Corruption manual for beginners

"Corruption techniques" in public procurement with examples from Hungary

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Abstract

This paper develops 30 novel quantitative indicators of grand corruption that operationalize 20 distinct techniques of corruption in the context of public procurement. Each indicator rests on a thorough qualitative understanding of rent extraction from public contracts by corrupt networks as evidenced by academic literature, interviews and media content analysis. Feasibility and usefulness of the proposed indicators are demonstrated using micro-level public procurement data from Hungary in 2009-2012. While the prime value of this broad set of indicators is the possibility of combining them into a robust composite indicator of high-level corruption, the high degree of detail also reveals that many regulatory interventions have succeeded in changing the form of corruption, but not its overall incidence.

Keywords: public procurement, grand corruption, corruption technique, corruption indicators, micro data analysis

JEL classification: C81, D72, D73, H57

Korrupciós kézikönyv kezdőknek
Korrupciós technikák a közbeszerzésben
– magyar példákkal

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Összefoglaló

A tanulmány harminc új kvantitatív korrupciós indikátorra tesz javaslatot, melyek húsz különböző korrupciós technikát operacionalizálnak. Ezek segítségével a közbeszerzésekben érvényesülő ún. nagy korrupciót (grand corruption) lehet megfigyelni és kvantitatívan elemezni. Az összes általunk kifejlesztett indikátor a közbeszerzésekben előforduló és a korrupt szereplők hálózatán keresztül megvalósuló járadékvadászat kvalitatív leírásán alapul. A kvalitatív információkat résztvevőkkel készített interjúkból, a vonatkozó szakirodalomból és a magyar média tartalomelemzésből nyertük. Az általunk javasolt korrupciós indikátorok alkalmazhatóságát és hasznosságát a magyar közbeszerzések 2009–2012 közötti mikroadatain mutatjuk be. Az indikátorok legnagyobb hozadéka egy olyan kompozit indikátor kialakításának a lehetősége, amely kvantitatív eszközökkel képes mérni a korrupció kockázatát a közbeszerzések területén. Emellett az egyedi, a szereplők magatartására vonatkozó korrupciós indikátorok olyan magatartási jellemzőket is feltárnak, amelyek a korrupció változatosságáról és a szabályozáshoz való alkalmazkodásáról tudósítanak.

Tárgyszavak: közbeszerzés, nagy korrupció, korrupciós technikák, korrupciós indikátorok, kvantitatív elemzés

JEL kód: C81, D72, D73, H57

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1. Introduction

While there have been recent advances in measuring and understanding petty or low-level corruption (e.g. Charron, Lapuente, and Rothstein 2013; Rose and Peiffer 2012), research into grand or high-level corruption[1] has remained underdeveloped in the last decades. This is in large part due to the lack of data. In order to advance research as well as evidence based policy, reliable indicators are needed to gauge the structure and the magnitude of grand corruption. Data based on perceptions and formal institutional structures are plentiful, but these have not proven particularly useful in unearthing the mechanisms creating and sustaining grand corruption. The only way forward is to understand the micro-level context of grand corruption in particular fields of government activity such as public investment, law-making, or issuing permits and licenses and to develop qualitative and quantitative indicators based on a thorough understanding of the corruption process.

Below, *technologies of grand corruption in public procurement are described and corresponding quantitative indicators are developed which directly or indirectly signal their use.* What we call corruption techniques are techniques used by corrupt actors to make their corrupt, often illegal, acts look legal and to hide their actions from the eyes of the public. For example, making competition for a public contract look fair and open whereas the winner and the contract value were already agreed before the launch of the tendering process. Each corruption technique is described in abstract terms by outlining its characteristic elements, the actors' reasons for resorting to it, the constraints on application, and some real-life examples as reported by the media, the courts, or our interviewees. The list of these techniques which is far from complete, can nevertheless be considered as novel scientific result in itself. However, the main rationale for their structured discussion is to provide solid theoretical and methodological ground for quantitative indicators of grand corruption. These techniques can be considered as the input side of the public procurement corruption process where the output side is the collection of rents by the 'right'[2] organisations and individuals. We intend to define the list of indicators as comprehensively as possible because techniques can be used interchangeably and in combination making the measurement quality of overall corrupt activities ultimately dependent on the adequacy of this list.

Corruption techniques are grouped by referring to the different stages of the public procurement process (see section 2.2) in order to highlight the interdependencies between them and to emphasize the process, flow character of such corruption instead of a static

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[1] Grand corruption (or state capture) refers to societal actors' institutionalized and particularistic influence over public rule formation or policy implementation through private payments or favours.

[2] Throughout this paper, the terms 'right', 'desired', or 'wanted' organisation refers to those organisations who form part of corrupt networks and are deliberately benefiting from corrupt rent allocation. A prime example is a company owned by the cousin of the mayor winning procurement contracts from the municipality in question.

understanding. It is important to keep in mind that grand corruption is institutionalized, recurrent, and mobilizes considerable collective resources so *elementary techniques must be seen as parts of a larger corrupt process*. Each corruption technique involves violation of principles of good public procurement in order to achieve corrupt benefits even if narrowly defined laws and regulations are not infringed upon. While there are many possible errors and deviations from good public procurement principles (European Court of Auditors 2012), what makes the below corruption techniques intertwined with grand corruption is that they are *typically* used by corrupt *groups* to hide and legalize their actions. That is, the below list only contains those techniques which are *reportedly* employed by such groups as described by the media, courts, academic literature, and interviewees in Hungary. Hence, techniques and actions which may simply result from administrative error and incompetence are not discussed in this section as they cannot be reliably linked to grand corruption.

When defining individual techniques we followed the simple rule that each of them should be able to lead to corrupt rent extraction on its own if applied skilfully. This enabled us to identify the elementary building blocks of more complex corrupt strategies whose exact composition changes over time as regulation changes. Moreover, in practice, elementary techniques are typically combined with each other and various degrees of complementarities and substitutions exist among them (e.g. once all the 'unwanted' bidders are excluded on administrative grounds there is no need for subjectively applying award criteria to 'unwanted' bidders).

The below listed techniques are explained from the viewpoint of tender issuers which, nevertheless, does not indicate that it has to be the issuer who initiates the corrupt transaction or that the issuer possesses all or most of the knowledge necessary for managing the corrupt transaction. Taking the perspective of the issuer simply acknowledges the fact that it is the issuer who, at the end of the day, has to formally manage the process of public procurement. Interviews indicated that the initiation of the corrupt exchange or de facto management may very well be done by a powerful and well-connected company or a politically supported public procurement adviser. For example, the head of public procurement department of a major construction company reported: "I wrote the full tender documentation myself which was subsequently sent out to all bidders.".

As we look at grand corruption and state capture primarily as resulting from collusion between some public and private actors, only those techniques of corruption are discussed below which involve or require the deliberate collaboration of the issuer, even though it may well be that multiple bidders take part in the corrupt transaction (e.g. the politically connected winning bidder pays off 2-3 other companies to mimic competition). By implication, cartels and likes involving bidders only are not part of the discussion.

In order to identify as complete and reliable list of corruption techniques as possible a number of data collection methods were used in Hungary:

- the small body of academic literature was screened, including secondary analysis of interviews done by other researchers,
- a review of media reports of concrete corruption cases was conducted,
- original interviews were carried out with public procurement practitioners who have seen corrupt transactions close up, and
- some court cases relating to public procurement corruption were reviewed.

First, we reviewed the small body of directly relevant academic literature of the last 10 years looking at corruption involving public procurement in Hungary and international research papers specifically looking at public procurement corruption. This literature collected data by interviews, surveys and media reviews; in addition, a few papers made use of administrative data and court cases. As the literature is small, standard keyword searches yielded very few documents, hence our search strategy largely relied on exploring the bibliographic network of key publications. The literature review combined with our own ideas spawned the initial list and definitions of corruption techniques further refined by additional data collection.

Second, the review of media reports covered all major online newspapers of Hungary such as www.index.hu, www.origo.hu, www.fn.hu, www.mno.hu, http://vg.hu, http://hetivalasz.hu, www.nol.hu, http://hvg.hu, and www.hir24.hu which together cover the whole political spectrum from the left to the right. Many of these have a print edition too, but our review was constrained to the online material which is mostly equivalent or even more extensive than the print version. The time period of systematic analysis was between 1/1/2008 and 1/8/2012[3], but further articles are also included from later dates if they were brought to our attention. Due to technical issues with newspaper archives there was some random variation in the completeness of our sample, that is some months are missing from the sample. However, this doesn't weaken the analysis as the goal is to find examples rather than establish the prevalence of certain techniques in the press. Among all the articles of these online newspapers, we initially selected those that contained any keywords associated with corruption (concrete list of keywords can be found in Appendix A). In a second step, from this large sample of articles, we identified those which discussed a corruption case in public procurement in detail (i.e. simply stating that this and this contract award was corrupt and benefited this and this individuals was not good enough for selection). In the final step, this short list of articles was checked again by the authors and were categorised according to a pre-defined initial list of corruption techniques. Based on articles describing techniques beyond

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[3] In the case of http://hvg.hu and http://vg.hu we only had the online content starting from 1/11/2010.

our initial list, new corruption techniques were defined leading to a list covering all the articles in the sample. The results of the media review can be found in Appendix A.

Third, interviews with public procurement practitioners 'close' to corrupt transactions were carried out to explore the underlying rationale of each corruption technique, gather specific examples (without concrete names), verify whether the techniques are typically used in corrupt transactions, and to identify additional corruption techniques. We conducted semi-structured interviews lasting for about 1-1.5 hours with 14 individuals covering all three major actor categories of public procurement (issuers, bidders, and advisors). They work in construction, healthcare, and IT services sectors taking part in projects ranging from large infrastructure projects of millions of EUR to small services contracts of few thousand EUR. In all but one case, the interviewees either referred to concrete cases they saw from 'close' or described the suitability of a corruption technique in general to reach corrupt goals based on their experience. Given the sensitive nature of the topic, interviewees avoided explicitly mentioning names of individuals or companies. The interview evidence formed the basis on which the final list of corruption techniques was further refined.

Finally, there have been about 600-700 convictions per year by Hungarian courts on the basis of corruption charges between 1990 and 2009[4] and more than 1500 Hungarian court decisions mentioning "public procurement" since 2005[5]. While we could already obtain the text of court decisions, it requires additional work to systematically categorize and check these cases against the below list of corruption techniques. In addition, decisions of the European Court of Justice should also be screened and analysed to cover the full spectrum of judicial review of public procurement in Hungary. We only look at the documents referring to high profile court cases that were reported by the press.

2. Principles and models of good public procurement

At the heart of grand corruption in public procurement lies the simple fact that public procurement legislation in the EU and Hungary in particular prescribes basic universalistic principles which must be violated in order to collect the corruption rents. As grand corruption may very well succeed in appearing legal according to the detailed regulations covering public contract award, it is the underlying general principles which define clearly what is corrupt and what is not.

Thus, below we outline the underlying principles of good public procurement and define a simple abstract model of procurement activities allowing for grouping of corruption

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[4] For annual figures and details of case identification see: http://www.crc.uni-corvinus.hu/download/korrupcios_buncselekmenyek_1972_2009_100428.xls
[5] http://www.birosag.hu/engine.aspx?page=anonim

techniques. Each of the corruption techniques and the corresponding indicator relates to a specific public procurement activity and an underlying principle whose breach implies corruption.

2.1 Principles of good public procurement

While there is a multitude of principles of good public procurement in the academic and policy literatures as well as in EU and national laws, there are considerable overlaps among them paving the way for a synthesis valid for the last 10 years (i.e. about 2002-2012) (Arrowsmith 2009, 2010 ch. 1. OECD 2007; Transparency International 2006). While many of the principles in the literature relate to actual outcomes of public procurement such as efficiency of spending, our focus exclusively lies in the process of public procurement in order to aid later discussions of corruption techniques employed during procurement procedures.

The principles relating to the process of public procurement directly derive from the ideas of public sector integrity and impartial government creating the link between the general discussions of corruption and state capacity and the domain of public procurement. Hence, good public procurement rests on three principles which mutually support each other:

- Transparency,
- Fair competition[6], and
- Accountability.

The principle of transparency means that information about public procurement should be readily available in a precise, reliable, and structured form for the public as a whole or its representatives (Kovacic et al. 2006; OECD 2007; Soreide 2002). Transparency should concern all the information pertaining to the public procurement process and outcomes such as general laws, regulations, judicial decisions, administrative rulings, procedures and policies on public procurement, statistics on procurement activities, and individual procedures and award decisions. While excess transparency may harm competition (e.g. disclosure of commercially sensitive information), transparency in Hungary is generally considered to be too restricted rather than too extensive (Freedom House 2012; Tóth and Márkus 2010).

The principle of fair competition means that potential bidders should have equal opportunities for participation, contract award decisions should be impartial, and that public procurement rules should be applied equally to all contractors (Arrowsmith 2009). That is, fair competition implies a level playing field for every potential and actual competitor. In general, decision making procedures should be rule-bound whereby every rule is transparently

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[6] Even though fair competition also applies to the absence of collusion among bidders, this aspect is deliberately left aside in order to concentrate attention to corruption and the private-public nexus. There is evidence that corruption and collusion tend to go together, even though they are distinct phenomena (OECD 2010a).

accessible to potential and actual bidders. Naturally, bidders may be treated differently if reasonable justification for such treatment is specified prior to the procedure. However, this discretion should also be exercised in an accountable manner.

The principle of accountability means that issuing authorities and their officers, public procurement advisors, and bidder companies and their employees should be held accountable for their actions according to their pre-defined duties and tasks (European Bank for Reconstruction and Development 2011; Transparency International 2006). Accountability primarily refers to 1) effective mechanisms and capacity for internal control and audit; and 2) effective mechanisms for filing complaints and challenging public procurement decisions. Accountability is also essential for ensuring fair competition. As accountability mechanisms are typically very costly both for the state and the bidding companies, balance between costs and benefits of accountability systems must be struck.

Grand corruption in public procurement, therefore, implies that some or all of these principles are systematically and recurrently breached in the conduct of procurement by some actors in order to obtain unfair benefits in competition and contracting (e.g. higher than market price).

The above should make it clear that the definition of grand corruption employed here may or may not imply breaking any laws as defined by Hungarian courts and law-makers. While at the level of principles our definition and the legal definition perfectly matches, actions deemed corrupt according to our definition may seem completely lawful in light of the detailed prescriptions of public procurement and related laws. For a transaction to be deemed corrupt here, neither bribery nor coercion is a necessary condition (Jancsics and Jávor 2012; Szántó and Tóth 2008).

2.2 Standard model of public procurement

The standard model of public procurement enumerates the major actors and defines the key phases of the process in order to allow for a structured discussion of corruption techniques.
Public procurement requires interaction among three major actors while there is a range of external actors intervening under some circumstances (Transparency International 2006). The three actors internal to the public procurement process are 1) issuers of tender, 2) public procurement advisors or brokers, and 3) bidder companies. There are external actors within the state such as 4) politicians who can also take on senior civil service positions; and 5) review bodies such as courts, state audit institutions, and competition agencies. The external actors outside the state are the 6) media and 7) the civil society.

The academic and policy literature identifies four major phases of the public procurement process spanning from the identification of organisational need up until the

implementation and conclusion of the contract (Byatt 2001; Piga 2011; Thai 2009; Transparency International 2006; Várday 2005).

1. Needs assessment;
2. Process design and document preparation;
3. Tender evaluation and award decision; and
4. Contract implementation and management.

The needs assessment phase involves determining the object and quantity of the procurement task in line with the organisation's needs. The process design and document preparation phase translates the decisions of the previous phase into the specific context of public procurement according to national laws and the organisation's own regulations (e.g. drafting the text of call for tenders). During the tender evaluation and award decision phase the bids are assessed according to the pre-defined criteria and contract is concluded with the winning bidder. The contract implementation phase encompasses all the activities which relate to managing and monitoring the implementation of the contract and its modifications.

The main decision points and steps of the public procurement process are highlighted in Figure 1 together with indications of officially available data in Hungary. The figure makes it clear that the only phase where there is no official data in the Public Procurement Bulletin is the needs assessment phase. Hence, our indicators won't cover these, quite important, aspects of public procurement, for example corruption may arise during planning a road construction project which otherwise is lawfully executed when the road unfairly benefits some who happen to own land along the planned path (Tanzi and Davoodi 1997). While, corruption techniques can be mapped on to each step of the public procurement process (see section 4), it is suggested that they are typically used in concert to achieve the desired particularistic decision highlighting the important difference between official steps and procedures and informal decisions and power relations.

Figure 1.

