intensified in the local governments – and also at the authorities supervising public procurement, which can be challenging not only for the entrepreneurs but also for the issuers, even if they experience mostly the goodwill of the officials –, so it became less predictable for the issuers with whom they can contact and what kind of answer they can expect through the official channels, and also, they have to wait longer for the replies. In the meantime, the way how the issuers manage their public procurement has become professionalized, many of them operate tender departments, and the routinely prepared purchases replaced the ad-hoc calls for bids (still, many of the interviewees reported that their offices committed mistakes related to the tenders, but the authorities proven to be helpful and supportive during the corrections). This kind of professionalization also leads to the decline of the personal, informal contact between the issuers and the winners. Nevertheless, some mayors consider the prohibition of direct contact between the issuer and the winner a good practice which limits the opportunities for corruption.

‘After awarding the contracts we should not contact the winners at all, because all these instances may give them an opportunity to bargain.’

/Local government/

‘We never contact companies directly; it would be absolute political suicide. Even if an entrepreneur would attend the opening ceremony, it has to be arranged in the contract between us in advance, and the budget has to cover the cost of his time spent there.’

/Local government/

All in all, due to the strict formal conditions it happens quite frequently that the final result of a tender will be something that no one would have wanted and it is difficult for the local governments to hold the winners accountable for the warranty claims – this conclusion was said during several interviews.

4.3.4 The corruption risk indices from the viewpoint of the issuers and winners

During the interviews, I put great emphasis on the discussion of the corruption risk indices introduced in the study, namely the indicators of the single bid and the non-open procedure. All of the respondents agreed that these features of the tenders may signal the potential of corruption, however, not in a deterministic way: these indicators may be valid mostly in the cases of the larger tenders or those purchases which are launched by bigger organizations, but within the tenders of the local governments – mostly the smaller ones – they may incriminate purchases which are not affected by any kind of unethical intention.

‘Signalling the risk of corruption and the actual occurrence of corruption is diverse, hacking public procurement requires the same practices as corruption, but the motivation is quite different. Corruption is much less common and it is absolutely unethical, but hacking the tenders is in fact just about making a project a reality or satisfying demand under the given circumstances.’

/Entrepreneur/

‘Basically, if there is a single bidder or the procedure is restricted, it can be understood as corruption risk, although sometimes it is necessary to initiate such procedures, but it is normal if they become suspicious. But in the case of large projects, the most competitive procedures possible have to be initiated despite all the potential difficulties for the sake of transparency and accountability.’

/Local government/

For example, at a smaller municipality, the local and thereby known companies may be preferred as the cooperation can be smoother with such partners – this is legit from the view of the entrepreneurs I contacted too. From the macro level, it may seem that a municipality continuously launches tenders with parameters supporting corruption if it directs its procurement to a certain group of companies with which it has experience, however, in the long run, this could benefit the locals. If an open tender is initiated, then the administrative burdens of a tender will considerably increase which may cause an amount of workload that is hard to manage at smaller local governments or simply does

not worth it in the cases of smaller purchases. In addition, if a municipality has to award a tender to an unknown company from a distant part of the country offering the lowest price after an open procedure, but in the end, the project will result in poor quality implementation, the enforcement of the warranty claims will raise further problems – unfortunately, many of the local governments have such experience, what if they try to avoid, may be manifested in red flags according to the corruption risk indices.

‘In my private life if I know a good plumber, then obviously I will call him, and not look for another one who may do the same job for less money. At smaller municipalities this attitude is legit, but at bigger ones, it is definitely problematic.’

/Local government/

‘The local entrepreneurs know better the different specialities here in the town than me. I think inviting them to our tenders would be the best for the municipality, but it would not look good from the perspective of the corruption risk indicators. The alternative is the open tendering and struggling with the bidders.’

/Local government/

Nonetheless, the argument about the advantages of awarding contracts to companies with which an issuer already has some good experience is cited in the cases of corrupt, undoubtedly overpriced tenders too according to some interviewees.

Most of the interviewees added that as the public procurement corruption risk indicators became more and more stressed, the regulations developed to be more difficult, but in the meantime, corrupt actors could find a way how to remain under the radar of analyses based on the red flags, e.g., involving intentionally loser companies submitting ‘cover bids’⁷⁵ to tenders to have at least three bidders what is required or at least desirable in the cases of certain tender types – in the cases of very low-value public procurement contracts (contracts above 15,000 and below or equal to 60,000 EUR), the European Union

⁷⁵ Cover bidding (cover bid is ‘fedő ajánlat’ in Hungarian) is a type of bid-rigging, when companies submit bids intentionally with unacceptable terms or too high prices to the issuer in order to pretend a competitive bidding procedure, but in fact, there is a collusion between the bidders.

specifies that at least three independent tenderers submit a tender.⁷⁶ In addition, the Hungarian Public Procurement Act (Act CXLIII of 2015 on public procurement)⁷⁷ prescribes that the contracting authority must invite at least three tenderers to submit a tender in certain cases of the negotiated procedure without prior publication (p. 76.):

‘(3), If the negotiated procedure is conducted under sections 98 (2) b) and 98 (4) a) or if it is reasonably possible under the circumstances causing extreme urgency, in the cases specified in section 98 (2) e) contracting authorities shall invite at least three tenderers to tender as possible.’

Nevertheless, not only the interviewees from the municipalities but the entrepreneurs also indicated that awarding contracts to bidders who have not worked with the issuer ever before is not uncommon, but this happens mostly after open procurement procedures.

Regarding the number of bidders – i.e., the single bidder indicator – several interviewees emphasized that in regions where the business activity is limited, furthermore, many of the local companies become ineligible for applying to public tenders because of smaller or bigger tax debts, strong competition cannot be expected even if the parameters of the tender would favour it (or in the case of restricted tenders these conditions will lead to a small number of invitations). In some cases, the issuers have to encourage companies to apply for a tender to be able to avoid a purchase without a valid final result – this happens mostly if at least three bids are required but not even that number of potential bidders are present. If the number of bids does not exceed the required level, then the deadline of the applications has to be extended or the tender has to be repeated causing more bureaucratic work for the municipalities.

⁷⁶ See Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July, 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012; Annex 1, Section 2. 6.2., p. 191., <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1046&from=EN> (accessed: 12th May 2022) and <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/tenders> (accessed: 12th May 2022).

⁷⁷ See its English translation here: https://njt.hu/translation/J2015T0143P_20180808_FIN.pdf (accessed: 12th May 2022)

'The copiers and the printers work properly with one particular type of paper. In the town, there is one paper wholesaler and three retailers. Since these retailers get their merchandise from the wholesaler, they can offer higher prices only, so they will definitely lose on the tender and there are no other wholesalers for whom it would be worth delivering paper here. However, without at least three bids, the procurement will not be successful, but we must not run out of paper. So, we have to kindly ask the local retailers to send their bids safe in the knowledge that they will not be awarded.'

/Local government/

The range of the bidders may not only be restricted by the expectations mentioned in Section 4.3.1. (mostly financial parameters and references) – which can be somewhat circumvented by the common application of several companies by the formulation of consortiums or other kinds of partnerships –, but also by the overly detailed specification of the project. The interviewees mostly agreed that if there are several irrelevant – and company-specific – conditions set in the documentation of the tender, then the bidders may suppose that it is tailored to a particular company. In addition, the evaluation criteria may also suggest whether an issuer would like to prefer certain companies on a tender. If the majority of the criteria are related to subjective, qualitative aspects, then one may assume the lack of fair competition – a classic example is the assessment of the business plan. Finally, the schedule of the tender may also signal the risks of corruption: if a tender is announced during holiday periods when no one would notice it or with very tight deadlines then the ordinary bidders may assume unethical intentions of the issuers. All in all, most of the interviewees agreed that the viability of the tenders should be thoroughly checked, however, this needs a careful investigation from a qualitative micro-approach, and may not result in a sure answer regarding the question of whether corruption took place.

'The issuers can do a job on any bidder if they really want to. And as for the bidders, their successfulness depends on their habit too, not only on the formal eligibilities for the applications on tenders.'

/Entrepreneur/

‘Over-specified eligibility criteria, such as prescribing the ownership of machines that could be rented from subcontractors or professionals with education or experience is indeed unnecessary. Once I have seen that a local government issued a tender in order to find a printing house for the local newspaper and the employment of a colour engineer was prescribed... what for? Employing such an expert may be necessary for printing the Playboy but not for a simple local newspaper! If such irrelevant criteria are present and have great weight in the evaluation, then the tender will become very suspicious.’

/Local government/

Apart from the over-specification of the tenders, the group of the bidding and awarded companies may also signal corruption. If the same bidders apply consequently for the tenders of a local government and then become winners, then it may indicate corruption, however, according to most of the interviewees it can be also understood as a sign of the distorted market competition due to the weak local economies, what may happen without any kind of corrupt intention too. Furthermore, if there are similar projects launched around the country related to a central governmental program or fund, then entrepreneurs elaborate a business model tailored to these tenders. Finally, one may suspect that public money was channelled to a particular business group through all of these tenders, but from the perspective of the bidders, it is rational to optimize for projects launched en masse by municipalities and by doing so, their chances for winning the related tenders may increase. A typical instance is the construction of playgrounds – when a lot of funding was available for such projects which were technically very similar, some companies quickly started to specialize themselves in them, but in the meantime, there were corrupt actors also, but distinguishing between them based on the statistical features of the tenders is impossible according to the opinion of an interviewed entrepreneur.

Sometimes the bidders regard the public procurement expert appointed by the issuers also as an indicator of whether they have any chance on a tender or not, as some of them are known for their relations with certain business groups.

Moreover, an interviewee added that if the group of the most frequent bidders becomes suddenly considerably different when the mayor or the regional MP is changed, it can be a general signal of the potential presence of corruption in the awarding procedures of the

local tenders, but revealing such patterns require the long-term analysis of the public procurement of a particular local government and the fact itself that the bidders are replaced only indicate that the competition was distorted when the actual or the preceding mayor or MP was in office.

'If there is a change in the leadership at a local government, and the companies to which the contracts were awarded during the preceding era do not apply to the open tenders issued after the election, it is more than interesting.'

/Local government/

Also, it is hard to reveal if the applicants organize themselves into cartels – potentially with the notification of the issuer too –, according to an interviewee the authorities tend to be ignorant regarding such cases, however, if the same group of bidders apply to the tenders of an issuer regularly it is more than suspicious from this perspective and can be revealed easily. Another sign of cartels between companies is when the loser bidders become the subcontractors of the winners according to another interviewee.

'If the same five companies tend to be the only but constant applicants for the tenders of an issuer, the authorities should pay special attention to those purchases. In more developed countries even if leaders of companies visit the same hotel, the suspicion of cartel emerges.'

/Local government/

Furthermore, the number of the subcontractors itself can also indicate fraud according to several interviewees.

Also, the volume of the contracts may indicate corrupt intentions or at least that an issuer does not favour strong competition. For example, if several road work or real estate renovation projects are merged into one big purchase at a greater local government where the lack of administrative capacities for issuing several smaller tenders cannot be cited as an excuse, then corrupt intentions may be assumed.

'During the era of the preceding mayor the nurseries, kindergartens, schools and public kitchens were served with the dishes by the same

supplier. We split this giant contract into several smaller contracts in order to enhance the competition.'

/Local government/

Many of the experts consider shredding similar or related works into several tenders results in unnecessary workload, as the announcement of several calls for bids is much more demanding than the initiation of one purchase, but in the meantime, jobs can be described and inspected more precisely if they are not merged into one complex procurement and if there is a problem with a contractor, then it can be solved without affecting those parts of the works which are covered by other contracts.

'If all the tasks and locations are given to one company related to the maintenance of parks, then if something happens with this entrepreneur, it may cause big trouble. If only the lawn mowing business is affected, then the others can continue working.'

/Local government/

Overly multifaceted contracts may be exploited by the winners also: if the maintenance and the reparation of the municipalities' properties are delegated to the same companies, then they will not be interested in the preservation of the buildings, and will let their condition deteriorate as the repair services tend to be more profitable. An interviewee added that upon the size of the contracts, their temporal length may also raise suspicion, but another one

'A big framework agreement covering multiple works but only on a short time horizon will be understood as an indication that the winner is already selected and discourage most of the companies from bidding. The addition of extra conditions may make this indication stronger, even if they are not really prohibitive.'

/Local government/

However, the optimal volume of the contracts is case- or at least sector-dependent, it is very hard to determine it on an objective basis.

In addition, an issuer may make several gestures which may indicate its commitment to

transparency also at the cost of a protracted procurement. A commonly cited example is when there is an indication in the announcement of the tender that if there is only one bid, then the procurement is void: local governments may invalidate a tender if there is only one bidder, and this can be specified in the announcement, what indicates for the market that there is no favoured company, however, if there is one bid in the second round of the tender too, then it has to be awarded to the only applicant.

‘There is a debate among the municipal councillors about the invalidation of the procurement if only one bid is received. In this day and age, we award the contract to the single bidder in such cases, as it would take a long time if we would cancel and then launch the tender again, but it is not a good practice.’

/Local government/

Furthermore, if the interests of the issuer are barely signified in the announcement of the tender or the related contracts, it may also signal a corrupt procurement. A typical example is when the warranty conditions favour the bidder instead of the issuer, which mostly happens if a crony company is awarded since otherwise, the issuer is not interested in such cooperation according to an interviewee. However, the inappropriate warranty and penalty conditions may lead to the intervention of the authorities also, so their abuse is rare according to an interviewee. The relatively low frequency of the quality controls may indicate that the issuer is not interested in revealing the problems with a purchase too, and retrospectively the value for money ratio may confirm if corruption was suspected in such cases.

From the perspective of the bids, intentionally wrong applications and disregarded calls for the completion of documents may signal cartels between companies preventing price competition. The issuers have to pay attention to the occurrence of such gestures and should invalidate the affected tenders – if they do not do so, then it may indicate their involvement in corruption.

Nonetheless, the interviewees agreed that tenders which may be doubted in terms of legality occur very rarely, and most of them comply with Hungarian laws and the directives of the EU, however, I experienced great differences between my interviewees and how they assessed the quality of these regulations.

‘Compliance with public procurement rules is a minimum requirement with what it is not difficult to meet, as they can legitimize corruption.’

/Local government/

‘The public procurement act is far too difficult, so it is hard to decide whether it aims to prevent or obscure corruption. The more complicated the law, the more corrupt the practice.’

/Local government/

‘We apply the procedures of the Public Procurement Act for small purchases, with values far below the thresholds, because they are proven to be proper and we think it is a good message for the entrepreneurs.’

/Local government/

The actual regulations rule out the possibility of the simplest ways of public procurement corruption, like the rejection of application due to formal reasons – like finding the page numbering inappropriate – what could have happened before 2010 according to several interviewees. Although they mostly agreed that the core question is the motivation behind the tenders, whether they serve public or private interests in any way, but it can be hardly revealed and understood in terms of quantitative indicators.

As for the democratic control concerning the quality and the transparency of the public procurement issued by the local governments the interviewees mostly agreed that the voters are barely interested. The public attention might be attracted to spectacular projects or problems with the basic services, but the details of the purchases are mostly regarded as technical issues. The philosophy of transparency or the stimulation of competition is not in the scope of the public attention, but this should not prevent municipalities from open and competitive procurement.

‘Voters are not interested in public procurement, five out of ten thousand care about it, but these five suspect corruption in everything. What is important is whether the roads are good and the public lighting works or not.’

/Local government/

‘Even though the public opinion became resistant to corruption, a local government that cares about its image must pay attention to the parameters of its procurement, mostly because if someone is dealing with public money, it is assumed on default that he is corrupt, and such accusations must be prevented by all possible means.’

/Local government/

‘The attractiveness for the public of the outcomes of the public tenders depend neither on their value nor on the corruption risk. A neighbouring town of the size of ours spent 800 million HUF in the last year and one may feel that it became a metropolis. We issued public procurement contracts worth 3.5 billion HUF in the same year, but not for so spectacular projects.’

/Local government/

Nonetheless, if a wider group of residents are exposed to quality issues due to corrupt public procurement, it may lead to scandals and the rivals of the ruling mayor can refer to them in his campaign. So, the outcome of a public purchase may result in public dissatisfaction, but the procedure, the conditions and the price of the procurement are not interesting for the residents. An interviewee added that awarding contracts to unknown companies is a risk from this perspective also, as even if no one had corrupt intentions during the cooperation but somehow in the end the outcome of the project has debatable quality – for instance, because the high-quality materials planned to be used became more expensive during the long but transparent tendering procedure and they had to be substituted with cheaper products –, the public may consider that corruption might have happened.

‘If one moves into a freshly renovated council flat and finds flimsy windows and doors, he will think that the renovation was not done properly, the issuer or the winner or both of them stole the money.’

/Local government/

'After paving a dirt road, the residents complained because a difference arose between the levels of the road surface and their driveways. Furthermore, the drains were placed at the same distance from each other according to the technical plan, and those who did not find drains close to their sites were annoyed too.'

/Local government/

Several interviewees added that revealing corruption in a local government is completely against the interests of the actual leadership. If a fraudulent case is related to the previous mayor or representatives and a scandal breaks out, the public will stigmatize the successors of the corrupt officials, even if they were not involved in the crime, and in fact, they assisted the authorities in revealing the case. Shifting the procurement practices of a preceding leadership to a more transparent method can be problematic from the perspective of bidders too, as certain actors may have concerns regarding the entry to the public procurement market of a local government where the mayor is changed, as by doing so they may become ruled out from the purchases of other issuers.