A simplified model of the public procurement process
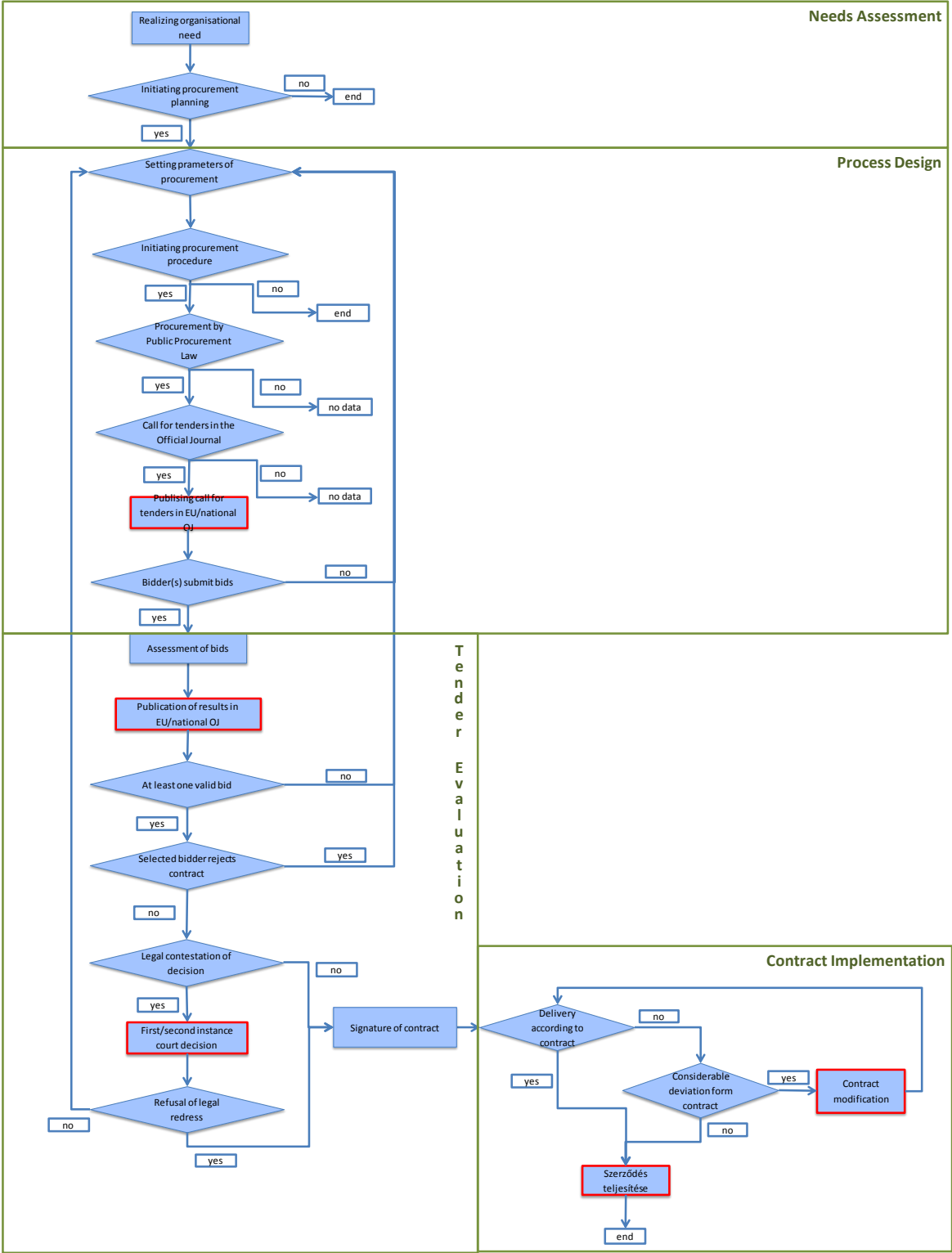
Note: The rectangles mark those steps of the public procurement process which do not require decisions of the actor while the rhombuses mark those steps which require decisions. The red framing of some rectangles indicate that data is available from official sources in Hungary.

3. The data

The database used for developing the quantitative indicators corresponding to individual corruption techniques derive from Hungarian public procurement announcements from between 2009-2012 (e.g. individual contracts, calls for tender, court rulings on the decisions) (this database is referred to as PP henceforth).The data represent a complete database of all public procurement procedures conducted under national Public Procurement Law in Hungary. As already highlighted in Figure 1, among the different steps of any public procurement procedure there is a legal obligation to publish i) call for tender in most cases, ii) contract awards in every case, iii) modification of contract in every case, iv) completion of contract in most cases (the obligation ceased as of 1/1/2012), v) results of legal proceedings in every case (e.g. court decisions regarding contract awards), and vi) errors and corrections of previous announcements in every instance. Our database contains most of the variables regularly appearing as required by law in each of these announcements such as the name and address of the winner company or the contract value.

The place of publication of these documents is the Public Procurement Bulletin which appears on a weekly basis and is accessible online[7]. For this publication, the Hungarian Public Procurement Authority maintains a homepage where online announcements appear and a database supporting publication. Unfortunately, the Authority was unwilling to share its data with us (and it has also been unwilling to share its data with other key public institutions such as the Hungarian Competition Authority as our interview evidence indicates). By implication, we downloaded all the announcements available online mainly in html sometimes in pdf format. Then these texts became the source of our structured database which contains variables with clear meaning and well-defined categories. As the original texts available online and most likely the underlying database of the Hungarian Public Procurement Authority contain a range of errors, inconsistencies, and omissions we applied several correction measures to arrive at a database sufficient quality for quantitative analysis (detailed account of data cleaning procedures can be found in Hungarian in Fazekas & Tóth (2012a) and in English with somewhat less detail in Fazekas & Tóth (2012b)).

A major limitation of our database is that it only contains information on public procurement cases under the Hungarian Public Procurement Law as there is no central depository of other contracts. This law defines minimum estimated contract value for its application depending on the type of announcing body and kind of products or services to be procured (for example, from 1 January 2012, classical issuers have to follow the national regulations if they procure services for more than 8 million HUF or 27 thousand EUR). Some public organisations can be rather resourceful in circumventing the law if they find it in their

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[7] See: http://www.kozbeszerzes.hu/nid/KE (in Hungarian)

interest (e.g. slicing up contracts so that the parts are under the threshold, or resorting to special exemptions). This is indicated by, for example, the gap between the OECD's estimation of public procurement in Hungary based on aggregate budget data: 20% of the GDP (2008)[8] (OECD 2011) and the amount of public procurement carried out under the Public Procurement Law: 7% (2008) (Hungarian Public Procurement Authority 2009).

Having data only on larger and more heavily regulated public procurement results is an obviously biased sample of all public procurement contracts. Larger contracts are rarer events than the rest of public contracting which limits the quantitative scope of our analysis. They are also more demanding administratively not only simply due to their sheer size, but also because of stricter regulations. Most importantly, procedures carried out under the Public Procurement Law are heavily regulated in terms of transparency (e.g. format and organ of announcements) and fairness (e.g. nature of award criteria or time available for tendering). While these regulations may well be flawed in a range of ways they definitely increase the cost of corruption. Moreover, larger contracts imply larger potential benefits from corruption. Hence, our sample of all public contracts is biased towards more costly and more high stakes corruption which indicates that any analysis of such data can be indicative only of grand corruption and state capture rather than petty corruption.

Contract award notices represent the most important part of a procedure's life-cycle. For each procedure under the Hungarian Public Procurement Law, at least the contract award announcement has to be published. Thus, we show some elementary statistics relating to contract awards in order to provide an overview of the data. Out of the 84085 awarded contracts announced in the Hungarian Public Procurement Bulleting throughout 2009-2012 only 53272 were analysed in most calculations due to five distinctive, but sometimes overlapping reasons (Table 1):[9]

1. Repetitions,
2. Corrections,
3. Unsuccessfulness,
4. Cancellations, and
5. Framework contracts.

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[8] Even though it must be noted that the OECD's estimation is an upper bound estimate.

[9] In fact, we should extend our data with one sample referring to centralised procurement whereby issuers don't procure on their own rather through a centralised body. Unfortunately, we don't yet have detailed data on who bought what and how much from this central public procurement body. For the moment, we account for centralised procurement as one other issuer without knowing the details of the flows of goods and services between individual issuers and the central body. Data acquisition is in progress.

First, Hungarian announcements above the EU threshold have to be published both at the Journal of the European Union (TED) and the Hungarian Public Procurement Bulletin. However, for reasons unknown to the authors, the announcements appearing in TED also appear according to a special format in the Hungarian Public Procurement Bulletin. This leads to duplication of announcements with only slightly different information content (e.g. announcements in TED don't contain the names of bidders who lost, whereas notices in the Hungarian Public Procurement Bulletin do). In order to avoid double counting and retain maximum possible information content we excluded all the contract award notices appearing originally in TED and reappearing at the Hungarian Public Procurement Bulleting too. Second, those announcements which were later corrected by a full, repeated announcement were also excluded from our sample for most analyses.[10] More work is needed on this aspect as corrections are not referenced in a standardised fashion in many cases. Third, those announcements or parts of announcements which were contract award notices, but awarded no contract were also excluded. Unsuccessfulness or invalidity are explicitly marked in the announcements; however, as there was no name of winner in a great number of announcements, it is unclear if these are actually invalid announcements or data is simply missing. As crucial information is often missing, we did not exclude these notices. Fourth, cancellations refer to those announcements which were announced as valid and correct, however, subsequently had to be withdrawn or modified due to court decisions or withdrawal of the winner. Finally, framework contracts are awarded in two stages whereby winning the contract at the first stage only implies the possibility of bidding for contracts within the framework leading to actual work and payments. Hence, contract awards referring to the first stage of framework contracts are excluded in order to avoid double counting contract values.

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[10] As many corrections don't appear completely anew, rather a specific correction is published that explains which parts of the original announcement were wrong and what the correct information is, we inputed the correct data to the corrected announcements. This introduces a slight bias to our sample as correct information appears to be available in our data earlier than it was in fact for the public. As this only concerns 132 contract award announcements, we consider this to be of relatively minor importance (there are additional corrections for other types of announcements which we still need to take into account).

Table 1.

Main statistics of the analysed data – contracts

	2009	2010	2011	2012	**Total**
Estimated number of procedures observed	9051	12861	10599	9319	**41830**
Total number of contracts observed	21130	28630	17443	16882	**84085**
Total number of repeated contracts	6932	5626	995	4786	**18339**
Total number of corrected contracts*	4	81	43	0	**128**
Total number of unsuccessful contracts	2137	3767	1766	1740	**9410**
Total number of cancelled contracts	1193	1831	331	314	**3669**
Total number of framework contracts	984	608	317	888	**2797**
Total number of non-repeated, correct, valid, non-cancelled, and non-framework contracts	10982	17769	14140	10381	**53272**
Combined value of non-repeated, correct, valid, non-cancelled, and non-framework contracts (million EUR) **	4490	3527	1993	1295	**11305**

Source: PP

Notes: *=the number of corrected contracts may further increase as additional search procedures are completed; ** = a 300 HUR/EUR uniform exchange rate was applied for exchanging HUF values.

4. "Technologies" of corruption

This section discusses each corruption technique and the corresponding indicators (note that some indicators relate to multiple techniques). Discussion follows a simple structure in each case: underlying rationale for using the technique, the principle of good public procurement breached, control mechanisms, some real-life examples, and indicators. Techniques are grouped according to the four major phases of the public procurement process (process design and document preparation are put under different headings in order to avoid any single heading containing too many techniques).

Indicators are formulated in a way that they are as closely associated with the underlying corruption technique as possible. However, there are complex non-linearities in the relationship between corruption and procurement characteristics so in many cases further refinement will be necessary through linking indicators to each other and potentially corrupt outcomes.

As the present discussion takes the viewpoint of tender issuers, the indicators primarily aim at capturing organisational behaviour (i.e. choices made by individual organisations) rather than meso- to macro level influences such as complexity of technology or investment projects of particular markets. Hence, in cases where strong market-level influences are suspected (e.g. complexity of technology is likely to impact heavily on complexity of eligibility criteria), the indicators are adjusted to reflect deviations from the market mean. While this focuses the indicator on organisational decisions, it also impedes cross-market comparisons. Thus, corruption risks emanating from the fact that an organisation operates on a particular

market are downplayed even though they may be powerful contributing factors to its overall corrupt behaviour.

4.1 Needs assessment and definition
T1.1   Defining unnecessary need

Issuers of tenders can choose to procure goods and services which are in fact not necessary for them or procure them in a size and quantity excessive compared to their actual needs (Heggstad and Froystad 2011; Tanzi and Davoodi 1997; Transparency International 2006). When this benefits particular supplier(s) mis-assessment of needs can serve as a corruption technique (for a US example see Goldman et al., 2012 p. 11). By arbitrarily increasing the quantity and overall price of procured goods and services (e.g. by adding unnecessary capacities), the earned corruption fee can be increased as it tends to increase with overall contract value. Hence, this technique works well with other techniques allowing for limiting competition hence making it easy to capture rents.

In principle, there is a range of control mechanisms which are intended to make this technique difficult and costly to implement. These are the reviews of the State Audit Organisation (SAO), judicial review, and public/media scrutiny. Even though there have been instances when these presented an effective barrier, control functions are very limited in general (State Audit Organisation 2008).

Prime examples of this kind of technique in Hungary come from large infrastructure projects, especially highway construction such as M7 or M6 in the recent years. In the latter case, a pan-European investigation was launched in November 2012 on charges of corruption and bribery. According to media reports these highways were constructed with additional unnecessary content such as tunnels on flat surfaces, the (in)famous viaduct of Kőröshegy which turned out to be one of CEE's largest such construct in spite of going through an only mildly hilly area. Moreover, some stories told by interviewees outline the usual approach whereby it is not the need which gets defined first, but the supply; that is, the company providing a particular service or goods and knowing about a relevant EU funding opportunity seeks an issuer to 'join-in' (Szántó and Tóth 2008).

This technique is one of those few for which no quantitative indicator is proposed at this stage of the research. Later on, case by case analysis could be conducted involving additional data collection in order to reveal excess procurement content for example by comparing procured values of issuers with comparable needs (e.g. capacity of photo-copy machines for municipalities of similar size).

T1.2 Defining need in a way to benefit a particular supplier

Issuers of tenders can choose to procure goods and services in a form or with capacities which are unnecessary for fulfilling their actual needs, but are advantageous for certain supplier(s) (Tanzi and Davoodi 1997; Transparency International 2006; World Bank 2007). If the issuer requires characteristics and capacities which can only be performed by a single supplier's goods and services, fair competition can be ruled out right from the beginning. Such requirements are most easily defined on markets where products and services have a high number of very specific characteristics such as large infrastructure construction or IT infrastructure and services. This technique largely supports other means of tailoring the public procurement process to one bidder (T2.2).

This kind of corruption is difficult to detect as knowing what is actually needed by an organisation is difficult to decipher by external control bodies (i.e. problem of information asymmetry). The Hungarian SAO regularly audits individual pubic organisations and conducts more comprehensive public procurement reviews, but these concern only a selected set of organisations over longer time periods making detection rather unlikely. Moreover, the lack of long term vision for sectors or the whole country make assessment of investment needs close to impossible as there is no solid benchmark (Báger 2011). Supporting institutions such as the Hungarian National Development Agency or the European Commission's OLAF and European Court of Auditors also conduct reviews which have the potential to detect 'tailored' procurement, but they are likely to be ineffective due to information asymmetries and narrow focus on financial compliance.

There is one direct quantitative indicator for this technique suggested by the literature (Bandiera, Prat, and Valletti 2009):

A) prevalence of avoiding centralised procurement.

Centralised procurement systems replace the multitude of local procurement processes with a few large purchases. Buying directly from the centralised procurement authority (in Hungary the Public Procurement and Supplies Bureau or Közbeszerzési és Ellátási Főigazgatóság) is likely to decrease corruption risks of local entities as they can no longer influence contract award (Bandiera, Prat, and Valletti 2009). However, this logic is crucially dependent on the quality, price, and flexibility of centrally procured provision. In an environment ridden with systemic corruption, centralised purchasing simply centralises corruption and state capture leading to low quality and/or high price provision (Piga 2011). Indeed, interview evidence suggests that, depending on the centralised procurement contract covering a specific market such as hospital stationery, or furniture, centralised procurement maybe more or less competitive than local procurement. If centralised procurement is more efficient than potential local procurement corrupt tender issuers are more likely to opt out of

the central system and conduct procurement locally. However, if the centralised contract is less competitive than the potential local ones even non-corrupt, well-governed issuers opt out. Assuming further research can reveal the relative efficiency of centralised purchasing, the adequate indicator is the following:

$$PACP_{it} = (PPV_{it} - CPPV_{it}) / PPV_{it}$$

where $PACP_{it}$ refers to the proportion of not-purchasing through centralised public procurement within total value of contracts awarded according to the Public Procurement Law by the ith unit of observation, typically public organisation, over period t, PPV_{it} denotes the total value of contracts awarded according to the Public Procurement Law by the ith unit of observation during period t, and $CPPV_{it}$ refers to the total purchasing through centralised public procurement of the ith unit of observation over period t. As centralised purchasing is not available in every product and services markets only those spending items are taken into account which could be in principle obtained through centralised spending.

Unfortunately, we are still in negotiation with the Hungarian Public Procurement and Supplies Bureau for obtaining public organisation and product specific data. Consequentially, this indicator could not be calculated here.

4.2 Process design
T2.1   Tinkering with the threshold and exceptional rules

In Hungary like in any other European country, the application of the Public Procurement Law as well as the different procedural regimes is dependent on expected contract value thresholds and a range of specific exceptions (*On the Coordination of Procedures for the Award of Public Works Contracts, Public Supply Contracts and Public Service Contracts* 2004). Application conditions such as thresholds are crucial for corruption, first, as public procurement outside the Public Procurement Law is typically less stringently regulated in terms of transparency and open competition; second, different procedural regimes prescribe different degrees of transparency and openness (OECD 2010b). For example, the open regime requires issuers to publish a call for tenders in the Public Procurement Bulletin whereas the negotiation procedure does not. Hence, bringing procedures outside the applicability of the Public Procurement Law or into a less open and competitive procedural regime under the law provides better opportunities for hiding corrupt action (Heggstad and Froystad 2011; Kenny and Musatova 2010; OECD 2007; Transparency International 2006).

Moving procedures across public procurement regimes or completely outside the remit of the Public Procurement Law can be done in three principal ways:

1. Slicing up contracts so that they fall out from the unwanted public procurement procedural regime (e.g. below the national threshold) (Papanek 2009 ch. 6; Piga 2011);

2. invoking special rules of exception such as national security or extreme urgency (OECD 2007; Schultz and Soreide 2008; Soreide 2002); and

3. underestimating expected contract value (expected contract value is the basis for mandatory regime choice).

In addition, corrupt networks capable of moving contracts across public organisations can also resort to channelling money through institutions falling outside the remit of the Public Procurement Law such as the Hungarian Development Bank (Major Dezsériné 2003; Papanek 2009 ch. 6). Due to the difficulty of detecting quantitatively this latter technique no further discussion is offered.

As conducting public procurement according to different procedural regimes also has considerable costs for the issuers (i.e. some procedures are more costly than others) smaller or poorer issuers may also try to use this technique for cost saving reasons. By implication, the use of this technique as a signal of corruption should be seen in the light of issuer size and wealth.

The choice of procedural regime or the avoidance of applying the Public Procurement Law has wide-ranging impacts on other indicators and the structure of the PP database. First, contracts outside the remit of the Public Procurement Law are not recorded in the PP database. The only trace of such purchases is in public organisations' annual budget figures from which estimates can be constructed for overall procurement (Audet 2002; European Commission 2011). Second, choice of procedural regime impacts on the availability of other corruption techniques which we discuss below: T2.6-Submission deadline and T3.2-Publication of calls for tender. While issuers' hands are tied in terms of minimum submission deadlines and mandatory publication of calls for tender if they conduct an open procedure, they are offered more choice when using other regimes. By implication, the choice of regime type determines submission deadline and call for tenders publication to some degree in an asymmetric way. Third, the procedure choice may also support the use of other corruption techniques, especially T2.2-Tailoring eligibility criteria and T2.4-Tailoring evaluation criteria. It is possible to launch a public procurement procedure as a restricted procedure where there are two phases, the first serving the pre-screening and pre-selection of eligible bidders, and the second constituting the actual decision among the shortlisted bidders. Tailoring the eligibility and evaluation criteria to the benefit of a particular bidder is made easy by the detailed knowledge of shortlisted bidders remaining after the first phase.

Both slicing contracts and invoking special rules are regulated in the Public Procurement Law, making the application of this corruption technique difficult in principle. However, in practice, detection is difficult as the contracts are moved out of the more transparent domain and determining the actual joined-up nature of two or more contracts requires intimate knowledge of the contracts as well as the issuer (Piga 2011). As with many other techniques, external control is exercised by the SAO and supporting institutions especially the National Development Agency managing most of the EU funding coming into Hungary. Early surveys of practice confirm what our interviews underlined: external control is rare and not very effective (Major Dezsériné 2003). In the case of underestimating contract value, but still remaining under the umbrella of the Public Procurement Law, deviation between estimated and actual contract value can be observed. In these cases, the Public Procurement Arbitration Board may intervene and fine issuers. However, fines are incurred by issuers, whereas corruption fees accrue to the corrupt network making the fines a potentially weak instrument.

There are wide ranging examples of circumventing the more stringent regulations of the Public Procurement Law both from Hungary and from abroad. In Hungary, it is very telling that practitioners simply call the restricted procedure ("meghívásos eljárás" in Hungarian) the "three bidder procedure" as one public procurement adviser working in the industry for over a decade put it: "just bring two friends with whom we can agree on the exact content of their bids". In Italy, a "culture of emergency" has evolved in public procurement leading to "a systematic search for the exceptionality" and a frequent use of "mechanisms of arbitrary choice in public contracting" (Soreide 2002 p. 18).

Due to the central position of this technique in relation to other techniques and the wide ranging ramifications of procedural regime choice to several aspects of public procurement, a large number of indicators are developed. We discuss three direct indicators:

A) proportion of non-open procedures;
B) average corruption risk score of procedures followed; and
C) frequency of actual contract value above estimated contract value.

We also discuss one indirect indicator:

D) ratio of contract value according to Public Procurement Law over total procurement contract value.

The frequency of using higher corruption risk procedure types signals in a simple and straightforward way the underlying corruption technique. Corruption risks indicated by the choice of procedural regime can be measured in a variety of ways. For example, a sophisticated econometric paper looking at corruption in public procurement in Paraguay uses the proportion of exceptional procedures over all other procedures (Auriol, Flochel, and Straub 2011). In order to focus our indicator on the largest differences in corruption risks the

proposed simple measure of tinkering with procedural regimes takes open procedures as a benchmark:

$$NOPR_{it} = 1 - (OPR_{it} / TNP_{it})$$

where $NOPR_{it}$ refers to the proportion of non-open procedures over all procedures concluded of the ith unit of observation such as public organisation or bidder over period t, OPR_{it} refers to the number of procedures following open procedural regime of the ith unit of observation during period t, and TNP_{it} refers to the total number of procedures concluded by the ith unit of observation over period t (Table 2).

It is possible to rank procedure types according to level of transparency and degree of openness of competition prescribed. Hence procedure types could be ranked according to their corruption risks. Averaging the corruption risk ranks of procedures concluded may serve as a more subtle indicator of corruption than simply looking at the prevalence non-open procedures. By implication, the following indicator is proposed:

$$ARPR_{it} = (\Sigma_j R_j * N_{itj}) / TNP_{it}$$

where $ARPR_{it}$ refers to the average corruption rank of procedures leading to contract award by the ith unit of observation over period t (corruption rank takes a higher value for higher corruption risk procedure types), R_j refers to the corruption rank of the jth procedure type, N_{itj} denotes the number of procedures following the jth procedure type of the ith unit of observation during period t, and TNP_{it} refers to the total number of procedures concluded by the ith unit of observation over period t.

As Table 2 indicates these two variables tell a fairly similar story with slight differences. 2010 experienced the lowest corruption risk according to these two indicators while there is a marked upward trend since then with a particularly strong increase in 2012 which at least partially reflect changes in the Public Procurement Law.

Table 2.

Mean proportion of non-open procedures and mean corruption rank of procedure types, 2009-2012

Year	Mean proportion of non-open procedures	Mean corruption rank of procedure types	N
2009	0.4220	1.0635	10982
2010	0.3259	0.9267	17769
2011	0.3673	1.1959	14140
2012	0.5733	1.2376	10372
Total	0.4049	1.0869	53263

Source: PP

The underestimation of contract value can be observed simply by comparing estimated and actual contract values. While, some issuers may have indeed made an error in calculating estimated contract value, this is likely done on purpose when the 'error' allowed to switch procedure regime as interviewees pointed out. Hence, the suggested indicator is:

$$EVSPR_{it} = NSW_{it} \, / \, TNP_{it}$$

where $EVSPR_{it}$ refers to the proportion of tenders where manipulating estimated contract value resulted in switching procedure regime within all tenders of the ith unit of observation over period t, NSW_{it} denotes the number of tenders where manipulating estimated contract value resulted in switching procedure regime of the ith unit of observation during period t, and TNT_{it} refers to the total number of tenders concluded by the ith unit of observation over period t.

While in a great number of cases, estimated contract values are missing, it is possible to explore the differences between actual and estimated contract values for over 29000 contracts throughout 2009-2012 (Figure 2). While for most contracts, actual contract value is lower or equal to estimated contract value, about 7-9% of observed contracts have a considerably higher actual than estimated contract value (we took 1 million HUF as a threshold for large enough difference). As more work is needed to precisely determine the thresholds for each observed contract, we simply took this 1 million HUF threshold as a rough indicator of potential corruption risks concerning the manipulation of estimated contract value.

Figure 2.
The scatter plot of actual (Y axis) and estimated contract values (X axis), 2009-2012, million HUF
(only contracts of less than 2 billion HUF are depicted)
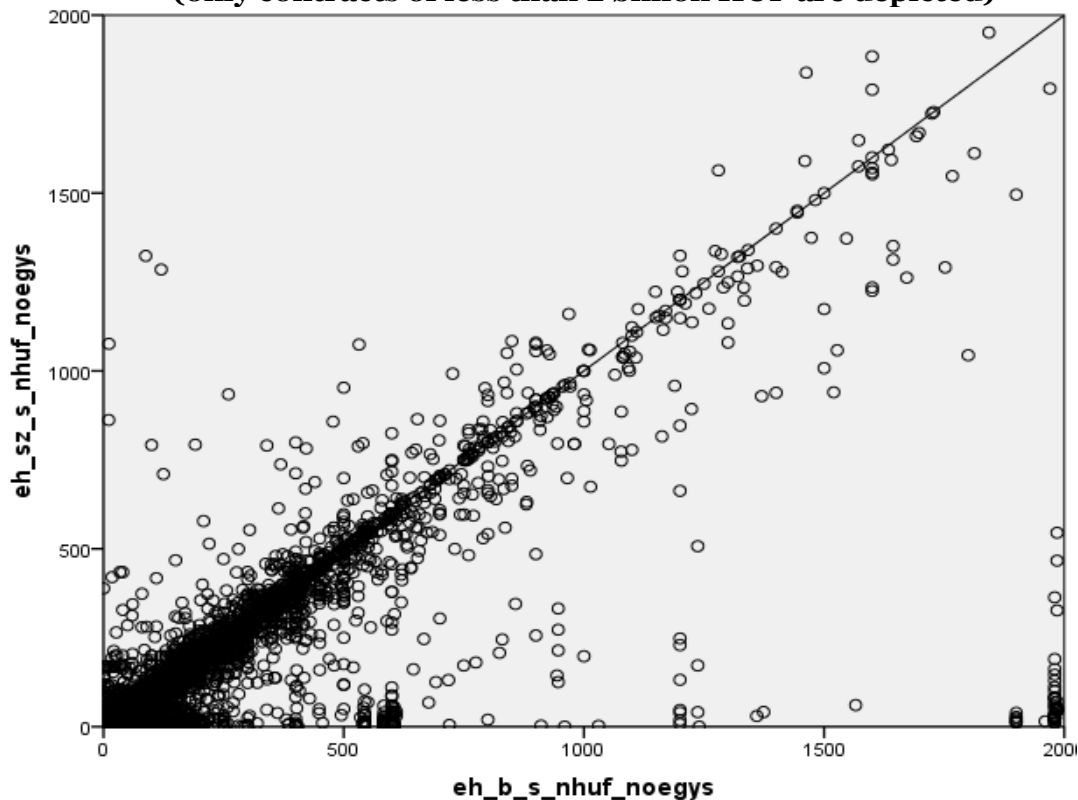
Source: PP

Even though there is no contract-level detailed data on public procurement contracts outside the remit of the Public Procurement Law, it is possible to construct an estimate of total procurement for each public organisation using annual budget figures reported to the Treasury (Audet 2002; European Commission 2011). As avoiding the transparency and competition requirements set by the Public Procurement Law can be a powerful motivating factor for corrupt actors, comparing the contracted value according to the law to the total contracted value can signal the magnitude of these corrupt efforts. As contracting outside the Public Procurement Law can result from a range of non-corrupt reasons, only large gaps between the two types of contracting may actually signal this corruption technique. Nevertheless, we propose an indicator capturing the full scale of gaps leaving validation of different parts of the scale to later multivariate analysis:

$$NPP_{it} = 1 - (PPV_{it} / TPV_{it})$$

where NPP_{it} refers to the proportion of contract value not according to the Public Procurement Law within the total procurement spending of the ith unit of observation, typically public organisation, over period t, PPV_{it} denotes the total value of contracts awarded according to the Public Procurement Law of the ith unit of observation during period t, and TPV_{it} refers to the total procurement spending of the ith unit of observation over period t. As we dispose of more detailed budget figures than previous studies (Audet 2002; European Commission 2011), we calculated total procurement as the sum of material expenses and investment expenses accrued in a given period.

Even though, we cannot yet present the full picture of the Hungarian public administration, data on central public organisations are already highly illuminating. It appears that on average close to 80% of procurement spending takes place outside the Public Procurement Law's remit throughout 2009-2011 (Figure 3). In addition, this proportion has increased from 75% In 2009 to 81% in 2011. This raises the concern that the analysis of PP data only looks at the "tip of the iceberg".

Figure 3.

**Percentage of procurement spending not according
to the Public Procurement Law, 2009-2011, N=631 issuer
(the same issuer counts as multiple observations across the years)**

Histogram
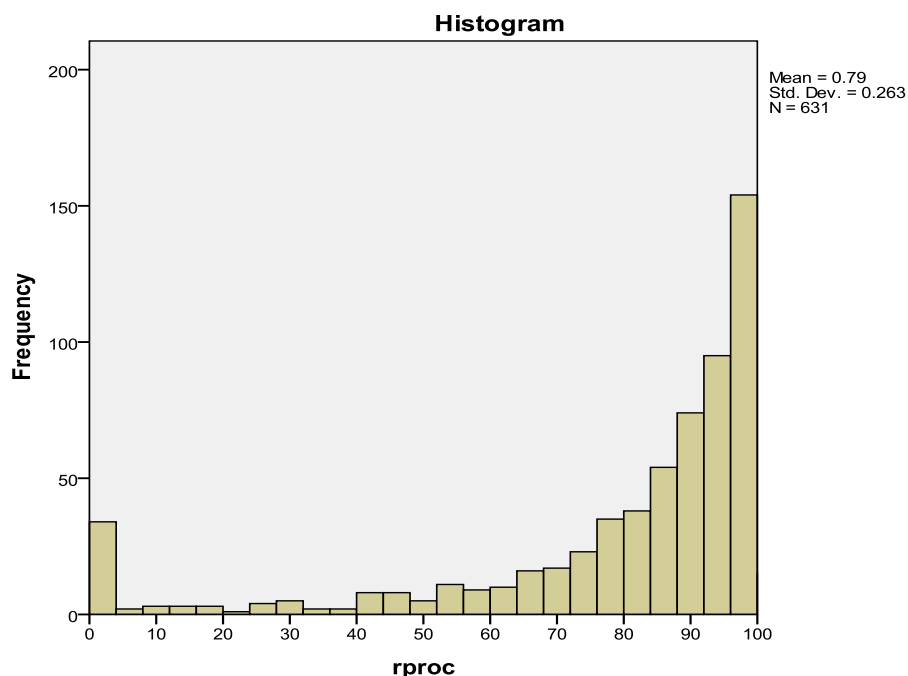
Source: PP

While there is no specific indicator developed based on the breaks in distributions of contract values around thresholds and after changes in thresholds, it is suggested that a more detailed analysis of contract value distributions could lead to additional insights as to how issuers may game the system of procedure regimes and the corresponding thresholds.

T2.2 Tailoring eligibility criteria

Eligibility criteria define which potential bidders can bid and which bids can be considered for competition. That is, both bidders and their bids should meet a set of criteria in order to be considered for a tender. Hence, tailoring eligibility criteria to exclude most or all non-wanted bidders even though they could bid given the actual object of procurement can effectively inhibit fair competition. This is by far the most widely quoted corruption technique in the Hungarian (Báger 2011; Major Dezsériné 2003; Pálinkó, Szántó, and Tóth 2008; Papanek 2009) and international literature (Goldman, So, and Rocholl 2012; Grodeland 2005, 2010; Heggstad and Froystad 2011; Piga 2011; Soreide 2006) which was confirmed by our interviewees. Tailoring can be done by

1. defining a combination of hard criteria such as prior works or annual turnover clearly excluding some companies, or

2. setting vague and subjective criteria allowing issuers to exercise discretion in a partial manner.

Once, only the desired bidder remains as eligible bidder, it can submit a price considerably above market price earning a rent (OECD 2007; Transparency International 2006). Naturally, some criteria are justified as they aid sorting out capable bidders and bids; what makes them more than simple reasonable pre-screening is their excessive amount and overly restrictive nature in the light of the procured goods and services.

Consistently differentiating reasonable and excessive criteria, i.e. limiting the applicability of this technique, is difficult and requires robust case law and uniformly applied rules. In Hungary, there are several decisions of the Public Procurement Arbitration Board on this issue; however, according to interviewees, legal uncertainty is high as the very same issue could be judged differently by different judges. Nevertheless, due to potential judicial challenge, this technique may only result in limiting the list of bidders rather than eliminating all but one. In a next step, involving other techniques, the list can be shrank further.

The most intimately linked corruption technique designed to further shrink the list of eligible bidders and bids is T2.3-abusing formal and administrative requirements. Once complicated and difficult to meet set of criteria is defined, it is relatively easy for the issuer to find at least one requirement which was not appropriately documented. This provides sufficient grounds for the issuer to exclude bidders and their bids. Furthermore, corruption technique T1.2 (defining needs to benefit a particular supplier) neatly supports this corruption technique as eligibility criteria should, in principle, follow from organisational needs and the characteristics of goods and services to be procured. Biased needs estimation makes biased criteria setting more easily defensible at court.

Interviewees in Hungary frequently shared concrete examples demonstrating the abuse of the system of references (i.e. proof of prior experience). One large construction company was excluded from a tender for building a hospital on the grounds that they had no specific experience with building a lone-standing morgue even though they had built hospitals with a morgue. As lone-standing and within hospital morgues have essentially the same technical parameters this criteria was likely used to exclude unwanted bidders. The respondent knew which 3 companies had specific experience with building lone-standing morgues. Other suspicious eligibility criteria made it clear to this company that the process was 'set-up' right from the beginning.

Other frequently quoted examples relate to detailed financial criteria (financial information on large companies is public so it is easy to tailor criteria to the detriment of unwanted bidders). A public procurement advisor gave an example: "During a public car purchase procedure, the company was excluded because there was a condition specified requiring bidders to have higher own capital than subscribed capital. The company couldn't

meet this criterion due to an ongoing investment (subscribed capital: 125 billion HUF, own capital: 124.7 billion HUF). Instead an XY 'phantom' company[11] won the tender." (Papanek 2009 p. 239).

There is one direct indicator associated with this corruption technique:

A) length of eligibility criteria.

Length and complexity of eligibility criteria both for bidders and bids provides a crude measure of the use of this technique especially when taking into consideration the size of the contract too (i.e. bigger contracts may require more lengthy and complex system of criteria for valid reasons). As looking at the use of specific 'suspicious' criteria was not made possible by our limited understanding and diverse nature of these 'suspicious' criteria[12], we propose the following crude measure:

$$ADLEC_{it} = \Sigma_{jk} \left(LEC_{itjk} - ALEC_k \right) / N_{it}$$

where $ADLEC_{it}$ denotes the average difference in the length of eligibility criteria between the call for tenders of the ith unit of observation such as issuer over period t and the average length at the kth market over period t, LEC_{itjk} refers to length of eligibility criteria of the jth call for tenders of ith unit of observation belonging to the kth market during period t, $ALEC_k$ denotes the average length of eligibility criteria during the whole observation period for the kth market, and N_{it} refers to the number of calls for tenders of ith unit of observation during period t. Public procurement markets are taken as reference groups recognising that more lengthy and complex criteria is justified for specific markets. Unfortunately, if a market is dominated by excessively complicated and lengthy eligibility criteria due to the large number of corrupt procedures this normalisation will lead to an underestimation of corruption risks. Length of criteria is simply measured as the number of characters used.

The average length of eligibility criteria in each public procurement market as defined by CPV[13] main divisions varied between 4400 characters in the market of printed matter and related products (CPV division 22) to 9700 characters in the market of Services related to the oil and gas industry (CPV division 76). These differences probably reflect the variation in the complexity of these markets and potentially the differences in average contract size too. The deviation from the market average follows a somewhat skewed distribution (Figure 4). Even though the deviation from the market averages is weakly correlated with contract size (r^2=0.28) indicating that contract size may play role in the complexity of criteria, a version of

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[11] Phantom company in ordinary Hungarian language (fantomcég) typically refers to a company created specifically for corrupt or tax evasion purposes having very little economic activity other than related to rent extraction.