'It is very difficult to change an existing public procurement regime, even if the new mayor and the representatives are fully committed to ensuring transparent and competitive tenders.'

/Local government/

Finally, numerous interviewees emphasized the role of the MPs, as the beneficiaries of the corrupt transactions are frequently determined by them, and not by the local governments. In such cases the mayors mostly have to collaborate with the MP, because otherwise he may become risk his and his municipality's prosperity; it is not uncommon that a mayor to be supported by a political party because he meets the requests of the MP, and the distribution of the central funds between the local government may also depend on these relationships.

5. Summary and conclusions

The present thesis analyses the integrity, more precisely, the quality of public procurement activity of the Hungarian local governments in terms of corruption risk – or the potential presence of corruption – with a twofold aim. The first of them is the revelation of relationships between the corruption risk that potentially occurs during the procurement of the municipalities and certain local socioeconomic factors which are proven to be important predictors (or at least correlating variables – causal inferencing is a fickle endeavour on this particular domain) by preceding studies, mostly based on cross-national statistical analyses. The second goal is the evaluation of the corruption risk indices from the methodological perspective: as the present analysis is restricted to a group of institutions with several special characteristics, namely the local governments, which have democratically elected leaders, operate nationwide and their integrity affects the everyday lives of the citizens, it may result in insights about the validity of the corruption risk indices, at least within the municipalities. In addition, I believe that the results of the present research have high policy relevance, as its outcomes may help to address problems of public procurement. To achieve these goals, I did mixed-methods research consisting of a statistical analysis of the public procurement contracts issued by the Hungarian towns and some of their background characteristics and interview research involving the leaders of the local governments, entrepreneurs and experts involved in the tenders of municipalities.

In the closing chapter I begin with the summary of the main findings of the quantitative study, which are mainly related to the first aforementioned goal, but certainly, provide important perceptions for the second one too. Then I continue with the evaluation of the corruption risk indicators from the methodological perspective, by mostly referring to the interviews. Afterwards, I summarize outcomes with policy relevance and finally I discuss the limitations of the present research and potential ways for its continuation.

At this point, I would like to remind the reader that the present research focuses on a special type of issuers, namely the local governments, which are spread around very different parts of the country, and mostly initiate relatively small public tenders. Therefore, the conclusions of the research cannot be generalized to all public tenders, the mechanisms that influence the purchases of the institutions of the central government, public companies and other public actors may be completely different.

5.1 Factors affecting the public procurement corruption risk of the Hungarian towns

The relationship between corruption and certain economic, social and political indicators is mostly analysed on the macro level by existing cross-national comparative studies as it was outlined in the literature review. The present dissertation joins this field by analysing the correlations between the procurement corruption risks of the Hungarian local governments and the local socioeconomic factors with quantitative data and statistical tools. As was described in Chapter 2.3., public procurement is an ideal field for corrupt transactions, and according to the literature summarized in Chapter 2.4., local governments are in a very special situation from the perspective of corruption research, as they may be under pressure from both the central government and the local citizens.

The dependent variables of the analyses were the single bidder (SB) and the no calls for bids (NCB) indicators. These two dichotomies identify the corruption risk related to the public procurement contracts: the SB indicates if there was only one bidder for a tender, meaning that there was no competition and the NCB shows those tenders which were not announced, thus only those companies were aware of it, which were selected by the issuer. These objective indicators are referred to by several studies and projects evaluating the transparency of public procurement, they are also covered by the Single Market Scoreboard of the European Commission. As independent variables, I involved several socioeconomic characteristics of the towns and some indicators characterizing the political competition in the local elections. The analysis was done by multivariate regressions, and it is important to note that the causal relations are unclear among the dependent and the independent variables and the presence of endogeneity and omitted variable bias cannot be ruled out.

According to the results summarized in Chapter 4.2., the SB indicator cannot be properly explained in terms of the investigated independent variables. It can be concluded regarding this index that its variation may depend on further factors which did not fall into the scope of the present study. This finding also suggests that the causal mechanisms behind the SB indicator may differ from the assumptions within the tenders issued by the Hungarian towns.

This idea is supported by the fact that the models describing the NCB indicator performed much better. They revealed that the educational attainment of the locals – namely the

increased ratio of the population holding at least high school graduation – may limit the public procurement corruption risk. This effect may take place through two different mechanisms: as understanding the problem of public procurement corruption requires knowledge of abstract concepts (e.g., market price, competition, rent, welfare loss, etc.), only better educated locals can enforce control over this issue (i); since the initiation and the conduction of open tenders require more human resource at the issuers according to the interview study, those municipalities may opt for such procedure types with higher chance, where it is easier to recruit better educated and thus more capable staff (ii).

Perhaps the most exciting result of the quantitative analyses is that the more intense competition in the mayoral elections in terms of the effective number of candidates is correlated with lower levels of the NCB indicator. This means that limited competition on the elections may result in more corruption risk, so political competition can be regarded as a substantial factor in the fight against corruption. Consequently, the democratic control in terms of both the more competent voters and the increased number of political opponents may result in the reduced number of tenders without announcement, as it was hypothesized. In addition, the models suggest that longer mayoral tenures are correlated with less corruption risk, what contradicts the hypothesis, but if the causal relationship is reversed between the two variables, indicate that mayors operating procurement systems less exposed to corruption risk tends to keep their position for longer periods – this is also a key finding of the statistical analyses in my view, and an interesting addition is that the aforementioned effect of the political competition is stronger if the mayoral tenure is longer.

Furthermore, it seems that local governments more dependent on the funds provided by the European Union tend to issue more tenders without call for bids, so the presence of the external funds may lead to less prudent tendering – this conclusion also matches with the assumptions (and can be drawn according to the relationship between the ratio of revenues from taxes in the municipal budget and the SB indicator). This finding is consistent with the conclusions of the literature examining the Dutch disease.

These outcomes indicate that – at least within the Hungarian municipalities – public procurement corruption risk may be better grasped by the NCB index, as it is in relationship with several features that turned out to be relevant in existing corruption research. Furthermore, as was revealed by the charts in Chapter 4.1., contracts without

calling for bids were much more frequent within the local governments than the other issuers mostly in the middle of the 2010s, when the ratio of such municipal contracts reached the peak of 91 per cent what is 30 percentage points higher than the ratio observed within the all the further organizations issuing public procurement contracts. Similar differences cannot be observed regarding the SB indicator, contracts with only one bidder became underrepresented in municipal public procurement after 2010. These tendencies indicate that the NCB indicator may be more relevant in the case of municipal public procurement than the SB indicator, but this suggestion is discussed by the interview study in a more detailed way.

5.2 Public procurement corruption risk indices from the perspective of the actors involved

I conducted semi-structured interviews with public procurement experts or specialists, the related decision-makers at local governments and also with entrepreneurs who applied to municipal public tenders to enrich the interpretation of the quantitative part and provide important new understandings of the indicators of corruption risks at the local level. The combination of quantitative and qualitative results may enhance our knowledge about the public procurement corruption risk indicators – we can gather insights about their validity, and whether they truly measure what they are intended to. In addition, during the fieldwork, I could reveal several further factors related to public procurement that may enrich the interpretation of the corruption risk indices, and new features of tenders worth being investigated from this perspective were suggested by the interviewees too.

The interviewees agreed that the public procurement procedures are overly complicated, resulting in excessive administrative burdens that mainly affect smaller municipalities (according to the majority of the models presented in Chapter 4.2. it could be observed that the corruption risk tends to be lower in bigger towns in terms of their population too) and companies without permanent human resources dealing with the tenders. Many of the rules making public procurement difficult came into force to curb corruption according to the interviewees, who also complained about the frequent changes in the regulation. Thus, local governments with limited administrative capacity may opt for less transparent procedure types to offset the lengthy and complicated nature of the tenders – open tendering is much more difficult than restricting the bidders –, which became more

important in the era of the extraordinary inflation⁷⁸, as the value of the projects has to be in line with the annual budget and their schedule has to meet with deadlines related to external (e.g., European) funds or political matters.

The bureaucratic burdens affect the bidders too, smaller companies without sufficient capacities often become discouraged from the application. However, bidding on public tenders and their execution results in increased workload at every company in comparison to the private business, which is reflected in the prices. In addition to the expenses on the project management, the uncertainty of the costs due to the length of the tendering itself also has to be considered when the prices are determined – these factors may lead to the perception that the public tenders are overpriced in comparison to the private projects. Moreover, companies have to gather specific references to be eligible to bid, holding back mostly the new firms from the public procurement market.