[12] More work is under way to develop better direct measure of complexity and restrictiveness as the complete text of criteria is available to us for every call for tenders. We will combine additional interview examples of frequently used 'suspicious' criteria and text mining methods.

[13] CPV=Common Procurement Vocabulary. For more info see: http://simap.europa.eu/codes-and-nomenclatures/codes-cpv/codes-cpv_en.htm

this indicator based on deviations from market and contract size group averages carries little extra information (the two versions are highly correlated r²=0.97).

Average difference in the length of eligibility criteria between the call for tenders and its market mean, number of characters, 2009-2012

Histogram

Mean = -32.97
Std. Dev. = 3196.018
N = 25,612
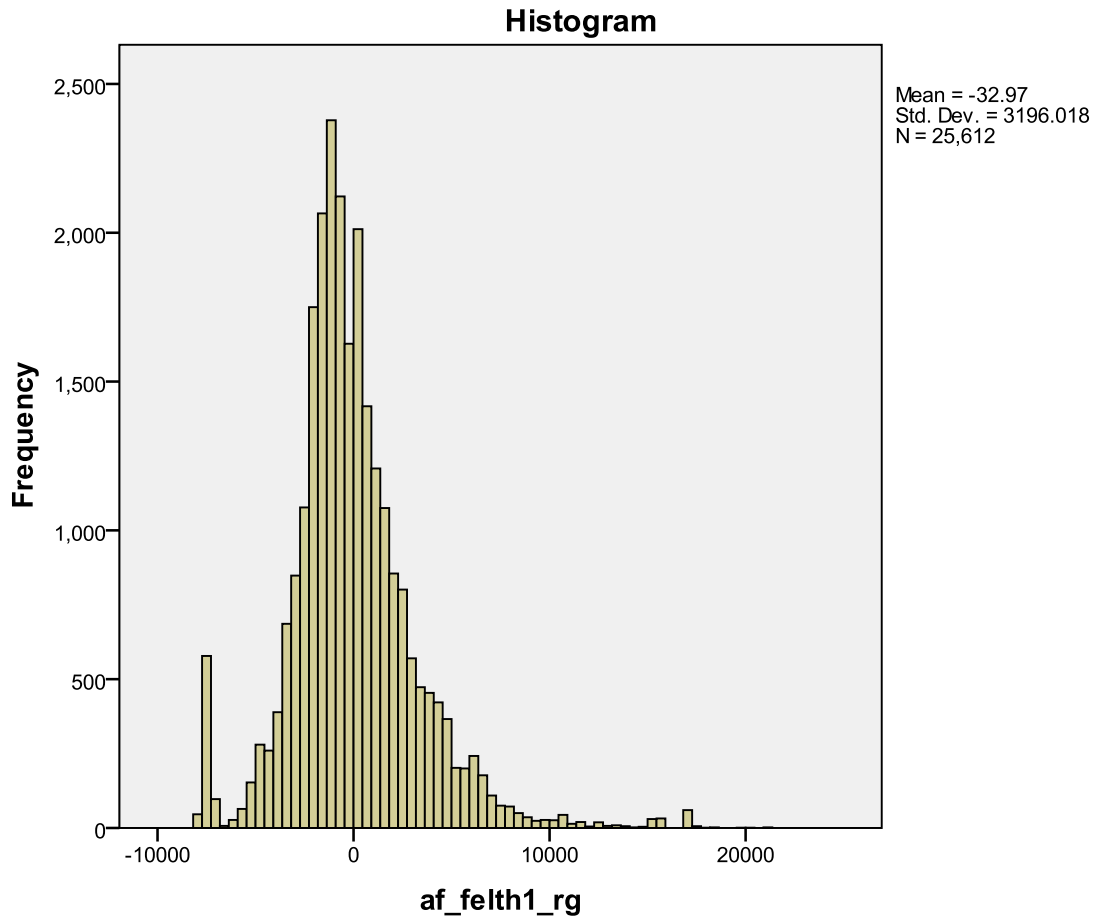
Source: PP

T2.3   Abusing formal and administrative requirements

Public procurement bids easily encompass several hundred pages of documentation especially in case of large tenders. Each bid has to comply with formal and administrative requirements such as the format of the budget or the provision of original documents from public bodies (e.g. registration at the court registry). While these requirements are desirable in general, their large number and complexity provide ample opportunities for abuse. According to our interviews as well as the international literature, it is practically always possible to find a formal or administrative error which provides grounds for excluding the bid from competition (Báger 2011; Grodeland 2005; Papanek 2009; Transparency International 2006). Hence, this corruption technique abuses minor technical errors to serve the interests of corrupt networks by allowing them to limit competition to their preferred bidders. Excluding bids on formal and

administrative grounds is a legitimate activity, but it becomes cause for suspicion once it becomes excessive, inconsistently applied, and regularly leads to only one remaining bid.

In principle, the prescribed opportunity for bidders to correct such errors after submitting their bids limit the applicability of this technique. However, in Hungary, the procedure of requesting and submitting corrections is largely unregulated. This means that corrupt issuers comply with the law only formally, but not substantially: as a public procurement advisor working in the construction industry for over a decade put it: "it is easy, you request on Friday 13 o'clock the original copy of any minor document bearing a public agency's stamp on it to be submitted by Monday 10h. It all looks fine, you left three days for correction, but in fact you made it impossible." Another surprising sign of the frequency of this technique is that one of its specific versions acquired its own expression in public procurement 'slang': "exhaustion technique". According to a Public Procurement Lawyer active in a range of sectors for several years this term means that "unwanted bidders are requested to submit corrections in several turns until they finally understand that there is no point in trying, they won't ever win the contract they bid for."[14] According to our interviews, it seems that this technique is one of the new 'hype' techniques in Hungary due to the ease of its applicability (i.e. lack of regulation).

A concrete example quoted by one interviewee concerned a procurement procedure for a garden reconstruction project where the company was excluded on the grounds that its submitted budget was not *complete*. It was deemed incomplete because the price of grass seed was not explicitly highlighted as a separate line in the proposed budget even though it was included in the total budget for lawn installation costs. Challenging this decision at the Public Procurement Arbitration Board did not change the situation either in spite of prior court decisions annulling the decision of issuers in analogous situations.

This technique is closely related to technique T2.2-tailoring eligibility criteria as both stem from the complexity and length of the defined eligibility criteria. Moreover, this technique neatly works together with other techniques aiming at reducing competition. For example, tailoring needs and eligibility criteria could get the number of bidders down to 3-5 while formal and administrative reasons could remove the remaining unwanted bidders from the competition. If this would not lead to only one bidder, manipulation of evaluation criteria could still leave ample room for discretionary choice of preferred bidder.

Due to the close association between this and the previous techniques (T2.2), one proposed indicator is the same for them. There are two direct measures:

A) proportion of excluded bids, and

B) length of eligibility criteria.

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[14] The „exhaustion technique" sometimes also includes periods of Public Procurement Arbitration Board intervention once again with the same message to unwanted bidders: give it up, no matter how hard you try, in the end we will find the right legal form for excluding you.

The proportion of valid bids within all received bids can be considered as a direct measure of this corruption technique as it allows for directly gauging how excessively certain issuers or on certain markets exclusions of received bids is exercised. Hence, the proposed indicator is

$$PERB_{it} = (NRB_{it} - NVB_{it}) / NRB_{it}$$

where $PERB_{it}$ refers to the proportion of excluded bids over all received bids of the ith unit of observation (typically public organisation) over period t, NRB_{it} refers to the total number of received bids by the ith unit of observation over period t, and NVB_{it} denotes the total number of valid bids of the ith unit of observation during period t.

The distribution of contract award notices according to the percentage of excluded bids displays particular spikes at 33%, 50% and 66% which reflect the most typical situations whereby one out of three, one out of two, and two out of three received bids are excluded (Figure 5). Overall, 83% of all contract award notices exclude no bidder and about 5% of them exclude all the bidders. This measure may not adequately reflect reality as recording valid bids is not sufficiently standardized in contract award announcements.[15]

Figure 5.
Percentage of excluded bids, 2009-2011 (restricted sample: those contract award notes which excluded at least one bidder, but not all of them)
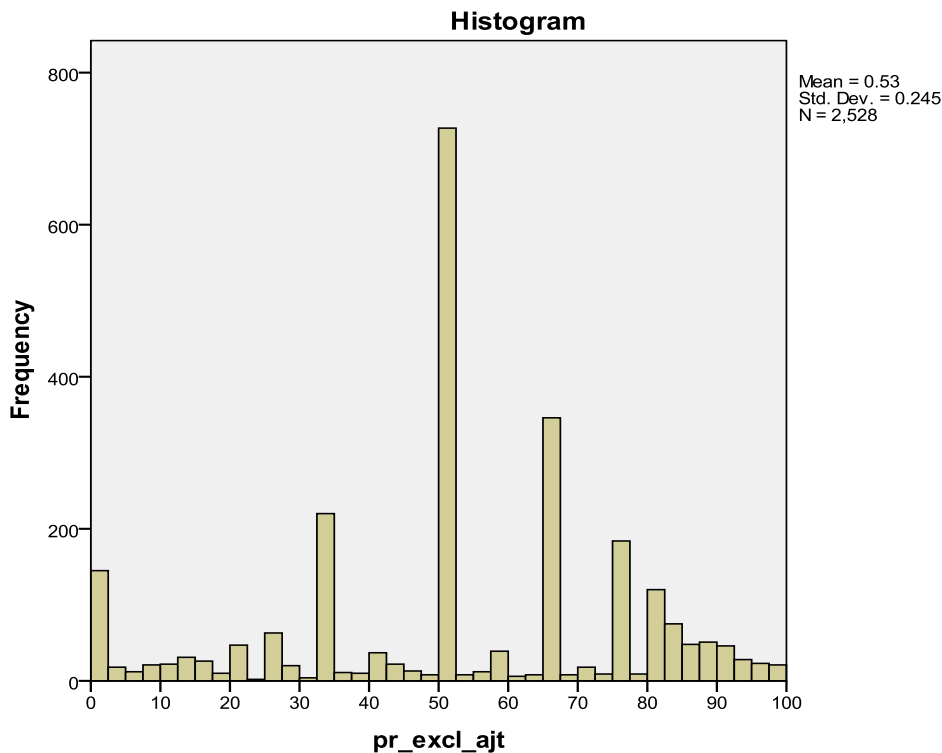
Source: PP

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[15] Due to frequent unstructured reporting of valid bids and bidders, this indicator is still not final for 2009-2011 and 2012 data is only partially collected.

Complexity and length of eligibility criteria defines the pool of items from which formal and administrative requirements can be chosen for arbitrary application and abuse. Hence, the previously discussed indicator of length also serves as a suitable measure for this technique.

T2.4   Tailoring assessment criteria

Assessment criteria are crucial in deciding to which bidder to award the contract among those bidders who jumped the eligibility hurdle. Issuers can generally decide between price-only and price plus quality criteria. If they choose price plus quality there is a range of possible quality criteria which are more or less objectively measurable. By deliberately choosing those assessment criteria which are hard to objectively measure such as quality of organigram, issuers can grant themselves considerable discretion raising corruption risks (Lengwiler and Wolfstetter 2006; OECD 2007; Piga 2011; Transparency International 2006; World Bank 2007). However, not all quality criteria are subjective, for example speed of completion, amount of indemnity, or payment deadline can be objectively assessed. In addition, there are markets such as IT where the standard is competition based on system performance while price is fixed.

Even though the Public Procurement Law defines the range of permissible evaluation criteria, there is still a broad arsenal from which corrupt networks can choose lawfully making effective external control difficult.

As mentioned earlier, this corruption technique may be used in tandem with other techniques limiting the range of eligible bidders. It can also serve as a substitute for excluding bidders, that is if exclusion efforts were not successful or were deemed too risky, subjective evaluation criteria can still 'do the job'. Postulating subjective evaluation criteria can only serve a corrupt purpose if the corrupt network manages to control the subjective scoring mechanism too. Hence, corruption technique T4.3-unfair scoring is essential for the success of this technique.

There are two proposed direct indicators for this corruption technique:

A) length of assessment criteria, and

B) weight of non-price criteria.

The length of assessment criteria serves as a proxy for the overall complexity of criteria. We consider more complex set of criteria as more difficult to check by external actors and giving more discretion to the decision maker hence involving higher corruption risks. Following a similar logic to eligibility criteria length (T2.2), the following indicator is calculated:

$$ADACL_{it} = \Sigma_{jk} \left(LAC_{itjk} - AAC_k \right) / N_{it}$$

where *ADALC*$_{it}$ denotes the average difference in the length of assessment criteria between the call for tenders of the *i*th unit of observation such as issuer over period *t* and the average length at the *k*th market over period *t*, *LAC*$_{itjk}$ refers to length of assessment criteria of the *j*th call for tenders of *i*th unit of observation belonging to the *k*th market during period *t*, *AAC*$_k$ denotes the average length of assessment criteria during the whole observation period at the *k*th market, and *N*$_{it}$ refers to the number of calls for tenders of *i*th unit of observation during period *t*. Public procurement markets are taken as reference groups recognising that more lengthy and complex criteria are justified for specific markets. In order to improve precision compared to the eligibility criteria length indicator where we only took the number of characters, here we use the number of assessment criteria rather than their number of characters (Figure 6). Nevertheless, the two versions of assessment criteria length are highly correlated: r^2=0.88. Similar to the length of eligibility criteria, the number of assessment criteria correlates only very weakly with contract size (r^2=0.27) suggesting that there is no need to take into account contract size beyond market when defining group means.

Figure 6.

Average difference in the length of assessment criteria between the call for tenders and its market mean, number of criteria (items), 2009-2012
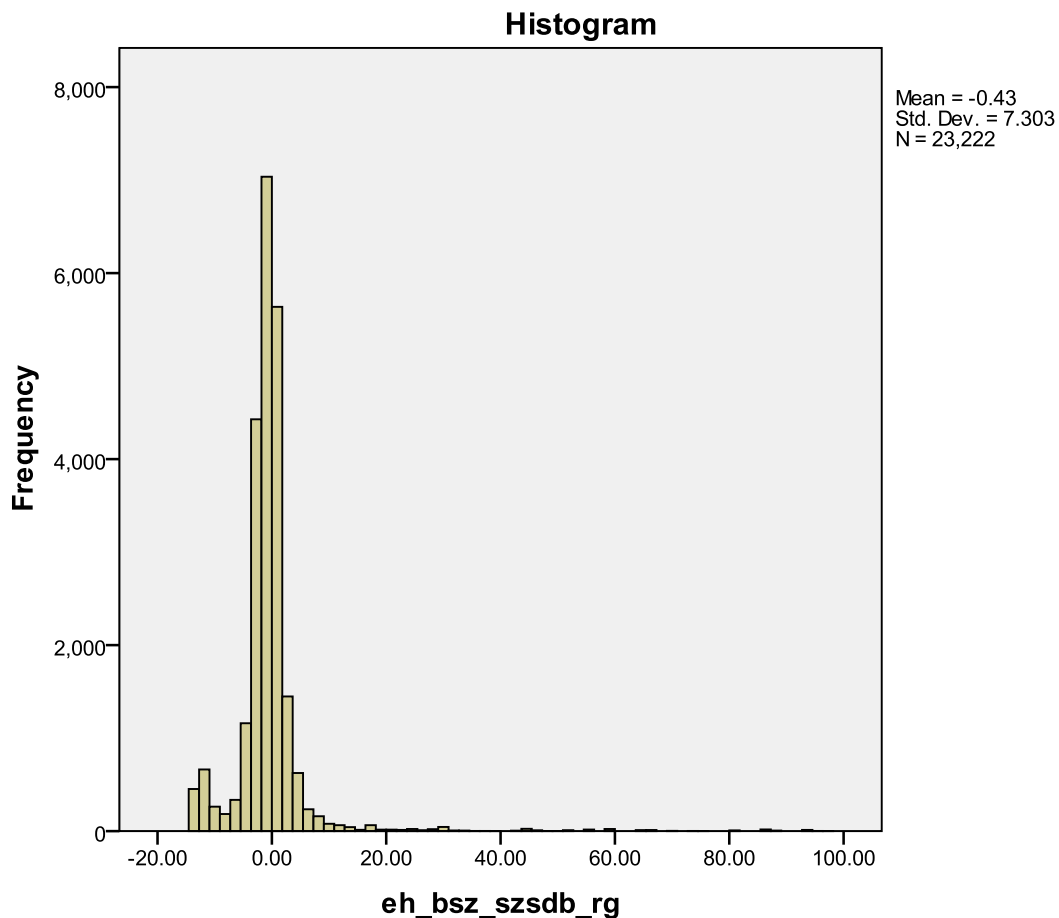
Source: PP

The overall weight of subjective criteria compared to objective criteria may directly relate to corruption risks as it indicates the room for subjective judgement within the whole scoring process. It is easy to see that price is an objective criteria; however, quantitative indicators of quality such as completion deadline, while seem to be objective, may in fact signal corruption risks. Some argue that putting objective criteria into the evaluation criteria instead of keeping them among the eligibility criteria in itself signals corruption risks (Oživení 2011). However, our interviews point at the corruption risks of subjective quality criteria such as organigram. As more research is needed to resolve this controversy and to come up with a close to complete list of objective quality criteria[16], we only consider the relative importance of price versus non-price criteria. There are two possible formulations of this: first, a straightforward measure relates to whether price is the only criteria or whether other criteria also a matter; second, it is possible to calculate the relative weight of price-related criteria among all listed criteria using a keyword search. The first formulation is the following:

$$PPPA_{it} = NPPA_{it} / N_{it}$$

where $PPPA_{it}$, refers to the proportion calls for tenders with price plus quality assessment over all calls for tenders of the ith unit of observation such as issuer over period t (tenders are either price-only or price plus quality), $NPPA_{itj}$ denotes the number of calls for tenders with price plus quality assessment criteria of ith unit of observation during period t, and N_{it} refers to the number of calls for tenders of ith unit of observation during period t. This indicator follows a declining trend with a peak in 2010 (the year of national elections) (Table 3) as well as having marked differences across public procurement markets throughout the whole period average proportion ranging from 4% to 93%. As these cross market differences may very well be related to differences in technology rather than only corruption, this indicator shall be used with greater than usual care (for discussion of the IT sector see the beginning of this, T2.4, section).

Table 3.

Proportion of tenders with price-plus assessment criteria, 2009-2012

Year	Mean	N	Std. Deviation
2009	0.48	10982	0.50
2010	0.54	17769	0.50
2011	0.38	14140	0.48
2012	0.30	10372	0.46
2009-2012	0.44	53263	0.50

Source: PP

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[16] Once the list is completed text mining techniques quickly allow for identifying the weight of the individual objective and subjective elements in calls for tenders.

While the first formulation of the weight of non-price criteria is more reliably extracted from announcements, the second version is more fine-grained albeit with the possible error or missing price-related elements. This measure is the following:

$$AWNPAC_{it} = \Sigma_j \, WNPAC_{itj} \, / \, N_{it}$$

where $AWNPAC_{it}$, refers to the average combined weight of non-price related assessment criteria in calls for tenders of the ith unit of observation such as issuer over period t, $WNPAC_{itj}$ denotes the weight of non-price related assessment criteria in the jth call for tenders of ith unit of observation during period t., and N_{it} refers to the number of calls for tenders of ith unit of observation during period t. This indicator falls between 0 and 1, where 1 means high average combined weight of non-price related assessment criteria indicating higher corruption risks. There are a few procedures and contracts which almost exclusively rely on non-price assessment criteria (Figure 7).

<div align="right">Figure 7.</div>

Frequency distribution of awarded contracts according to the combined weight of non-price related assessment criteria, 2009-2012
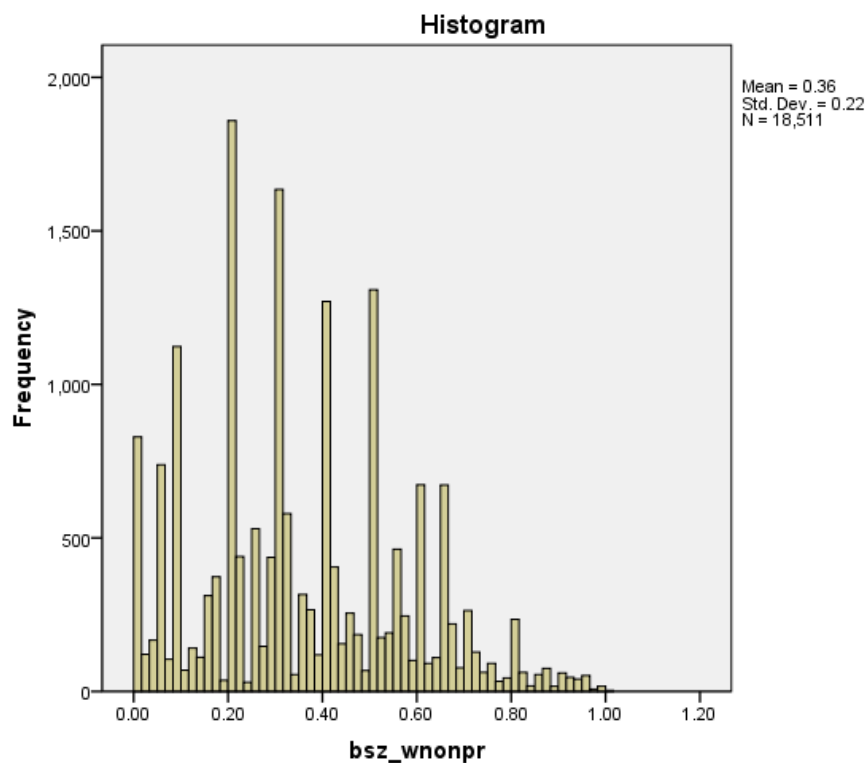
Source: PP

T2.5 Using a long term complex contract

There is theoretical as well as empirical evidence that the length of collaboration is positively related to corruption risks (Coviello and Gagliarducci 2010). In addition, complex contracts involving many unforeseeable events and a range of options such as public-private

partnerships (PPP) or framework contracts are harder to control (Báger 2011). Hence, the overall weight of such contracts in the public procurement portfolio of an issuer may signal mid to long term corruption risks. Central purchasing bodies' framework contracts may reduce corruption risks for smaller entities buying through the central framework (Bandiera, Prat, and Valletti 2009); but framework agreements awarded, especially those with only one bidder in the framework, may represent a considerable corruption risk as some of our interviewees pointed out.

In principle, the competitive award of such long term complex contracts assures sufficient control; however, the lack of pre-determined purchased quantities allow for specific forms of collecting corruption rent. For example, in the case of framework contracts, bidders obtaining a framework agreement have to specify the unit price of each product or service potentially procured within the framework. Framework contracts are awarded on the basis of some hypothetical quantity of each product and service which can substantially deviate from the actual purchases. Then it is enough for the issuer to informally tell the preferred bidder which products will actually be procured in large quantities so that this bidder can set prices that look the cheapest when considering a hypothetical quantity set, but allows for extra profit in the case of actual quantities.

The problematic nature of such contracts, especially PPPs, may be signalled by several large-value investments ending in years of court proceedings and intense fights between private companies and the government right after a new government enters into power (e.g. Közraktárak redevelopment in Budapest).

The use of this corruption technique is potentially linked to all the other techniques limiting competition for contracts as it increases payoffs for corruption due to the long term and high value character of the contracts.

There are two direct indicators of this corruption technique which should be interpreted in the context of other corruption risk indicators:

A) combined value of framework contracts and PPPs per total contract value,

B) average contract duration.

The combined value of framework contracts (actual money spent as opposed to the value of the framework agreement) and PPPs compared to the total contract value of an issuer or market directly measures the potential for this kind of corruption technique to arise. The simple metrics we propose is:

$$PLCC_{it} = LCCV_{it} / PPV_{it}$$

where $PLCC_{it}$ refers to the proportion of total combined value of long term complex contracts (i.e. framework agreements and PPPs) within the total public procurement contract value of the ith unit of observation, typically public organisation, over period t, $LCCV_{it}$ denotes the total combined value of long term complex contracts of the ith unit of observation during period t,

and PPV_{it} denotes the total value of contracts awarded according to the Public Procurement Law by the ith unit of observation during period t.

Throughout 2009-2012, 97% of Hungarian issuers has not issued a single contract as part of a framework agreement or public-private partnership. However, those issuers which have awarded at least one such contract typically have done so in a large proportion of their total public procurement spending (more than 44%) (Figure 8).

Percentage of public procurement contract value of PPP and framework contracts within total public procurement contract value, 2009-2012 (only those issuers which have at least one PPP or framework contract)
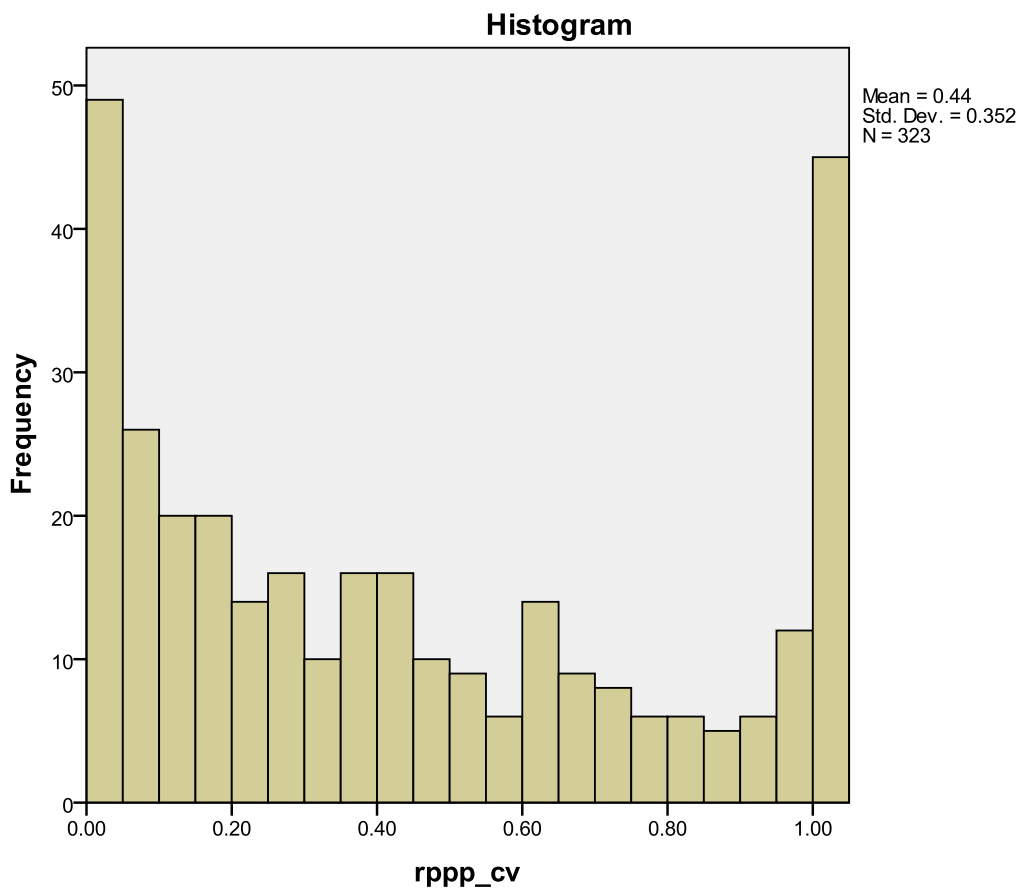
Source: PP

Average contract duration provides an alternative indicator for this corruption technique. It is superior to the previous one in the sense that it considers all the contracts awarded rather than the subset of highly complex and long-term contracts. Following a similar logic to that of eligibility and assessment criteria, we normed contract length with market average as different technologies imply different reasonable contract lengths. The proposed metrics is:

$$ADCD_{it} = \Sigma_{jk} \left(CD_{itjk} - ACD_k \right) / TNC_{it}$$

where $ADCD_{it}$ denotes the average difference in contract duration between the call for tenders of the ith unit of observation such as issuer over period t and the average contract duration at

the *k*th market over period *t*, CD_{itjk} denotes the contract duration of the *j*th contract awarded by the *i*th unit of observation belonging to the *k*th market during period *t*, ACD_k denotes the average contract duration during the whole observation period for the *k*th market, and TNC_{it} refers to the total number of contracts awarded by the *i*th unit of observation during period *t*. The limit of applicability for this metric is that contract duration is often unreliably disclosed in announcements.

Unfortunately, we could not gather data on the length of all the contracts awarded, first because some are of unlimited length; second, some others don't disclose any information on length even though we have reasons to suspect that they are of limited length[17]. There are about than 31 000 contracts where we have sufficient data on contract length (either from calls for tenders, contract award announcements or contract completion announcements). These reveal that the overwhelming majority of contracts cluster around the mean of their markets while a small number of contracts are considerably longer going up to 33 years 'excess' duration (Figure 9). This accentuates how atypical PPP-s, framework contracts, and other long term contracts are in general.

Figure 9.
Contract length in years (normed by market average), contracts awarded in 2009-2012 (only contracts shorter than 10 years)
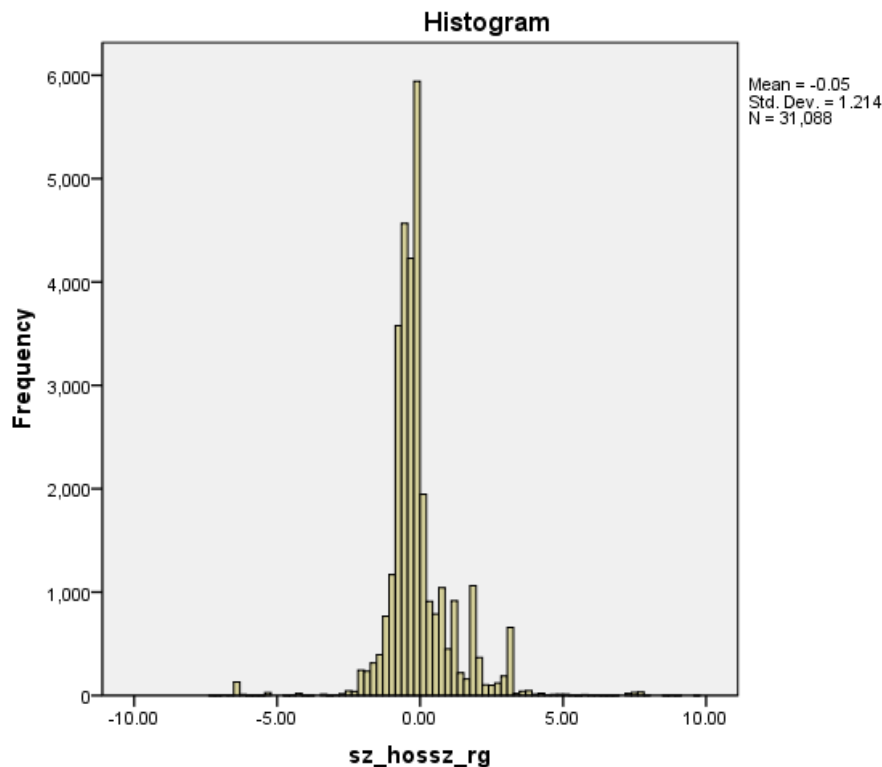
Source: PP

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[17] Contract length is either given in the contract award notice where there is an explicit requirement for publishing it, but unfortunately the relevant fields often remain empty. A further piece of the puzzle we could make use of is the contract completion announcement which allows for gauging the actual rather than the planned contract length.

T2.6 Tinkering with the submission period

Submission periods, that is the time period between the publication of call for tenders and the deadline for submitting the bids, in Hungary and most EU countries, are tightly regulated for some procedure types while largely unregulated for others. Regulation typically implies postulating minimum submission periods for some procedure types, for example 45 days for open procedure above EU threshold under normal circumstances. Submission periods constitute a useful tool for limiting competition, as leaving too little time for preparing bids can effectively exclude bidders (Kenny and Musatova 2010; OECD 2007). An impossibly short submission period such as one day combined with early information provision to the 'desired' winner (T3.1 - selective information provision), so that it can start preparing before the publication of call for tenders, constitutes a highly effective way of excluding unwanted bidders. Limiting competition to that bidder, which is part of the corrupt network, allows for collecting rents. Some of the short deadlines are obviously due to non-corrupt reasons such as issuers who are under time pressure trying to rush through a procedure in order to complete a project on time. While this can happen in some cases to some issuers, regular occurrences of such procedures and extremely short deadlines may indeed signal deliberate attempts to abuse the system of submission periods.

Checking whether the submission periods comply with legal requirements appears to be somewhat effective when the call for tenders is published in the Public Procurement Bulletin[18]. The Public Procurement Authority particularly heavily concentrates on compliance in this area, and the media often picks up some of the extreme stories. General compliance with legal requirements was confirmed by interviewees as well as inspection of time series data in Hungary, but internationally too (Fazekas and Tóth 2012b; Oživení 2011). Hence, it is expected that extremely short deadlines would appear only for procedure types where little or no regulation exists and by invoking special reasons for accelerated procedures where heavy regulation exists. However, procedures where the call for tenders has only been published on the homepage of the issuer or hasn't been published at all are expected to have extremely short submission periods more often.

This corruption technique is closely associated with a number of others. First, as already mentioned T3.1 - selective information provision constitutes its very crucial 'tandem' partner

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[18] According to a 'test announcement' recorded by one large issuer in Budapest in collaboration with the authors, there is no automatic control on submission deadlines in the online system of announcement submission. Hence, control relies exclusively on controllers of the Public Procurement Authority spotting the shorter than legal deadlines which has not been 100% accurate as our statistical evidence points out (see below for more details).

for putting the desired bidder in advantage over other bidders. Second, as procedure type defines the minimum length of submission period, the success of tinkering with thresholds and exceptions (T2.1) is a powerful determinant of the availability of this technique. Third, avoiding publication of call for tenders (T3.2) beyond greatly diminishing transparency also allows for unaccountable use of deadlines (i.e. it is difficult to check whether the submission period was reasonable).

A telling example of how widespread this technique was shared by one large procurer: "A fairly small procurement need – about 4 million HUF (14 thousand EUR) - arose in the organisation which had to be met swiftly. We sent out direct invitations with a one day submission period to the four major players of the market whom we knew from previous purchases. Neither of them even replied to the call. We enquired their reasons over the phone and 3 out of 4 said that they interpreted the invitation as 'set-up', that is they were needed to mimic competition whereas the winner is already decided." Another example widely covered by Hungarian media left four days of weekend plus national holidays for bidders to submit their bids for a 716 million HUF (2.5 million EUR) creative communications and PR tender[19]. This case has even resulted in a court proceeding in which the final decision is still pending; however the contract has been signed and delivery commenced so any court decision is unlikely to interrupt the suspicious deal.

We propose three direct indicators each measuring the same technique from a slightly different angle:

A) proportion of tenders with accelerated submission periods within all procedures,
B) proportion of tenders with extremely short submission periods within all procedures, and
C) average contract value per weekday available for submission.

As Hungarian law allows for accelerating procedures (i.e. shortening submission periods), a direct indication of circumventing regulations of submission periods is the frequency or regularity of accelerated procedures. The legal framework determining acceleration rules and the minimum number of days has been intricately complex and has changed frequently. Hence, a simple approach was taken reflecting both general rules of accelerated procedures and the empirical distributions of submission periods (cut-points can be found in Table 4).

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[19] For the original call for tenders: http://www.kozbeszerzes.hu/adatbazis/mutat/hirdetmeny/portal_12337_2012/ and the contract award notice: http://www.kozbeszerzes.hu/adatbazis/mutat/hirdetmeny/portal_14257_2012/

Table 4.

**Submission period thresholds under which a procedure is
deemed to be accelerated, 2009-2012**

year/ procedure type	missing	open	invitation	negotiation	other
2009	22	22	14	22	22
2010	22	22	14	22	22
2011	18	18	14	18	18
2012	18	18	14	18	18

As acceleration is typically granted on the basis of urgency and extraordinary circumstances this indicator also signals to what degree the exception is the norm. Regularly invoking exceptional circumstances for increasing discretion is another aspect of corruption frequently quoted in the literature (Ionita et al. 2011). Hence, we suggest the following indicator:

$$PSST_{it} = NSSP_{it} / TNT_{it}$$

where *PSSP_{it}* refers to the proportion of accelerated tenders with shortened submission periods over all tenders concluded of the *i*th unit of observation, typically public organisation, over period *t*, *NSSP_{it}* denotes the total number of accelerated tenders with shortened submission periods of the *i*th unit of observation during period *t*, and *TNT_{it}* refers to the total number of tenders concluded by the *i*th unit of observation over period *t*.