The invitation of specific companies can be more attractive for the procurers than the open procedures precisely because of the role of the prices. If a bidder bluffs an unrealistically low price, then he has to be awarded according to the objective criteria, and many municipalities have bad experiences with shady companies trying to take advantage of such situations, resulting in scandalous projects. The further typical argument against the open tenders is – i.e., tender types with a call for bids – that a procurement expert has to be involved in such procedures, and his selection has to be done through a call of tenders too (nonetheless the involvement of an expert can reduce the workload of the municipality in the end). In addition, some interviewees representing smaller towns mentioned that in the cases of restricted procedures negotiations can begin with the local professionals during the preparation of the tender, therefore the municipality may make use of their knowledge from the very beginning of a project, however, according to other views, this practice is the hotbed for corruption and should be avoided.

As for the single bidding, the interviewees also suggested that its presence may be strongly dependent on the size, location and capacities of the municipality. Towns

⁷⁸ It may worth to note at this point, that the determination of the estimated price, another indicator analysed frequently in public procurement corruption research, turned into technical or formal requirement instead of a valid, meaningful calculation recently, as they become quickly outdated due to the inflation.

situated in more developed areas may count on the bids of several local entrepreneurs and may have more resources for efforts aiming to increase the competition for the tenders. A potential – and in some cases mandatory – tool is the planned invalidation of tenders with a single bid, leading to the growth of the administrative costs, as in such cases the procedure has to be repeated if the local government does not give up the project, and the re-announcement of the tender may have to be done again and again until receiving several bids. Another issue related to the number of bidders is that the evaluation of several applications needs more resources which makes small municipalities counter-interested in intensive competition, furthermore, the risk of complaints increases if there are more than a few loser companies.

A common argument for the so-called '*directed tenders*' was that in some cases it is clearly worth more to award a tender to a specific company, for example when minor tasks occur and a competent company is already working at a site for a local government. Moreover, in the cases of certain – mostly intellectual – services due to their specificity the issuers cannot avoid the invitation of capable companies. Despite the difficulties related to open tenders, some of the local governments are committed to transparent procedures, but these towns tend to be bigger and situated in the more developed parts of the country. Furthermore, empirical evidence supporting the benefits of open and transparent procurement was cited during the fieldwork too.

Another key issue leading to debatable public projects is related to the EU funds. Their misuse is a commonly cited problem, the boundary is blurred between the corrupt cases and when a municipality simply tries to adapt to the available funds and seize all the opportunities that may result in any kind of development. Most of the interviewees could mention projects of the municipality they represented when they had to creatively use the external funds, and some of them agreed that these instances are on the fringes of corruption. They also agreed that procurement backed up with funds of the EU or the central government tends to result in more severe administrative burdens, as the documentations and the inspections are more complex causing concerns for everyone involved in such procedures and distorting the competition for such externally funded tenders, as typically the bigger companies have enough resources for handling them. The dependency on the bureaucratized EU funds negatively affects the general characteristics of the Hungarian public procurement in comparison to the Western European countries, where the issuers are more exposed to the normal market equilibrium than these

administrative burdens.

The interviewees agreed on additional features of the tenders which are worth to be analysed from the perspective of corruption research. Firstly, the detailedness of the documentation and the contracted terms should be investigated, as the winner of tender can take advantage of the issuer, and execute the project according to his interests if the issuers do not specify carefully all the important details of a procurement. Secondly, if additional work is requested by the winner, then its conditions should be checked as companies may try to increase the earnings by such appeals – as additional work provides opportunities for misuse of public money, they have to be avoided as much as possible, the efforts of the issuers to do so may be also evaluated. Thirdly, the contracts may contain disadvantageous conditions from the perspective of the issuer, e.g., related to the quality checks, warranty claims and potential penalties, which can also indicate that the affected contract is not favouring public interests. Furthermore, the detailed analysis of the evaluation criteria – namely the over-specification of certain requirements – may also reveal if an issuer would like to prefer certain companies on a tender and in general, according to interviewees, sometimes the totality of minor details in contradiction with the common sense of a tender suggest corrupt intentions. The agreements with the subcontractors (and also their number) may also worth to be analysed, and the volume of the contracts itself may indicate at least that an issuer does not favour strong competition, as by merging several projects into one tender the group of the potential bidders becomes reduced and the municipality may find itself in a disadvantageous situation in the end, as the conditions of cooperation cannot be specified as detailed as if the tasks would be related to distinct tenders. From the analytical and methodological perspectives, it should be added, that the investigation of these features of the contracts needs precise, mainly qualitative analyses and the manual extraction of data from distinct documents, therefore can be hardly automatized.

Moreover, interviewees suggested some features of the tenders which can be at least partly processed with quantitative and statistical tools. Most of them agreed that to ensure the transparent market competition for a tender, elongated deadlines for the applications and then for the realization of the purchase would be needed – but if the selection of the entrepreneur and then the project lasts for a long time, it may become also disadvantageous for the municipalities. If a tender is announced during holiday periods when no one would notice it, the risk of corruption can be assumed too. The dates and

deadlines themselves can be easily extracted from the official data like the number of bidders and the procedure type, however, judging whether they are adequate or improper needs careful consideration. Furthermore, the issuer may specify in advance in the call for bids what happens if the number of applications is insufficient – if such indication can be found, it may be understood as an effort against corruption. Finally, the rejected bids are also worth to be analysed, as if they have obvious formal deficiencies, then one may assume, that they were submitted intentionally wrong, to favour a particular bidder.

Certainly, I put great emphasis on the discussion of the SB and the NCB indicators during the interviews. All of the respondents agreed that these features of the tenders may signal the potential of corruption, however, not in a deterministic way: these indicators may be valid mostly in the cases of the larger tenders or those purchases which are launched by bigger organizations, but within the tenders of the local governments – mostly the smaller ones – they may incriminate purchases which are not affected by any kind of unethical intention. From the macro perspective, municipalities without sufficient administrative capacities or situated in regions lacking potential bidders for open tendering may become blamed for alarming tendencies in their corruption risk indices, even if they had no unethical intentions at all. Several interviewees added that at the same time corrupt actors could find a way how to remain under the radar of analyses based on these indicators, e.g., involving intentionally losing companies to tenders – due to such practices, interviewees suggested the analysis of the bidders (e.g. the consequently common application of certain companies and the business relations between them or even the presence of certain procurement specialists may indicate corruption), what has been already proven to be a fruitful approach (Goldman, Rocholl and So, 2013; Tóth and Hajdu, 2022).

All in all, upon the presence of fraudulent activities, increased corruption risk indices may be due to the problems of the public procurement system and regulation (i.e., the disproportionate administrative burdens of the more transparent procedure types), the lack of administrative capacities at both the issuers and bidders. They may also signal the quality of the companies operating in a given sector as if the chance of receiving bids with low prices from companies juggling with their jobs is increased, restricted procedures may be rational choices from the perspective of the issuers as they can avoid scandals by doing so.

Another important conclusion of interview fieldwork that can be also more or less drawn according to the statistical analysis is that locals are barely interested in the details of public procurement – corruption is an abstract notion and public procurement is a complicated procedure, their understanding needs capabilities and devotedness. Yet, spectacular projects and problems might attract the attention of the residents– for example, quality issues related to a project –, but tenders are mostly regarded as technical issues, and the philosophy of transparency or the stimulation of competition is falling out of their scope of interest. Interviewees from municipalities where the mayor was recently changed added that if the new leadership reveals a fraudulent case related to the previous mayor or representatives and a scandal breaks out, the public will stigmatize the successors of the corrupt officials, even if they were not involved in the crime. All things considered, the assumption that more educated residents may exert pressure on the municipality to announce more transparent tenders according to the quantitative outcomes of the study, but it is questionable whether this correlation takes more effect through the democratic control imposed by the voters or higher ethical standards within the staff of local governments which can recruit more qualified personnel.

5.3 Findings of the research with policy relevance

According to both the quantitative and qualitative analyses, it can be concluded that the public procurement procedures are overly complicated. Difficulties occur more frequently in the cases of the transparent procurement types and if the competition is stronger – i.e., if there are more bidders present – imposing a disproportionate workload on smaller municipalities. In some cases, the cooperation with new, unknown partners results in unexpected complications too, mostly, if they would like to take advantage of the municipality. Therefore, in the short-term, the issuers may become counter-interested in the application of public procurement procedures that may limit the risk of corruption – if they have to make a quick purchase without overloading the administrative capacities it may be more rational to opt for a procurement type with increased corruption risk than the transparent one, as in some cases the swiftness is more important than the transparency.

Several potential workarounds balancing between the open and restricted procurement types were mentioned during the interviews that can resolve the aforementioned problems. The most commonly cited method was the creation of transparent, clearly

justified lists of companies with whom issuers prefer to cooperate and the announcement of restricted tenders within such groups. Another alternative solution is the request of indicative bids before the tender from the preferred companies, and thereby they can be informed about the procurement, and its transparency can be also promoted among the potential bidders to encourage them to apply. Such practices could be made more institutionalized, furthermore, decision-making related to municipal procurement should be delegated to committees consisting of the local technical and architectural experts, the board members of the municipal companies and elected officials. But the most important task from the perspective of policy-making is the reduction of the administrative costs and burdens related to the open procedures – the first step is to raise political interest in this issue.