There is a marked upward trend in the proportion of accelerated public procurement procedures throughout 2009-2012 (Figure 10). By 2012, almost one third of all procedures for which we have data have been accelerated, that is used a shorter than 'normal' submission period.

Figure 10.

**Percentage of procedures with accelerated and extremely
short submission periods, 2009-2012, %**
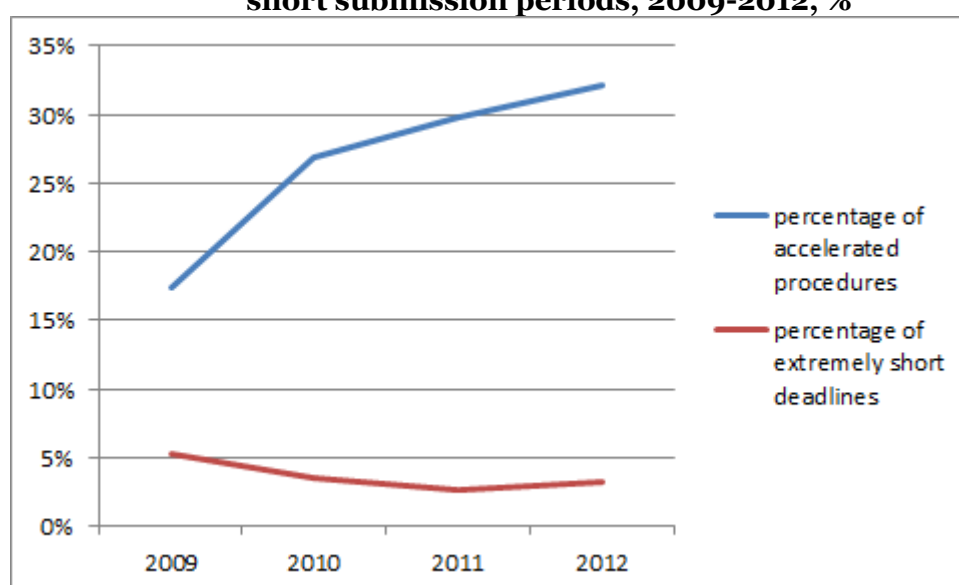
Source: PP

An indicator even more heavily concentrating on extreme cases in order to indicate unusually high corruption risks is the proportion of extremely short submission deadlines such as the one highlighted in the example above (4 days). While it is difficult to determine precisely how long an extremely short submission period is, we made use of the lowest legally permissible deadlines as benchmarks as well as identified the lower end of the empirical submission period distributions where frequency drops sharply as an indication that something unusual is happening throughout 2009-2012 (Figure 10 and Figure 11). As a result we employed a uniform 15 days threshold for 2009-2010 and 13 days threshold for 2011-2012. The following indicator is proposed:

$$PESST_{it} = NESSP_{it} / TNT_{it}$$

where $PESSP_{it}$ refers to the proportion of tenders with extremely short submission periods over all procedures concluded of the ith unit of observation, typically public organisation, over period t, $NESSP_{it}$ denotes the total number of procedures with extremely short submission periods of the ith unit of observation during period t, and TNT_{it} refers to the total number of tenders concluded by the ith unit of observation over period t.

The distributions of submission periods changed considerably between 2009-2010 and 2011-2012, the spike at day 22 in 2010 moved down to day 18 in 2011 largely due to the shortening of official minimum thresholds in the Public Procurement Law (Figure 11). Large differences across procedure types have remained consistent (e.g. non-open procedures have much shorter submission periods on average) even though the relative frequencies of each type change from year to year. Importantly, extremely short submission periods appear recurrently in each year and procedure type as evidenced by the sharp drop in the number of cases below the threshold of 15-13 days even though these short submission periods are not permitted even under exceptional situations. Across every procedure type, the proportion of procedures with extremely short submission periods are rare amounting to about 3-5% throughout 2009-2012 (Figure 10).

Figure 11.

**Distribution of contract award notices' submission periods,
open procedures, 2010 and 2011, days (<65 days)**
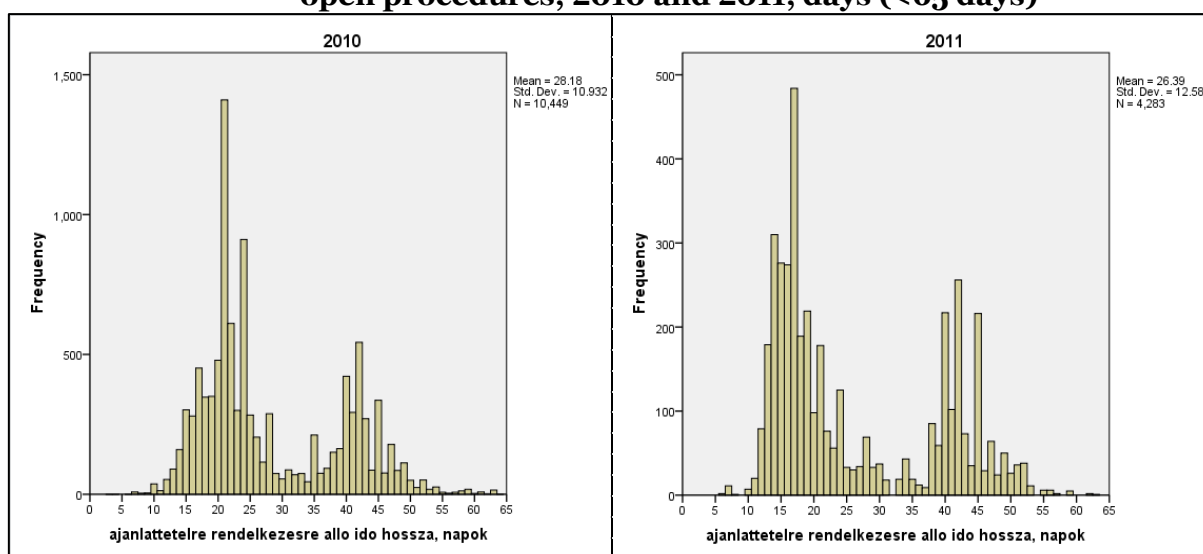
Source: PP

In order to more broadly gauge the handling of submission periods we also look at the average submission period length normed by contract size. Norming by contract size recognises that larger projects generally need longer submission periods due to legal constraints, but also that having extremely short submission period for large contracts represents higher corruption risk than the same submission period for a smaller contract. In order to better reflect the actual time available for bidder preparing for a tender, we took the number of weekdays as a reference rather than calendar days as prescribed in the Public Procurement Law. Hence, the indicator is:

$$ASPV_{it} = (\ \Sigma_j\ (\ CV_{itj}\ /\ SP_{itj}\ ))\ /\ TNT_{it}$$

where $ASPV_{it}$ refers to the average contract value per number of weekdays available for submission for the ith unit of observation, typically public organisation, over period t, SP_{it} denotes the number of week days available for submission in the jth procedure of the ith unit of observation during period t, CV_{it} refers to the contract value of the jth procedure by the ith unit of observation over period t, and TNT_{it} refers to the total number of tenders concluded by the ith unit of observation over period t. This indicator cannot be treated as a continuous measure of corruption risks. Rather, its high values indicate unusually high corruption risks and middle and low values convey very little as to the level of corruption risks involved.

On average, this ratio almost reaches 5 throughout 2009-2012 that is, there were almost 5 million HUF of contract value for each weekday of submission period. It is noteworthy that the distribution of this ratio is highly skewed with only few very large numbers (Figure 12). As submission periods may also reflect differences in technology and industry standards, it is conceivable that norming by market means leads to a better indicator.

Figure 12.

**The distribution of average contract value (million HUF)
per submission period (week days), 2009-2012 (ratios < 50)**

Histogram

Mean = 4.68
Std. Dev. = 7.386
N = 13,699
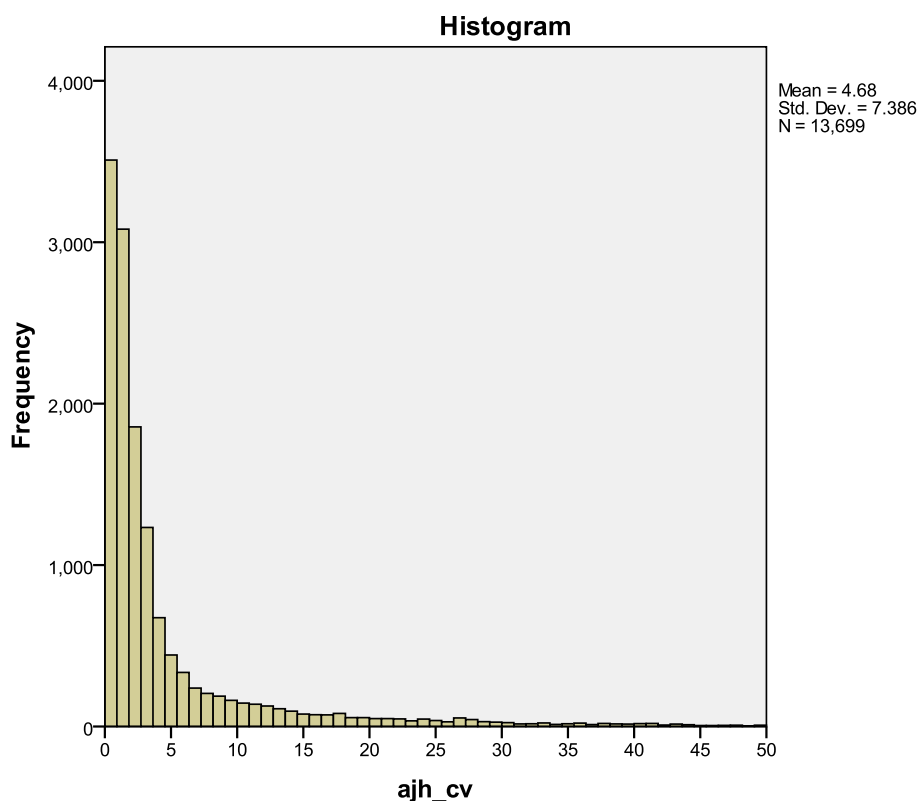
Source: PP

4.3 Document preparation and dissemination
T3.1   Selective information provision

Communication between bidders and issuers is heavily regulated in Hungary as well as in EU member states because it can have a decisive impact on competition (Soreide 2006). Getting more, better quality, or more timely information on tenders can put some bidders in an unbeatable position. This is exactly what corrupt informal networks use to win public contracts in seemingly fair competition in Hungary, but in other countries too (Goldman, So, and Rocholl 2012; Grodeland 2010; Papanek 2009; Piga 2011). It is enough to give informally crucial information on specific aspects of the tender to one bidder while issuing a vague or erroneous tender specification. The use of this corruption technique infringes on the principle of fair competition as well as transparency.

There is little effective external control on any of these information flows as it is difficult, if not impossible, to monitor informal talks and information transmission through intermediaries. Several of our interviewees confirmed that there are informal talks putting the well-connected bidders in an advantageous position in Hungary rather frequently.

This technique is related to the choice of procedure type (T2.1) as less transparent procedure types such as negotiation make it very easy to provide information to one bidder while concealing it from other bidders. Furthermore, T2.7-tinkering with submission period works neatly in tandem with this technique as early informal 'warning' of the preferred bidder of a future call for tenders with very short submission deadline gives it a decisive competitive advantage (e.g. in extreme cases it can be the only one actually able to put together a valid bid).

A construction company's public procurement manager gave the example in an interview where there were two sets of tender documents: one for the official tender documentation and another one for the "friendly bidder" (in Hungarian: "csókos pályázó"). As a result, the "friendly bidder" was at a great advantage over all other bidders in terms of more accurate and detailed tendering information.

Due to the high level of secrecy and lack of any direct record of unfair information provision there is no direct indicator. The use of extremely short submission periods, which make it impossible to put together a bid on time without prior information, can indirectly signal the use of this corruption technique. Hence, the two indirect indicators:

A) proportion of tenders with extremely short submission periods within all procedures; and

B) proportion of procedures with call for tenders modified within all procedures.

The first indicator is likely able to signal only a particular type of corruption dealing (i.e. prior information provision) rather than all types falling under the umbrella of this corruption technique (e.g. better quality information provided to the pre-selected bidder). For detailed discussion of this indicator see section T2.6.

For the second indirect indicator relating to modifications of call for tenders, we adopt the following formula:

$$PMC_{it} = NMC_{it} / TNT_{it}$$

where PMC_{it} refers to the proportion of procedures with modified call for tenders within all procedures concluded of the ith unit of observation, typically public organisation, over period t, NMC_{it} denotes the total number of procedures with modified call for tenders of the ith unit of observation during period t, and TNT_{it} refers to the total number of tenders concluded by the ith unit of observation over period t. While this broad indicator certainly encompasses simple administrative error as well as deliberate corruption, later statistical analyses linking it to corrupt outcomes on organisational or market level can provide the necessary insights to refine it if needed. If this approach turns out to be too broad, more fine-tuned indicators of 1) only looking at modifications of eligibility and/or assessment criteria after the deadline for obtaining tender documentation passed; 2) only considering those modifications which move submission deadlines forward, and 3) only looking at recurrent modifications to the same call

for tenders may prove to be valuable although there are very few calls for tender with multiple modifications.

Modifications of calls for tenders follows a distinctive pattern over time with 2010 and 2011 seeing the highest proportion of modifications (6% and 5% respectively) (Table 5).

Average proportion of contracts awarded whose call for tender was modified, 2009-2012

	Mean	N	Std. Deviation
2009	0.026	1874	0.158
2010	0.055	6553	0.228
2011	0.049	3502	0.216
2012	0.009	331	0.095
2009-2012	0.048	12260	0.213

Source: PP

T3.2   Avoiding the publication of call for tenders

The publication of call for tenders can take place at various places or can be avoided altogether. The most transparent place for publication is the Official Journal of the European Union or the Hungarian Public Procurement Bulletin which can guarantee the highest number of potential bidders informed about the tender (e.g. there are for-profit providers who recycle and disseminate procurement notices to potential bidders[20]). If issuers decide to only publish the call for tenders on their homepage it still can be considered as transparent, but considerably less as potential bidders may find it harder to monitor hundreds of individual homepages as opposed to one national page of public procurement. In the case when no call for tender is published at all, but instead it is sent to selected bidders the principle of transparency is violated the most extensively. While the choice of publication organ is regulated by the Public Procurement Law, which requires publication in the Public Procurement Bulletin in the case of large tenders, issuers can effectively choose the place of publication in a great number of cases[21]. If choice is exercised in favour of less transparency, leading to lower number of bidders, it can be suspected that the issuer may have something to hide, thus raising corruption risks (Heggstad and Froystad 2011; Lengwiler and Wolfstetter 2006; OECD 2007; Ware et al. 2007).

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[20] For example: www.tender-ertesito.hu

[21] In fact, the crosstabulation of procedure type and call for tenders published in the official journal reveals that a great many call for tenders are published in the Public Procurement Bulletin even though no regulation prescribes it. On the other hand, there are many procedures whereby the call for tenders should have been published in the Bulletin still it cannot be found there.

The effectiveness of the external control of this corruption technique is problematic. As was underlined earlier, periodic reviews of individual organisations' public procurement activity and the rare systemic reviews by SAO constitute a weak instrument against abuses (Báger 2011). When contract award announcements appear in the Public Procurement Bulletin, their references to prior call for tenders are checked but procedures are hardly ever cancelled due to a missing call for tenders.

This corruption technique is strongly associated with T2.1-tinkering with thresholds and exceptions defining the procedural regime to follow. As when the procedure type prescribes publication in the official journal, avoiding publicity becomes harder for issuers. Moreover, this technique forms a formidable combination with T2.6-tinkering with the submission period as publishing the call for tenders in a difficult to reach location (e.g. a hard to find part of the institution's own homepage) with a very short deadline competition from unwanted bidders can be minimized. Finally, this technique may be traded off with T3.3 - strategically modifying the call for tenders.

There is only one direct indicator proposed for this corruption technique focusing on the difference between the most widely used publication organ (Public Procurement Bulletin) and all other venues:

A) proportion of procedures without call for tenders in the official journal within all procedures.

This indicator is directly measured by the following formula:

$$PNPC_{it} = NNPC_{it} / TNT_{it}$$

where $PNPC_{it}$ refers to the proportion of procedures without a call for tenders published in the Hungarian Pubic Procurement Bulletin[22] within all procedures concluded of the ith unit of observation, typically public organisation, over period t, $NNPC_{it}$ denotes the total number of procedures without a call for tenders published in the Hungarian Pubic Procurement Bulletin of the ith unit of observation during period t, and TNT_{it} refers to the total number of tenders concluded by the ith unit of observation over period t.

Interestingly, there has been a large increase in the proportion of procedures without call for tenders in the Public Procurement Bulletin between 2009-2010 and 2011-2012 largely coinciding the new government entering office. In 2009-2010 it amounted to 17%-24%, but jumped to 57%267% in 2011-2012 (Table 6). While the full account of the reasons behind this pattern requires further analysis changes in the Public Procurement Law under the new government contributed for sure.

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[22] This Bulletin also contains copies of announcements in the European Union's Official Journal (TED) issued by Hungarian authorities.

Table 6.

Average proportion of procedures without call for tenders in the Public Procurement Bulletin, 2009-20112

	Mean	N	Std. Deviation
2009	0.24	10918	0.43
2010	0.17	17914	0.38
2011	0.57	14070	0.49
2012	0.67	10342	0.47
2009-2012	0.39	53244	0.49

Source: PP

As publication at the issuers' own website still represents a more transparent solution compared to no public announcement at all, it is desirable to collect data, at least a sample, on calls for tenders on issuers' homepages. Collection of textual data has been done, but full analysis can commence only later when key information is extracted from the documents.

T3.3 Strategically modifying the call for tenders

If an issuer has to publish a call for tenders, but wants to tailor it to benefit a particular bidder it faces a considerable information burden. In most markets, a wide range of companies can bid. The pool of potential bidders is uncertain for the issuer of tenders due to new companies entering the market, others leaving it, or simply the changing willingness of companies to bid for the particular tender. Publishing a call for tenders and subsequently observing which bidders buy or obtain the tender documentation can reduce the burden of acquiring information on potential bidders and the uncertainties of getting the pool of bidders wrong. Once information on interested bidders is obtained in such a way, it is easy to modify the eligibility and/or assessment criteria to favour the 'pre-selected bidder' as opposed to the other potential bidders. Furthermore, high frequency of call for tenders' modifications creates uncertainty about the actual requirements and conditions, hence can discourage competition. Modifying call for tenders strategically can decrease transparency and discourage competition. This technique is primarily based on interview evidence coming from Hungary, so it may represent a Hungarian speciality or it may simply have escaped the attention of the literature so far.

Even though inadmissible eligibility or assessment criteria can be and does get detected and removed, the control of changing any criteria is very rare if not completely non-existent according to our interviewees.

This corruption technique is intimately linked to T2.2 - tailoring eligibility criteria and T2.4 –tailoring assessment criteria, as the combinations can readily increase the techniques' effectiveness. For example, initial eligibility criteria can be set so that it rules out all but one bidder, but when an unexpected or inadequately assessed bidder obtains the tender

documentation, which could successfully bid for the tender, a modification to the call for tenders' eligibility criteria can exclude the unwanted bidder.

After identifying two versions of this corruption technique (i.e. modification after bidders are known and frequent modifications) it is possible to devise fine-tuned indicators gauging each version. However, in order to avoid using too narrowly focused indicators we adopt a broader approach and propose to use the metrics already discussed above (see section T3.1):

A) proportion of procedures with call for tenders modified within all procedures.

T3.4 Excessively pricey and hard to access documentation

Public procurement tendering is open and transparent as long as the necessary tender documents are easily and cheaply accessible. If documents are difficult or expensive to obtain some potential bidders may be excluded or at least discouraged from competing. Asking a considerable price for tender documents is in principle fair; however, it can exclude less well-off potential bidders and those bidders who find their chances of winning lower. A rational potential bidder would only buy the tender documentation if it deems the expected profit (chances of winning * profit earned if winning) higher than the price of tendering (tender preparation + tender document costs). If a company knows that it is a sure winner due to its corrupt connections it is willing to pay a very high price for the documentation; whereas an average bidder with uncertain winning chances would be less willing to pay a high price. Hence, it is easy to set the price of documentation so high that it is prohibitive for all the bidders except for one. Making the acquisition of tender documents difficult is an additional method for increasing the costs of bidding. The easiest way to acquire documents is from the internet; however, issuers are free to define the ways of obtaining paper-based tender documents from themselves or their designated representatives. Corrupt networks can use these techniques for completely eliminating, or at least weakening competition. While this method was mentioned by two of our interviewees, we found little evidence of it in the literature so this corruption technique is potentially less reliable.

Collecting fees for providing the tender documentation is justified by the costs of compiling them accruing to the issuer. By law, price should reflect costs of producing the documents. In practice, it was usual in Hungary to ask for excessive prices up to several million HUF (several tens of thousands EUR). This practice has changed lately in Hungary as reported by one of our interviewees with legal background, when the Public Procurement Arbitration Board has started to force issuers to set more reasonable, that is lower prices. This shows that in some respects external control may function well in Hungary.

This technique can work most effectively together with others aimed at decreasing competition so that they can leave only the desired company standing in the competition.

One of the large construction companies operating almost exclusively on the public procurement market highlighted that high price of tender documentation effectively deters them from some tenders. Another interviewee working for a most likely exemplary issuer simply put it: "if one wants competition, it puts all the documents on the net accessible for free!".

There is one proposed direct indicator corresponding to one of the forms of this technique[23]:

A) price of documentation divided by estimated contract value.

The price of documentation is expected to reflect the preparation costs of the tender documents for the issuer which is, by and large, increasing function of project size. Thus, we can consider those documentation prices as cause for suspicion which are excessively expensive compared to tenders of similar size. The proposed indicator is:

$$APDCV_{it} = \Sigma_j \left(PD_{itj} / CV_{itj} \right) / j$$

where $APDCV_{it}$ refers to the average ratio of price for tender documentation over total value of contract of the ith unit of observation, typically public organisation, over period t, PD_{itj} denotes the price of tender documentation in the jth procedure of the ith unit of observation during period t, and CV_{itj} denotes the value of contract awarded in the jth procedure by the ith unit of observation during period t.

Looking at the distribution of document price to contract value ratio, a familiar picture appears: a highly skewed distribution where very few procedures show high corruption risks while most of them moderate to low risks only (Figure 13). For example, almost a quarter of procedures made the documents available for free.

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[23] That is difficult access to documentation was not possible to measure, however, the location of accessing the tender documents such as postal address, internet address are regularly reported in call for tender announcements so later research can develop an additional indicator.

Figure 13.

**Proportion of document price to contract value,
2009-2012 (ratios smaller than 0.1)**
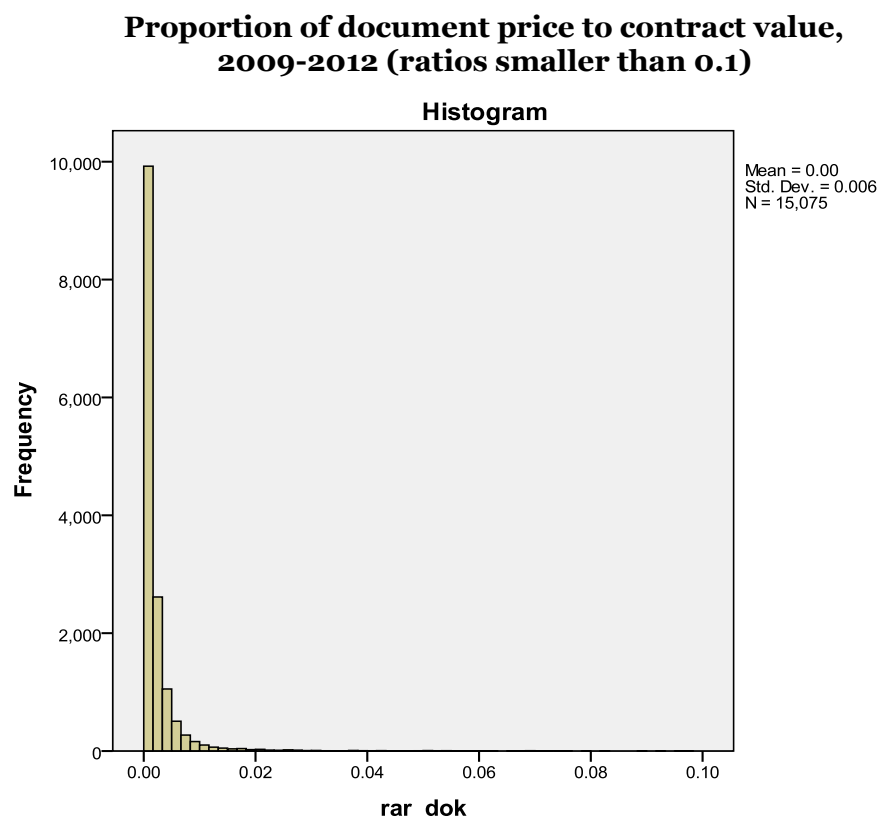
Source: PP

T3.5 Deliberate errors in document publication

Preparing and publishing any tender document accurately is essential both for transparency, accountability and competition. The simple fact of publishing the necessary announcements is far from sufficient for establishing whether these three elementary principles are followed in the conduct of an issuer. Accuracy, completeness, and clarity of information are essential (OECD 2009). Often, even a small omission or error can have considerable consequences. For example, erroneously categorizing a call for tender in the CPV nomenclature can effectively exclude potential bidders from a tender as most companies search by CPV codes rather than going through all the announcements made each day (there are commercial companies offering email alerts to potential bidder companies based on new calls for tenders in markets defined by CPV codes). This corruption technique can have basically two effects depending on the phase of the public procurement procedure: 1) during the tendering phase, omissions and errors can disadvantage some bidders (Ware et al. 2007); 2) during the award decision and contract management phase omissions and errors can infringe on the capacity of outsiders to hold actors accountable. The latter suggests that the use of this technique is not necessary if other corruption techniques already limited the number of bidders while making the procedure look by and large legal.

While every announcement is checked by the Hungarian Public Procurement Authority before publication and corrections are made if necessary, the wide range and frequent errors in the actual published documents clearly demonstrates that this check is insufficient. For example, contract value or the name of winner are missing in many cases. For most errors, even if they are identified by the Authority it can only ask issuers to correct them, but cannot deny or considerably delay publication in order to effectively sanction deviance. Nevertheless, there are cases when the announcement's publication date is much after the dispatch date of the issuer (i.e. organisation sent it long time before it actually gets published). More research is needed to explore why and how this can happen, and most importantly whether manipulating actual publication data as compared to dispatch date can be intentional (one interviewee suggested it can be, but failed to provide a detailed account of the methods used).

This corruption technique relates to two different sets of techniques depending on the stage of the procurement procedure. First, during the bidding stage, this technique can be very well combined with T3.1 - selective information provision. Second, during award decision and contract implementation stages, this corruption technique can work closely together with T4.2 – repeated violations of rules and T5.3 – performance violating contract in order to avoid external monitoring and punishment.

Relating to the first version this technique comes in: a construction company's public procurement manager highlighted in an interview that it has to check personally every plan and documentation as much as possible, for example by inspecting the would-be site of construction, as her experience is that tender documentation cannot be trusted. While she clearly sees incompetence as one major source of problems with the precision of tender documentation, she has come across multiple cases where deliberate manipulation of documentation took place to grant unfair advantage to the members of a corrupt network.

There are two direct measures of this corruption technique (sub-type relating to the avoidance of external scrutiny):

A) prevalence of extremely erroneous contract award announcements and

B) hiding or erroneously reporting the final contract value.

Unfortunately, it is not possible to verify the content of tender documents compared to what actually is on the ground (e.g. whether construction site descriptions are accurate) leaving the compliance of administrative records with official requirements the only way to build indicators. This, however, raises the risks of conflating a deliberate corruption technique with simple administrative error typically due to low administrative capacity. In order to minimise the overlap between these two causes, the proposed indicator only focuses on omissions and errors of key pieces of information where deviation from official requirements is more likely to be deliberate. Contract award announcements are taken as a reference point as opposed to all other announcement types we have information about because they are the

key documents which are always available for every procedure. We employed the following formula.

$$PEC_{it} = NEC_{it} / TNT_{it}$$

where PEC_{it} refers to the proportion of procedures with extremely erroneous contract award announcements within all procedures concluded of the ith unit of observation, typically public organisation, over period t, NEC_{it} denotes the total number of procedures with extremely erroneous contract award announcements of the ith unit of observation during period t, and TNT_{it} refers to the total number of tenders concluded by the ith unit of observation over period t. Extremely erroneous contract award announcements were those which lacked or incorrectly reported[24] any of the following information:

- Name of winner,
- Value of contract, and
- Type of procedure.

The proportion of announcements with such errors showed strong increase between 2009-2011, but dropped drastically in 2012 most likely due to the introduction of the new public procurement law which saw a more stringent control of announcements (Figure 14). As with many other indicators discussed here, the regularity of publishing extremely erroneous information is by no means a continuous measure of corruption. Rather, its high prevalence in spite of sufficient experience with conducting public procurement is what signals substantial corruption risks.

Figure 14.

Mean proportion of contract award announcements with extremely erroneous information, 2009-2012 (%)
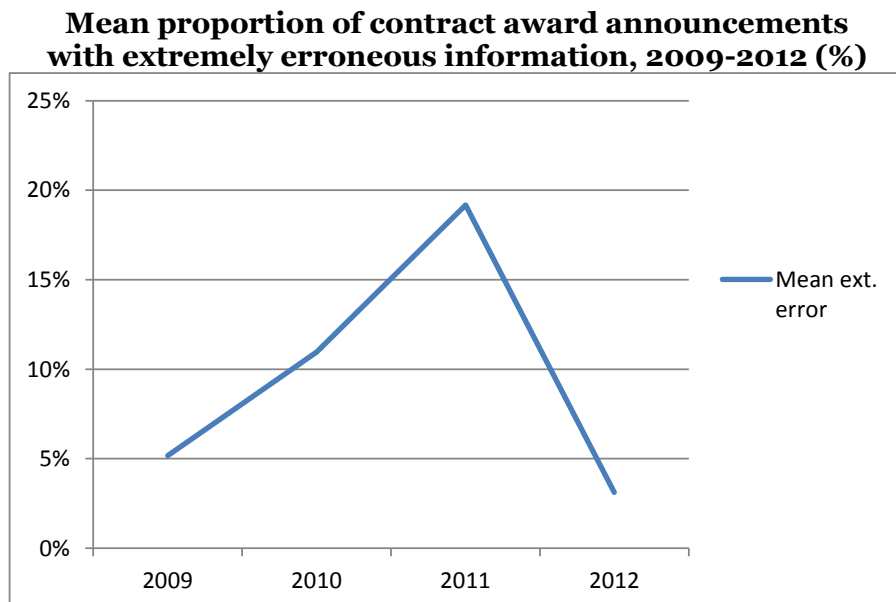
Source: PP

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[24] While using unit prices for reporting the final total contract value is clearly deemed as incorrect reporting, this indicator excludes these cases. The reason is that abusing unit prices is a different kind of error than simple omission or unclear information provision. Unit prices are discussed in section T4.4.

As final total contract value represent one of the key means of outside actors to hold issuers to account it is likely that this information will be hidden or erroneously reported by corrupt actors. This suspicion was confirmed by a many interviewees and the higher than usual number of errors in the contract completion announcements[25]: almost half of the procedures lacked a correct contract completion announcement containing the final contract value (Table 7.

Error statistics of relative value of contract modifications, 2009-2012).

<div align="right">Table 7.</div>

Error statistics of relative value of contract modifications, 2009-2012

	Frequency	%
Final vs original contract value defined, no error	6961	57.3
Final vs original contract value defined, but outlier	215	1.8
No final contract value defined, but there should have been	4975	40.9
Total	12151	100

Source: PP

4.4 Tender evaluation and award decision
T4.1   Strategically annulling the procedure

As has been said already, issuers are obliged to follow certain procedures based on the size and nature of the prospective procurement contract. However, if the first procedure is annulled, for example due to unforeseen circumstances, issuers often have the right to re-launch the process, but using an accelerated and less open procedure (e.g. restricted or invitation procedure). This is the case not only in Hungary, but in a range of other countries too (OECD 2007). Annulation can be used strategically for corrupt purposes in at least two ways: first, in order to avoid procedures requiring higher degrees of transparency and more open competition even though the awarded contract is big and no special exception could be invoked. Second, in the case when other corrupt techniques of limiting competition didn't work and a unwanted firm would have to be awarded the contract. So, when other techniques failed there is still the option of annulling the whole procedure and start it all over again with more effective arsenal of corruption techniques. For this corruption technique, annulation is the decision of the issuer. One of the most frequently invoked reasons for annulation is that the budget turned out to be insufficient by the time the contract had to be awarded (this reason is explicitly banned in the new 2012 Public Procurement Law).

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[25] Arguably, correctly publishing contract completion announcements may be administratively more demanding as by the end of a typical contract a large number of potentially complex transactions would had to be precisely recorded.

Of course, annulation can be simply due to incompetent planning on the side of issuers. However, if we only look at issuers with considerable experience with public procurement, for example, at least 3 procedures per year, successive annulations of the same public procurement procedure may in fact signal strategic behaviour to avoid fair competition and decrease transparency.

As the potential reasons for issuer induced annulation is limited and annulations are fairly visible, external control may represent a strong obstacle to the application of this technique. In addition, it is also costly for the issuers as they have to re-run the same procedure multiple times. Hence, it is likely that this is used either as a 'solution of last resort' or as a blunt and expensive technique.

First, this technique is linked in general to all other techniques aiming at decreasing competition if it is used once the other techniques failed to produce the desired result. Second, it can also be considered as an extension or alternative to the tinkering with thresholds and exceptions (T2.1) in order to get the most suitable procedural regime for corrupt conduct. Third, this technique is similar in effect to the next technique (T4.2 – violation of public procurement rules) as long as it leads to the annulation of the procedure. It is, however, very different in origin as it results from the issuer's decision whereas T4.2 is due to court decision.

A famous example extensively discussed by the press in Hungary was the contract for reconstruction the levee next to the settlement Csongrád at river Tisza.[26] It took *four* procedures to award a contract eventually to the same company as originally intended. The losing bidders complained several times that the procedure was tailored to one consortium close to the government and it also raised suspicion that the issuer annulled the process itself[27]. In addition, the Public Procurement Arbitration Board annulled the procedure twice, an issue we will get back to below.

This corruption technique can be associated with one direct indicator:

A) proportion of annulled procedures re-launched subsequently

and indirect indicator:

B) decrease in the number of bids received in subsequent rounds.

The regularity of annulling procedures and subsequently re-launching it with slightly different conditions directly signals the potential for strategic behaviour. As occasional errors can occur in even the cleanest issuer, what indicates heightened corruption risks is the regular and repeated annulations initiated by the issuer. As every annulation has to be reported in the Public Procurement Bulletin the proposed indicator is a likely precise measure of the potential use of this technique:

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[26] http://index.hu/belfold/2012/09/13/otodszorre_is_kozgep_nyerte_el_a_milliardos_csongradi_munk at/

[27] http://www.kozbeszerzes.hu/adatbazis/mutat/hirdetmeny/portal_16326_2011/

$$PAPR_{it} = APR_{it} \: / \: TNP_{it}$$

where $PAPR_{it}$ refers to the proportion of annulled procedures re-launched subsequently within all procedures initiated of the ith unit of observation, typically public organisation, over period t, APR_{it} denotes the total number of procedures annulled by the issuer (not by the courts) of the ith unit of observation during period t, and TNP_{it} refers to the total number of procedures initiated by the ith unit of observation over period t.

While overall the proportion of annulled procedures is rather low approximately 3%, annulations tend to cluster with some issuers whose propensity to annul procedures is persistently high (Figure 15).