Great emphasis was put on the effects of the external funds – mostly the funds provided by the European Union – during the interviews and the statistical analyses also revealed that their presence results in increased corruption risk. Applying for such funds requires more administrative capacities and leads to additional constraints and deadlines, which may orient issuers towards simpler, non-open procedures and deter bidders from the application because of the overly complicated administration. Moreover, the interviewees agreed that most of the funds are provided for lifelike aims, however, all of them cited examples of ‘hacked’ tenders, when with some creativity municipalities could use funds for their goals even if they were provided for more or less different aims – such cases are sometimes on the fringes of corruption, but in the meantime, all the opportunities should be seized which may result in jobs or any kind of direct or indirect social or economic improvement.

A key reason behind the mistargeted European funds is the involvement of several intermediary organizations which were sharply criticized during the interviews. Even if a project initiated by the EU has aims originally matching the goals of a local government, these actors involved in the distribution of the funds tend to add more and more conditions and finally, the programs miss their point – a potential solution is a reduction of the administrative bodies related to the tenders of the EU, the possibility of the direct application to the European Commission also arose, what is a common request of the

local governments led by mayors independent from the Hungarian governing party.⁷⁹ Some interviewees also indicated, that they try lobbying for governmental funds that can be used for their actual aims or tenders through the MP of the region, therefore the national grants may be more in line with their needs.

An important lesson related to the effects of the EU funds is that in the new member states mostly the construction of new objects is supported by them instead of the renovation or the preservation of the existing ones. This practice makes the municipalities less interested in the maintenance of the existing buildings, which is not rational at all on the whole – this phenomenon is not a Hungarian speciality, it affects all the Eastern member countries, and in the meantime, in the Western countries, the municipalities spend more money on the preservation of the local infrastructure. In many cases, white elephants – expensive but useless objects which are hard to maintain or dispose of – come into being. All in all, in a manner the present overly bureaucratized and centralized method of the distribution of the European grants, resembles the planned economy (Kornai, 1957).

As for the actual public procurement regulations, it can be concluded that they rule out the possibility of the simplest ways of public procurement corruption, but still, allow the initiation of tenders serving not only public but private interests too. Framework agreements may be especially affected by corruption, and cartels still exist, certain markets are divided by the potential bidders, and the issuers cannot have any influence on the selection of the winner. Nonetheless, simplified public procurement procedures would presumably result in bids from companies who refrained from public tenders so far due to the administrative burdens, and by their potential presence, the market actors could better control public procurement corruption.

5.4 Limitations and potential ways of continuation

The most important limitation related to both the quantitative and qualitative phases of the research is the lack of available data. From the perspective of the dependent variables of the statistical analyses, the most important problem is the identification of the public

⁷⁹ 249 Hungarian and Polish local governments turned to the European Union proposing direct grants to the municipalities in the end of 2020, when the Hungarian and the Polish governments vetoed the recovery package of the EU aimed to offset the consequences of the pandemic (for details, see: <https://hungarytoday.hu/coronavirus-hungarian-polish-local-governments-eu-funds-veto/>).

procurement contracts of the local governments due to the lack of unequivocal identifiers. Human assistance was needed for finding the contracts of the municipalities consuming a lot of resources, however, this work may be continued with the extension of the scope of the research to the public procurement of the institutions and companies belonging to the local governments. Thus, a more complete picture could be drawn of municipal public procurement. As for the independent variables, much of the information that may be relevant for statistical analyses according to the existing literature is not available at the level of the settlements. However, I would like to note that even during the time horizon of the present research a lot of promising improvements happened in this domain creating the opportunities for more detailed Hungarian intra-national spatial analyses.

As for the qualitative fieldwork, the original schedule had to be overwritten because of the pandemic. Due to the sensitivity of the topic, I intended to organize personal face-to-face interviews generally, however, the organization of the meetings with high-ranking officials at the municipalities proven to be difficult – this resulted in a somewhat limited number of interviews. Even though the theoretical saturation could be reached, some more interviews would allow more detailed comparisons of different groups of the settlements (e.g., according to the political party affiliation of the mayor) without harming the anonymity of the respondents. In addition, as the presence of the social-desirability bias and the fears concerning the potential effects of corruption research on policy-making can be assumed – the inclusion of further actors upon the representatives of the municipalities may provide deeper insights into each others' sincerity. In the present fieldwork entrepreneurs and a public procurement expert were involved, nonetheless, it may be worth conducting interviews with the representatives of the competent authorities, and potential bidders refraining from applying to public tenders. Furthermore, focus groups with different actors involved in public procurement may also reveal important insights about the topic.

As the key problem of the interviews was the distinction between the public procurement tenders and purchases with a monetary value under the threshold of the public procurement procedures, more emphasis can be put on the differences between these two tendering types in the next stage of the research. Comparison between the public procurement practices of local governments and other public institutions could also lead to valuable results in understanding the corruption risk, its indicators and the integrity of these organizations.

The actual study focused on the two most commonly referred public procurement corruption risk indices, however, even the Single Market Scoreboard of the European Union consists of twelve indicators, so the dependent variables of the statistical models may be changed and the opinions of actors related to these features may worth to be investigated too. The quantitative analyses should be also continued with the investigation of the features of the contracts that were suggested by the interviewees, as many of them are available in the current dataset extracted from the homepage of the HPPA, e.g., the deadlines and the bidders. In addition, a meta-analysis about the availability of data related to the features that could be understood as corruption risk according to the interviewees and the potential ways of the human- and computer-assisted analyses of these characteristics may push the public procurement corruption risk research forward.

Finally, I would like to emphasize the special importance of the interdisciplinary approach in this field of research. I mostly discussed the matters of public procurement corruption risk from the perspective of economic sociology, but the scope of the questions and the interpretation of the results would be greatly extended with the inclusion of representatives of jurisprudence, economics and administrative sciences into the next steps of the research.

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Appendix

The annual averages of the official daily exchange rates of the Hungarian Central Bank between HUF and EUR (value of 1 EUR in HUF)

Year	Average exchange rate
2005	248.05
2006	264.24
2007	251.31
2008	251.25
2009	280.58
2010	275.41
2011	279.21
2012	289.42
2013	296.92
2014	308.66
2015	309.90
2016	311.46
2017	309.21
2018	318.87
2019	325.35
2020	351.17

Source: Hungarian Central Bank – <https://www.mnb.hu/arfolyam-lekerdezes> (accessed 23rd March 2021)

The links to the yearly reports of the HPPA

Year	Link
2005	https://www.kozbeszerzes.hu/cikkek/tajekoztato-kozbeszerzesek-2005-evi-alakulasarol-es-kozbeszerzesekrol-szolo-2003-evi-cxxix-sz-torveny-modositasanak-egy-es-elemeirol
2006	https://www.kozbeszerzes.hu/cikkek/tajekoztato-kozbeszerzesek-2006-evi-alakulasarol
2007	https://www.kozbeszerzes.hu/cikkek/tajekoztato-kozbeszerzesek-2007-evi-alakulasarol
2008	https://kozbeszerzes.hu/cikkek/tajekoztato-kozbeszerzesek-2008-evi-alakulasarol
2009	https://www.kozbeszerzes.hu/cikkek/tajekoztato-kozbeszerzesek-2009-evi-alakulasarol
2010	https://www.kozbeszerzes.hu/cikkek/tajekoztato-kozbeszerzesek-2010-evi-alakulasarol
2011	https://www.kozbeszerzes.hu/cikkek/tajekoztato-kozbeszerzesek-2011-evi-alakulasarol
2012	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesi-hatosag-alelnokenek-tajekoztatoja-kozbeszerzesek-2012-evi-alakulasarol
2013	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesek-alakulasa-2013-evben-ii-fejezet
2014	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesek-alakulasa-2015-evben
2015	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesek-alakulasa-2015-evben
2016	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesi-hatosag-elnokenek-tajekoztatoja-kozbeszerzesek-alakulasarol-2016-evben
2017	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesi-hatosag-elnokenek-tajekoztatoja-kozbeszerzesek-2017-evi-alakulasarol
2018	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesi-hatosag-elnokenek-tajekoztatoja-kozbeszerzesek-2018-evi-alakulasarol
2019	https://www.kozbeszerzes.hu/cikkek/kozbeszerzesi-hatosag-elnokenek-tajekoztatoja-kozbeszerzesek-2019-evi-alakulasarol

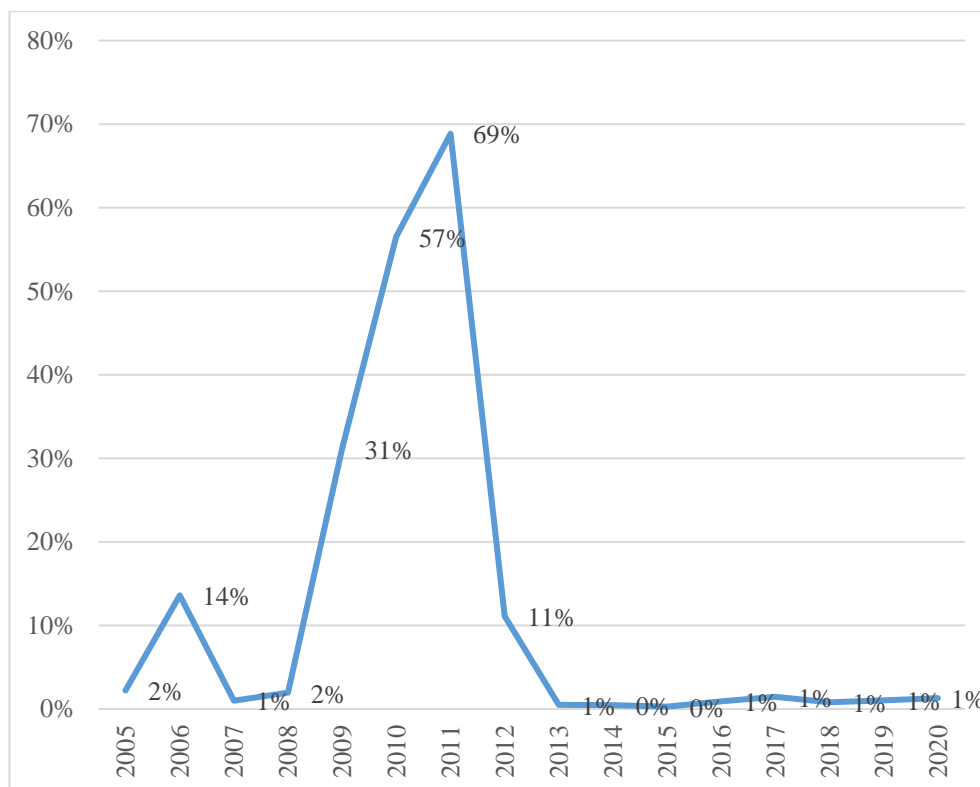
Note: the links were accessed on the 23rd March 2021

Public procurement types and their classification in the CRCB dataset

The NCB indicator in the CRCB dataset is based on the alphabetical information recorded in the ‘Eljárás fajtája’ (procedure type) fields on the web pages of the tenders. There are several problems concerning this indicator deriving from the quality of the official data publication which may limit its validity. This section discusses these problems and the classification of the CRCB for the public procurement procedures.

Firstly, this field is prone to be left uncompleted, and the ratio of such tenders tends to vary significantly over time. The most problematic period from this perspective was between 2009 and 2011, but after 2012 contracts deriving from unidentified procurement procedures became quite rare (see Figure A1.).

A.1. Figure: The ratio of contracts with procurement type unidentified



Source: own calculations based on the data of the CRCB

Secondly, in many cases, several procedure types are indicated in this field. This may happen if several contracts belong to a given public tender and were awarded by different types of procedures. This phenomenon mostly poses problems when there are procedures listed with and without announcement – in such cases, a missing value is stored in the NCB variable too.

The next list contains those entries which occurred in the ‘Eljárás fajtája’ (procedure type) field and their classification according to the NCB indicator. This classification was done with the involvement of the public procurement experts of the CRCB and all the contracts were taken into consideration (framework agreements also).

Public procurement type indicated in the 'Eljárás fajtája' (procedure type) field	Number of cases	NCB indicator ('.' = missing)
(empty)	34823	.
A Kbt. 113. –β szerinti meghivasos eljaras	12	1
A Kbt. 113. –β szerinti nyilt eljaras	659	1
A Kbt. 113. –β szerinti targyalasos eljaras	20	1
A Kbt. 115. –β szerinti hirdetmeny nelkuli targyalasos eljaras	254	1
A Kbt. 115. –β szerinti nyilt eljaras	1307	1
A Kbt. 117. –β szerinti saját beszerzesi szabalyok szerinti eljaras	3008	1
A Kbt. 117. –β szerinti saját beszerzesi szabalyok szerinti eljaras A Kbt. 113. –β szerinti nyilt eljaras	2	1
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras	143	1
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras Gyorsított meghivasos	1	1
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras Gyorsított targyalasos	1	1
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras Hirdetmeny kozzetetelevel indulo targyalasos	1	.
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras Hirdetmeny nelkuli targyalasos	20	1
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras Hirdetmeny nelkuli targyalasos Hirdetmeny nelkuli targyalasos	1	1
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras Meghivasos	2	1
A Kbt. 123. –β-a szerinti, szabadon kialakított eljaras Nyilt	18	.
Ajanlati/reszveteli felhivas kozzetetele nelkuli/hirdetmeny nelkuli targyalasos	2058	1
Ajanlati/reszveteli felhivas kozzetetele nelkuli/hirdetmeny nelkuli targyalasos Ajanlati/reszveteli felhivasnak az Europai Unio Hivatalos Lapjaban torteno kozzetetele nelkul megvalositott beszerzes	2	1
Ajanlati/reszveteli felhivasnak az Europai Unio Hivatalos Lapjaban torteno kozzetetele nelkul megvalositott beszerzes	876	1

Egyszerusített	1	1
Egyszerusített eljárás	1939	0
Egyszerusített eljárás Hirdetmény nélküli tárgyalásos	3	.
Egyszerusített eljárás; Egyszerusített eljárás	5	0
Egyszerusített eljárás; Hirdetmény közzétételevel induló tárgyalásos	3	0
Egyszerusített eljárás; Nyílt	5	0
Egyszerusített eljárás.	1	0
Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben	12	1
Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 113. –§ szerinti meghívásos eljárás	135	1
Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 113. –§ szerinti nyílt eljárás	21731	1
Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 113. –§ szerinti tárgyalásos eljárás	759	1
Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 115. –§ szerinti hirdetmény nélküli tárgyalásos eljárás	1856	1
Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 115. –§ szerinti nyílt eljárás	25991	1
Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben Hirdetmény nélküli tárgyalásos eljárás	491	1
Eljárást megindító felhívásnak az Európai Unió Hivatalos Lapjában történő közzététele nélkül odaítelt szerződés az alább felsorolt esetekben (töltsse ki a D2. mellékletet)	71	1
Előminősítési hirdetménnyel meghirdetett tárgyalásos	93	1
Elozetas/idoszakos elozetes tájékoztatóval meghirdetett meghívásos eljárás A Kbt. 113. –§ szerinti nyílt eljárás	2	.
Elozetas/idoszakos elozetes tájékoztatóval meghirdetett meghívásos eljárás Eljárást megindító felhívás Közbeszerzési Értesítőben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 113. –§ szerinti nyílt eljárás	1	.

Elozetes/idoszakos elozetes tajekoztatoval meghirdetett meghivasos eljaras Eljarast megindito felhivas Kozbeszerzesi	3	.
Ertesitoben tortent kozzetetele nelkul odaitelt szerzodes az alabb felsorolt esetekben A Kbt. 115. -β szerinti nyilt eljaras		
Elozetes/idoszakos elozetes tajekoztatoval meghirdetett meghivasos eljaras Targyalasos eljaras	2	.
Elozetes/idoszakos elozetes tajekoztatoval meghirdetett targyalasos eljaras Eljarast megindito felhivas Kozbeszerzesi	1	.
Ertesitoben tortent kozzetetele nelkul odaitelt szerzodes az alabb felsorolt esetekben A Kbt. 113. -β szerinti nyilt eljaras		
Elozetes/idoszakos elozetes tajekoztatoval meghirdetett targyalasos eljaras Eljarast megindito felhivas Kozbeszerzesi	1	.
Ertesitoben tortent kozzetetele nelkul odaitelt szerzodes az alabb felsorolt esetekben A Kbt. 113. -β szerinti targyalasos eljaras		
Felhivással indulo targyalasos eljaras	2832	0
Gyorsított eljaras (klasszikus ajanlatkerok eseteben) Eljarast megindito felhivas Kozbeszerzesi Ertesitoben tortent kozzetetele nelkul odaitelt szerzodes az alabb felsorolt esetekben A Kbt. 115. -β szerinti nyilt eljaras	2	.
Gyorsított eljaras (klasszikus ajanlatkerok eseteben) Eljarast megindito felhivas Kozbeszerzesi Ertesitoben tortent kozzetetele nelkul odaitelt szerzodes az alabb felsorolt esetekben Hirdetmeny nélküli targyalasos eljaras	1	1
Gyorsított eljaras (klasszikus ajanlatkerok eseteben) Targyalasos eljaras Gyorsított eljaras (klasszikus ajanlatkerok eseteben)	1	.
Gyorsított meghivasos	3023	1
Gyorsított meghivasos Gyorsított targyalasos	1	1
Gyorsított meghivasos targyalasos: X	2	1
Gyorsított meghivasos; Gyorsított targyalasos	1	1
Gyorsított meghivasos; Hirdetmeny nélküli targyalasos	2	1
Gyorsított targyalasos	1317	1
Gyorsított targyalasos Ajanlati/reszveteli felhivas kozzetetele nélküli/hirdetmeny nélküli targyalasos	1	1
Gyorsított targyalasos; Nyilt	2	.
Gyorsított targyalasos.	1	1
Hirdetmennel indulo targyalasos	670	0
Hirdetmennel indulo, targyalas nélküli	3071	0

Hirdetmennyel indulo, targyalas nélkuli Hirdetmennyel indulo, targyalasos	1	0
Hirdetmennyel indulo, targyalasos	750	0
Hirdetmeny kozzetetelevel indulo targyalasos	9205	0
Hirdetmeny kozzetetelevel indulo targyalasos		
Ajanlati/reszveteli felhivasnak az Europai Unio Hivatalos Lapjaban torteno kozzetetele nélkul megvalositott beszerzes	7	0
Hirdetmeny kozzetetelevel indulo targyalasos Gyorsított targyalasos	1	0
Hirdetmeny kozzetetelevel indulo targyalasos Hirdetmennyel indulo, targyalasos	1	0
Hirdetmeny kozzetetelevel indulo targyalasos Hirdetmeny kozzetetelevel indulo targyalasos	4	0
Hirdetmeny kozzetetelevel indulo targyalasos Hirdetmeny kozzetetelevel indulo/hirdetmennyel meghirdetett targyalasos	3	0
Hirdetmeny kozzetetelevel indulo targyalasos Hirdetmeny nélkuli targyalasos	3	.
Hirdetmeny kozzetetelevel indulo targyalasos; Egyszerusített eljaras	1	0
Hirdetmeny kozzetetelevel indulo targyalasos; Gyorsított targyalasos	5	0
Hirdetmeny kozzetetelevel indulo targyalasos; Hirdetmeny kozzetetelevel indulo/hirdetmennyel meghirdetett targyalasos	2	0
Hirdetmeny kozzetetelevel indulo targyalasos; Hirdetmeny nélkuli targyalasos	4	.
Hirdetmeny kozzetetelevel indulo/hirdetmennyel meghirdetett targyalasos	1395	0
Hirdetmeny kozzetetelevel indulo/hirdetmennyel meghirdetett targyalasos; Hirdetmeny nélkuli targyalasos	1	.
Hirdetmeny nélkuli targyalasos	33574	1
Hirdetmeny nélkuli targyalasos eljaras	67	1
Hirdetmeny nélkuli targyalasos eljaras: X	1	1
Hirdetmeny nélkuli targyalasos Hirdetmeny kozzetetelevel indulo targyalasos	1	.
Hirdetmeny nélkuli targyalasos Hirdetmeny nélkuli targyalasos	13	1
Hirdetmeny nélkuli targyalasos Keretmegallapodasos	22	1
Hirdetmeny nélkuli targyalasos Keretmegallapodasos, az eljaras elso reszeben hirdetmeny nélkuli targyalasos	5	1

Hirdetmény nélküli tárgyalásos; Hirdetmény közzétételével induló tárgyalásos	2	.
Hirdetmény nélküli tárgyalásos; Hirdetmény nélküli tárgyalásos	11	1
Hirdetmény nélküli tárgyalásos; Nyílt	7	.
Hirdetmény nélküli tárgyalásos; Nyílt tárgyalásos: „Ái	1	.
Hirdetmény nélküli tárgyalásos.	1	1
Időszakos előzetes tájékoztatót tartalmazó hirdetményrel meghirdetett tárgyalásos	28	0
Innovációs partnerseg A Kbt. 115. –β szerinti hirdetmény nélküli tárgyalásos eljárás	1	1
Innovációs partnerseg A Kbt. 115. –β szerinti nyílt eljárás	2	1
IV.1.1) A közbeszerzési törvény VI. fejezete szerinti eljárás eseten: Egyszerűsített eljárás	1	1
Kbt. 122/A. –β szerinti eljárás	22886	1
Keretmegállapodásos	343	1
Keretmegállapodásos, az eljárás első részében hirdetményrel induló tárgyalásos	21	0
Keretmegállapodásos, az eljárás első részében hirdetmény nélküli tárgyalásos	89	1
Keretmegállapodásos, az eljárás első részében meghívásos	2	1
Keretmegállapodásos, az eljárás első részében nyílt	265	0
Koncessziós beszerzési eljárás koncessziós hirdetmény előzetes közzétételével	18	0
Koncessziós beszerzési eljárás koncessziós hirdetmény előzetes közzétételével A koncessziós beszerzési eljárás tárgyalás megtartásával került lefolytatásra	4	0
Koncessziós hirdetmény előzetes közzététele nélküli eljárás	16	1
Meghívásos	1909	1
Meghívásos eljárás	224	1
Meghívásos eljárás Előzetes/idoszakos előzetes tájékoztatóval meghirdetett meghívásos eljárás	4	.
Meghívásos eljárás Gyorsított eljárás	174	1
Meghívásos eljárás Gyorsított eljárás (klasszikus ajánlatkerök esetében)	1	1
Meghívásos Gyorsított meghívásos	12	1
Meghívásos; Egyszerűsített eljárás	2	1
Nyílt	77048	0
Nyílt Ajánlati/észveteli felhívás közzététele nélküli/hirdetmény nélküli tárgyalásos	1	.

Nyílt Ajánlati/reszveteli felhívásnak az Európai Unió Hivatalos Lapjában történő közzététele nélkül megvalósított	1	.
beszerzés		
Nyílt eljárás	43329	0
Nyílt eljárás A Kbt. 113. -§ szerinti nyílt eljárás	6	.
Nyílt eljárás A Kbt. 115. -§ szerinti nyílt eljárás	3	.
Nyílt eljárás Eljarast megindító felhívás Kozbeszerzési Ertesitoben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben	2	.
Nyílt eljárás Eljarast megindító felhívás Kozbeszerzési Ertesitoben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 113. -§ szerinti nyílt eljárás	21	.
Nyílt eljárás Eljarast megindító felhívás Kozbeszerzési Ertesitoben történt közzététele nélkül odaítelt szerződés az alább felsorolt esetekben A Kbt. 115. -§ szerinti nyílt eljárás	17	.
Nyílt eljárás Gyorsított eljárás	1223	.
Nyílt eljárás Gyorsított eljárás (klasszikus ajánlatkereset esetében)	4	.
Nyílt eljárás Meghívásos eljárás	1	.
Nyílt eljárás: X	11	0
Nyílt Hirdetményrel induló, tárgyalás nélküli	37	0
Nyílt Hirdetmény közzétételével induló tárgyalásos	10	0
Nyílt Hirdetmény közzétételével induló tárgyalásos		
Ajánlati/reszveteli felhívásnak az Európai Unió Hivatalos Lapjában történő közzététele nélkül megvalósított beszerzés	1	.
Nyílt Hirdetmény közzétételével induló/hirdetményrel meghirdetett tárgyalásos	1	0
Nyílt Hirdetmény nélküli tárgyalásos	5	.
Nyílt Keretmegállapodás	30	0
Nyílt Nyílt	8	0
Nyílt Tárgyalásos	11	.
Nyílt; Egyszerűsített eljárás	50	0
Nyílt; Gyorsított meghívásos	7	0
Nyílt; Gyorsított tárgyalásos	2	0
Nyílt; Hirdetmény közzétételével induló tárgyalásos	14	0
Nyílt; Hirdetmény közzétételével induló/hirdetményrel meghirdetett tárgyalásos	5	0
Nyílt; Hirdetmény nélküli tárgyalásos	48	.
Nyílt; Nyílt	85	0
Nyílt; Nyílt; Egyszerűsített eljárás	3	0

Nyilt; Nyilt; Hirdetmeny nélkuli tárgyalasos	3	.
Nyilt; Nyilt.	2	0
Nyilt.	2	0
Targyalas nélkuli	1	1
Targyalasos	216	1
Targyalasos eljaras	1074	1
Targyalasos eljaras A Kbt. 115. -β szerinti hirdetmeny nélkuli tárgyalasos eljaras	1	1
Targyalasos eljaras Eljarast megindito felhivas Kozbeszerzesi Ertesitoben tortent kozzetetele nélkul odaitelt szerzodes az alabb felsorolt esetekben A Kbt. 113. -β szerinti tárgyalasos eljaras	2	1
Targyalasos eljaras Eljarast megindito felhivas Kozbeszerzesi Ertesitoben tortent kozzetetele nélkul odaitelt szerzodes az alabb felsorolt esetekben Hirdetmeny nélkuli tárgyalasos eljaras	1	1
Targyalasos eljaras Elozetes/idoszakos elozetes tajekoztatoval meghirdetett tárgyalasos eljaras	7	.
Targyalasos eljaras Gyorsitott eljaras	131	1
Targyalasos eljaras Hirdetmeny nélkuli tárgyalasos eljaras	1	1
Versenyparbeszed	31	1

List of abbreviations

AME	Average marginal effect
CPI	Corruption Perception Indicator
CRI	Corruption risk index
CRCB	Corruption Research Center Budapest
EC	European Commission
HCSO	Hungarian Central Statistics Office
HPPA	Hungarian Public Procurement Authority
MOPI	Municipality openness index
MP	Member of Parliament
NCB	No calls for bids indicator
OECD	Organization for Economic Co-operation and Development
OSAP	National Data Collection Programme
SB	Single bidder indicator
SME	Small and medium-sized enterprise
SMS	Single Market Scoreboard
TED	Tenders Electronic Daily
TeIR	Regional Development and Territorial Information System
TFP	Total factor productivity
VfM	Value for money
WGI	Worldwide Governance Indicators

The coefficients of the logistic regressions modelling the NCB indicator with interaction term between the length of mayoral tenure and the effective number of candidates included based on the CRCB dataset

Independent variable	Without random effects		With random effects	
	Coefficient	P-value	Coefficient	P-value
Ratio of the population holding at least high-school graduation	-1.3326	0.00	-1.7656	0.00
Ratio of the companies owned at least partly by foreign entities	-0.6516	0.20	1.2393	0.28
Number of business units per capita	0.2150	0.52	1.6655	0.04
Gross value-added per 1000 employee	-0.0394	0.00	-0.0341	0.00
Number of local minorities forming self-governments	0.0452	0.00	-0.0046	0.90
Length of the mayoral tenure	0.0739	0.00	0.0738	0.00
Effective number of mayoral candidates	0.0250	0.56	-0.0628	0.27
Ratio of revenues from taxes	1.1041	0.00	0.8188	0.00
EU-fund	0.0994	0.01	0.0331	0.40
Population (1000 inhabitants)	-0.0006	0.00	0.0002	0.41
Year (reference category:2005)				
2006	0.5411	0.00	0.5346	0.00
2007	1.0198	0.00	1.0549	0.00
2008	1.5999	0.00	1.5967	0.00
2009	1.0626	0.00	1.0847	0.00
2010	1.1184	0.00	1.1113	0.00
2011	-0.5589	0.04	-0.6722	0.00
2012	2.9206	0.00	3.0468	0.00
2013	3.5101	0.00	3.7023	0.00
2014	3.7623	0.00	3.9390	0.00
2015	3.6308	0.00	3.8309	0.00
2016	4.4457	0.00	4.7222	0.00
2017	4.7402	0.00	5.0946	0.00
2018	4.1580	0.00	4.4484	0.00
2019	3.9159	0.00	4.1238	0.00
2020	2.7096	0.00	2.8541	0.00
Sector (reference category: agriculture)				
Energy and mining	-3.6900	0.00	-3.9519	0.00
Manufacturing	-2.1050	0.00	-2.0806	0.00
Construction	-0.9865	0.13	-1.0796	0.10
IT hardware and software	-1.7071	0.01	-1.8483	0.01
Financial, business and real estate services	-0.5714	0.38	-0.5592	0.40
IT services	-0.8158	0.22	-0.6931	0.31
Other services	-1.4888	0.02	-1.5370	0.02
Interaction term	-0.0387	0.00	-0.0371	0.00
Constant	-0.0506	0.42	0.0954	0.00
N	26415		26415	
Pseudo R ²	0.3002			

Interview guide for respondents related to the issuers of public tenders⁸⁰

Introduction, warming up: Please tell me a few words about the last tender you were involved in. How was its preparation? How was the evaluation of the bids? Are you satisfied with the outcome?

Preparation of a tender: Which are the main steps of the announcement of a tender? Which are the main features of a tender? Which are the characteristics that are harder or easier to define? Which are the main difficulties during the preparation?

Relationships with the bidders: How can the issuers and bidders communicate, and negotiate with each other before, during and after a tender? If an issuer has preferences concerning its partners, then how can it assert them? If there is a successful relationship between an issuer and the local entrepreneurs, then how can it be asserted? How can an issuer inspect the capability of the bidders?

Corruption risk indicators: If only one bidder is applying to a tender, then what does it mean for you? If there is a tender with a non-open procedure type, then what does it mean for you? What are the markers of a corrupt tender? And of a tender promoting the open competition among bidders?

Directed tenders: When do the issuers ‘direct’ their tenders towards certain companies? How can corruption and the public interests of the local government (i.e., the preference of a known, good-performing company) be distinguished in such cases?

Closing questions: What do you think about the general tendencies of public procurement in Hungary? Is there anything that you find importantly related to the topic that we have not discussed during our conversation?

⁸⁰ The English translation is presented here as the interviews were conducted in Hungarian.

Interview guide for respondents related to the winners of public tenders⁸¹

Introduction, warming up: Please tell me a few words about the last tender you were involved in. How did your organization apply? How was the evaluation of the bids? Are you satisfied with the outcome?

Preparation for a tender: Which are the main steps of the application to a public tender? Which are the main features of a tender? Which are the characteristics that make it harder or easier to apply? Which are the main difficulties during the application? What are the differences between the public and private tenders?

Relationships with the issuers: How can the issuers and bidders communicate, and negotiate with each other before, during and after a tender? If an issuer has preferences concerning its partners, then how can it assert them? How can a company convince an issuer about its capability? If there is a successful relationship between an issuer and a company, then how can it be asserted?

Corruption risk indicators: If only one bidder is applying to a tender, then what does it mean for you? If there is a tender with a non-open procedure type, then what does it mean for you? What are the markers of a corrupt tender? And of a tender promoting the open competition among bidders?

Directed tenders: When do the issuers ‘direct’ their tenders towards certain companies? How can corruption and the public interests of the local government (i.e., the preference of a known, good-performing company) be distinguished in such cases?

Closing questions: What do you think about the general tendencies of public procurement in Hungary? Is there anything that you find importantly related to the topic that we have not discussed during our conversation?

⁸¹ The English translation is presented here as the interviews were conducted in Hungarian.

List of publications connected to the topic of the dissertation

Papers

Tóth, I. J. and Hajdu, M. (2016) 'Korrupciós kockázatok, átláthatóság, közbeszerzések – Magyar közbeszerzések 2009-2015 közötti adatainak elemzése', in Kolosi, T. and Tóth, I. G. (eds) *Társadalmi Riport* 2016. Budapest: TÁRKI, pp. 33–53. Available at: <http://www.tarki.hu/hu/publications/SR/2016/02toth-hajdu.pdf>.

Tóth, I. J. and Hajdu, M. (2017) 'Haveri kapitalizmus Magyarországon a kommunikációs szolgáltatások piacán', in Boda, Z. and Szabó, A. (eds) *Trendek a magyar politikában 2. A Fidesz és a többiek: pártok, mozgalmak, politikák*. Budapest: Napvilág Kiadó, pp. 344–371.

Hajdu, M., Pápay, B., Szántó, Z. and Tóth, I. J. (2018a) 'A korrupció sajtómegjelenése nemzetközi összehasonlításban', *Magyar Tudomány*, 179, pp. 496–506. doi: 10.1556/2065.179.2018.4.5.

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Tóth, I. J. and Hajdu, M. (2021) 'Corruption, Institutions and Convergence', in Landesmann, M. and Székely, I. P. (eds) *Does EU Membership Facilitate Convergence? The Experience of the EU's Eastern Enlargement - Volume II*. Cham: Palgrave Macmillan, pp. 195–248. doi: <https://doi.org/10.1007/978-3-030-57702-5>.

Tóth, I. J. and Hajdu, M. (2022) 'Cronyism in the Orbán Regime: An Empirical Analysis of Public Tenders, 2005–2021', in Csanádi, M. et al. (eds) *Dynamics of an Authoritarian System: Hungary, 2010-2021*. Budapest: Central European University Press, pp. 230–274. doi: <https://doi.org/10.7829/j.ctv2cw0s7k.9>.

Conference presentations

Tóth, I. J. and Hajdu, M. (2018) ‘Cronyism in Hungary: Empirical analysis of public tenders 2010-2016’, at the conference to celebrate János Kornai’s 90th birthday, Corvinus University of Budapest, 20-22 February 2018. <https://www.kornai-janos.hu/Kornai90-Febr21-22-conference-program.pdf>

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