Proportion of annulled procedures by issuer with proportion higher than 0.15, 2009-2011 (lines represent single issuers' annulation proportions over time)
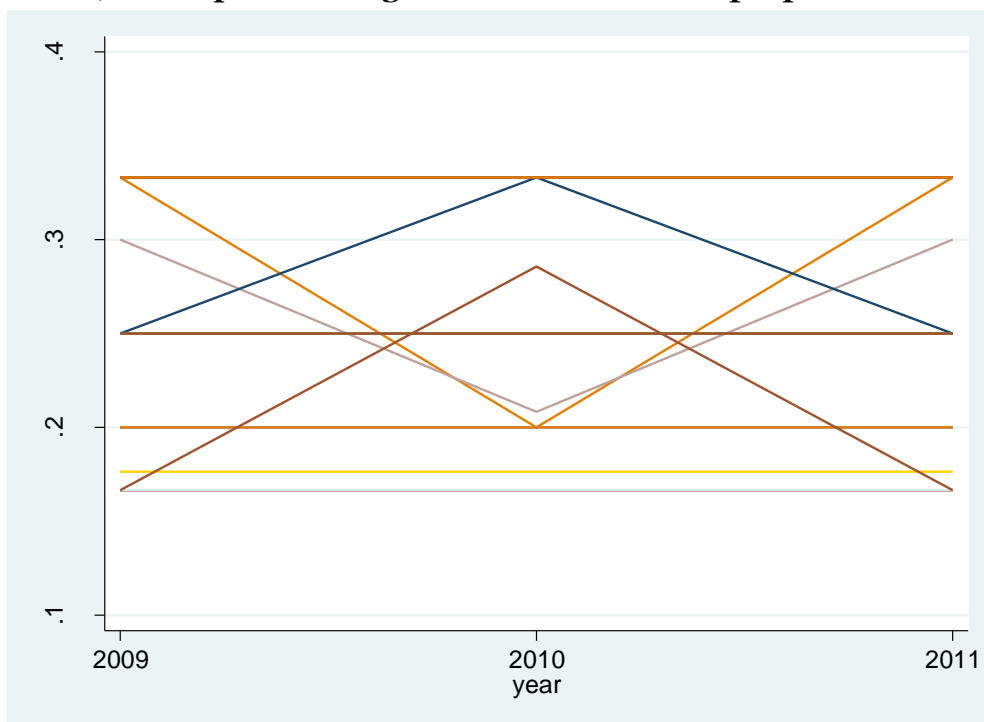
Source: PP

It follows from the above discussion that the major objective of using this corruption technique is to limit competition, that is, decreasing the number of bidders to one, even though decreased competition can be associated with other measures (e.g. subjective evaluation criteria used for arbitrary scoring). Hence, if subsequent rounds of re-launched tenders lead to decreased number of bidders it is likely that the underlying rationale of annulling the procedure was in line with the described corruption technique. We propose therefore the following indirect indicator signalling the potential use of this technique:

$$ADRB_{it} = \Sigma_j \: (\: NRBA_{itj} - NRBS_{itj} \:) \: / \: j$$

where $ADRB_{it}$ refers to the average difference between the number of bids received in the annulled and completed public procurement procedures of the ith unit of observation,

typically public organisation, over period *t*, $NRBA_{itj}$ refers to the number of bids received in the *j*th procedure's annulled award notice of the *i*th unit of observation during period *t*, and $NRBS_{itj}$ refers to the number of bids received in the *j*th procedure's final successful award notice of the *i*th unit of observation during period *t*. As multiple annulations can take place within the same procedure this indicator simply compares the first and last 'rounds' in order to simplify the calculations. This is justified on the grounds that intermediary annulations (i.e. those happening between the first and last 'round') most likely represent unsuccessful applications of the technique.

Unfortunately, this indicator could not be calculated due to technical complexities, further work must be done to arrive at a reliable estimate.

T4.2 Repeated violations of public procurement rules

The violation of Public Procurement Laws and regulations represents the simplest and crudest corruption strategy. As long as violations are not gross, they may remain undetected making the completed procurement process look legally acceptable. While violation of some rules is also a hallmark of a range of corruption techniques discussed in this section, what makes this technique distinct is the *repeated* violations within the same procedure (Ware et al. 2007; World Bank 2007). Assuming that the judicial control is not completely captured by corrupt networks, repeated violations mean that the issuer is likely breaching regulations not simply out of administrative incompetence, but deliberately in order to benefit a 'desired' company. If this is really the case, this technique impinges on fair competition and accountability. Obviously, not every violation and error is a tool for corruption, only those which appear recurrently suggesting strategic use of 'minor mistakes' should raise suspicion.

In principle, public procurement practice is closely monitored and we can safely assume that, at least in some cases, judicial control does function properly. But because, external control of the Public Procurement Arbitration Board, courts, and SAO is weak in general in this field (Báger 2011), it is quite possible that repeated violations are not or partially detected. This, of course, limits our ability to use court decisions as a reliable indicator.

This corruption technique can be linked to most other techniques, especially those directly weakening competition.

An excellent example of this technique is the previously mentioned levee reconstruction project at the river Tisza. While on one occasion the issuer itself annulled the procedure, twice the Public Procurement Arbitration Board struck it down. This, nevertheless, did not stop the issuer from awarding the contract to the same consortium closely associated with the highest echelons of the government.

The only direct indicator for this corruption technique is

A) repeated court rulings against the issuer within the same procedure.

Developing an indicator based on rulings of the Public Procurement Arbitration Board or the Hungarian courts potentially suffers from biases as monitoring and adjudication may be influenced strategically by corrupt networks (Jancsics and Jávor 2012). In order to minimise this bias we only consider cases of repeated court rulings within the same procedure. The logic behind this twist is that once the first court ruling was made the case becomes more exposed making it harder for corrupt networks to strategically turn off judicial review. Hence, repeated court rulings may in fact represent appropriately the number of actual 'irregularities' of the procedure. Moreover, repeated errors infringing on the Public Procurement Law and other regulations are more likely to represent deliberate 'bending' of rules rather than simple errors. The proposed indicator is as follows:

$$PRCR_{it} = RCR_{it} / TNP_{it}$$

where $PRCR_{it}$ refers to the proportion of procedures with more than one court rulings against the issuer within all procedures initiated of the ith unit of observation, typically public organisation, over period t, RCR_{it} denotes the total number of procedures with more than one court ruling against the issuer of the ith unit of observation during period t, and TNP_{it} refers to the total number of procedures initiated by the ith unit of observation over period t.

Using this indicator together with any of the other indicators outlined in this section may lead to double-counting some techniques. For example, when the court annuls the procedure for reasons already included in other corruption techniques, we count it twice in a composite indicator. While in general it may introduce a bias, we don't think it is an issue as court decisions are likely involving larger contracts (administrative fees make it no worth to go for smaller contracts) and more extensive violations. Hence, this double counting can be considered as weighting the importance of the revealed violations in some cases and simply revealing additional corruption risks in others.

Unfortunately, linking court rulings to public procurement procedures requires a large amount of manual labour as there is no standard reference in court rulings to the announcement being challenged.[28] Further work is needed to finalise this indicator.

T4.3 Unfair scoring

Scoring of competing bids takes place every time bids are evaluated on the basis of price plus quality. Issuers are obliged to assemble an evaluation committee and keep records of their scoring. As the process of scoring is internal to the public organisation and attaching scores to subjective criteria (see T2.4) is difficult to effectively control from outside, scoring can be

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[28] In fact sometimes there is no direct reference at all besides the names of plaintiff and respondent and the short title of the announcement

easily abused for the benefit of a corrupt network (Papanek 2009). If scores are given to benefit a 'desired' company it clearly infringes upon the principle of fair competition.

The process of scoring is difficult to control for external bodies in general, but especially in the case of subjective evaluation criteria. Bidders who did not win are likely to question the fairness of scoring; however, due to privacy law and trade secret considerations their chances of an effective challenge are rather low.

This technique works in tandem with T2.4 – tailoring evaluation criteria, as subjective criteria defined already at the outset makes the application of this technique easier.

According to one interviewee from the construction sector this technique is most likely exercised in a subtle way: the call for tenders defines evaluation criteria regarding non-quantitative performance and the evaluation committee scores these non-quantitative aspects in a barely visible unfair manner by giving the 'desired bidder only one point in addition to the others. Nevertheless, these scores add up in the end just a little bit higher than the best 'unwanted' bidder.

Due to the lack of publicly available detailed records of the scoring and evaluation processes inside the issuer organisations there could be no direct indicator developed. Nevertheless, there are three indirect measures[29] which could point at the use of this technique:

A) average contract value per weekdays available for decision,

B) length of evaluation criteria, and

C) weight of non-price criteria.

The number of days passed between the submission deadline and the final decision in general is likely to indicate the efficiency of the decision making process given the size (and complexity) of the contract to be awarded (Heggstad and Froystad 2011; Strand, Ramada, and Canton 2011). However, in the case of extremely short periods that is, a couple of days only the suspicion may arise that the decision was made in haste without serious consideration rather than extremely efficiently. This suspicion can be further strengthened if the total value of the contract is taken into account as more expensive contracts tend to be more complex, requiring longer time to arrive at an optimal decision. Hence, we propose the following indicator:

$$ADDCV_{it} = (\ \Sigma_j\ (CV_{itj}\ /\ DD_{itj}\ ))\ /\ TNT_{it}$$

where $ADDCV_{it}$ refers to the average ratio of total contract value over the number of weekdays between submission and decision dates of the ith unit of observation, typically public organisation, over period t, DD_{itj} denotes the number of weekdays between submission and decision dates in the jth procedure of the ith unit of observation during period t, CV_{itj} denotes

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[29] While in principle extremely short decision periods could be identified in a similar way extremely short submission periods were identified, unfortunately, the distribution of decision periods did not reveal any obvious cut-point or suspiciously short period (minimum was 7 days). Thus, no indicator is developed solely on the basis of decision periods.

the value of contract awarded in the jth procedure by the ith unit of observation during period t, and TNT_{it} refers to the total number of tenders concluded by the ith unit of observation over period t.

On average, this ratio almost reaches 3 throughout 2009-2011 that is, there were almost 3 million HUF of contract value for each weekday of submission period. It is noteworthy that the distribution of this ratio is highly skewed with only very few very large numbers (Figure 16). As decision periods may also reflect differences in technology and industry standards, it is conceivable that norming by market means leads to a better indicator.

Figure 16.

The distribution of average contract value (million HUF) per decision period (days), 2009-2011 (ratios < 20)
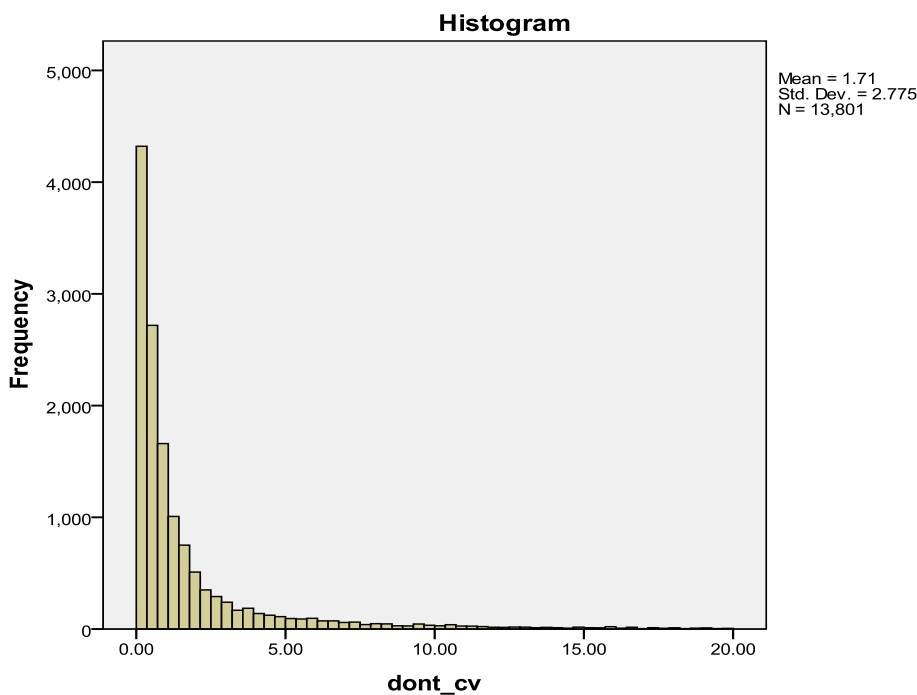
Source: PP

The two other indirect indicators have already been discussed above (see T2.4) in detail. They are also relevant for this technique as subjective evaluation criteria make it easier and therefore more likely to score bids in an unfair manner. Using the same indicators for techniques T2.4 and T4.3 reinforces the view that they are typically applied in tandem.

T4.4   Abusing the unit price of contract value

As has been outlined already, it is essential for any reporting system on public procurement to make information on contract values reliably and transparently available to the wider public. In this respect transparency may decrease corruption on its own (Transparency International 2006). If the contract value is given in unit prices such as HUF per kWh or % of interest rate without explicitly specifying the corresponding quantities or at least the estimations of

quantities the principle of transparency is violated as it is not possible to know how much money is being spent at the end of the day. Using unit prices in public procurement contracts can be source of abuse and corruption as reported by our interviewees and international examples (OECD 2007). Contracts in unit prices allow for adjusting quantity intransparently throughout the lifespan of the contract hence obtaining corruption fee.

A particular widespread form of this technique can be found in the services sector where the pre-selected winner wins the actual tender on the basis of low unit costs. However, during delivery the corrupt issuer will allow the winner to invoice larger than actual quantities of at least some of the services delivered. 'Over-invoicing' is easily done without much risk of detection in services sector as hours spent on giving advice, meetings or fixing machines cannot be easily controlled externally. Obviously, those bidders which are not offered such a deal prior to bidding cannot offer so low prices for the services and lose out in competition which on paper looks fair, but in fact is not.

This corruption technique is closely associated with T3.5 – deliberate errors in document publication in its approach and effect, but it doesn't necessary imply an error in the figures presented rather a failure to provide additional information required for fully determining the value of a contract. This corruption technique works well with techniques related to performance of the contract, especially T5.4 – performance violating the contract, as it renders hiding such improper delivery less visible.

There is only one direct indicator of this corruption technique:

   A) proportion of contracts using unit prices without stated total value,

while there could be no indirect indicators formulated.

At the heart of this technique lies the use of unit prices which can be done for a range of justifiable and non-corrupt reasons. For example, in the case of loans for a municipality, banks would compete on the basis of interest rate on the loan rather than simply on total cost as this is the standard pricing method of the industry. Nevertheless, even in standard cases where the use of unit prices is reasonable, the final total price of the goods and services delivered must be reported at least as an estimate according to the Public Procurement Law in order to avoid later intransparent modifications of spending value. The proposed indicator is:

$$PCAUP_{it} = NCAUP_{it} / NCA_{it}$$

where $PCAUP_{it}$ refers to the proportion of awarded contracts using unit prices over the total number of contracts awarded by the ith unit of observation, typically public organisation, during period t, $NCAUP_{it}$ denotes the total number of awarded contracts using unit prices without stated total contract value of the ith unit of observation during period t, and NCA_{it} refers to the total number of contracts awarded by the ith unit of observation over period t.

Overall, there are very few contracts which are defined in unit prices and their proportion displays a strong decreasing trend in the period 2009-2012 (Table 8).

Table 8.

**Average proportion of contracts awarded using unit precise
for defining total contract value, 2009-2012**

	Mean	N_{unitp}	N_{total}
2009	4.2%	466	10982
2010	0.3%	59	17769
2011	0.4%	52	14140
2012	0.7%	77	10372
2009-2011	1.2%	655	53263

Source: PP

4.5 Contract implementation
T5.1   Modifying the contract strategically

What gets delivered by the end of the contractual period is often different from what was originally contracted. If this deviation is not the result of plain negligence of contractual obligations then a contract has to be officially modified and announced in the Public Procurement Bulletin. While contract modifications can take place due to a range of justifiable reasons, such as exceptionally bad weather constraining construction works, it can also be abused for corrupt purposes (European Court of Auditors 2012; Papanek 2009). Corruption rent can be earned by increasing prices, extending deadlines, and diminishing quality each of which is regularly observed in a range of countries (Heggstad and Froystad 2011; Kenny and Musatova 2010; Lengwiler and Wolfstetter 2006; OECD 2007; Transparency International 2006; Ware et al. 2007). This technique infringes on the principle of accountability, but it can also harm fair competition. This is the case when the 'desired' bidder knows about the possibility of contract modification prior to bidding enabling it to offer lower price and/or higher quality than its competitors

An effective constraint on this technique is that every modification of the original contract has to be announced in the Public Procurement Bulletin and all the other bidders have to be notified. There are no indications of regular breach of these obligations either according to interviews and media reports or court decisions. If the contract modification concerns aspects of the tender relevant for selecting the winning bidder those who lost the tender can challenge the contract award in court. In addition, supporting bodies like the National Development Agency try to minimize contract modification as much as possible due to EU funding regulations in particular.

This technique can be employed simultaneously with virtually any other technique. Nevertheless, it may be a substitute for any corruption technique limiting competition in the bidding phase as there is no need for modifying the contract if the 'desired winner' could offer a higher price and/or lower quality already at the outset. It is also a substitute for T5.4 –

performance violating contract, as if simple violation is feasible it is not necessary to risk raising attention through modifying the contract with its publication requirements.

There could be three direct indicators conceived for this corruption technique while there is no indirect measure:

A) proportion of modified contracts,

B) difference between the awarded and final contract value, and

C) difference between originally planned and final completion period.

As highlighted above, contracts can be modified for a range of reasons; however, those markets or issuers where contract modification is a regular practice may still be considered as higher corruption risk markets or issuers. This is because, we can expect issuers to develop specific skills over time to manage more complicated or more uncertain contracts rendering contract modifications for non-corrupt reasons an exception rather than the rule. By implication, the proposed indicator is:

$$PMC_{it} = NMC_{it} / NCA_{it}$$

where PMC_{it} refers to the proportion of awarded contracts which were subsequently modified over the total number of contracts awarded by the ith unit of observation, typically public organisation, over period t, NMC_{it} denotes the total number of awarded contracts which were subsequently modified of the ith unit of observation during period t, and NCA_{it} refers to the total number of contracts awarded by the ith unit of observation over period t.

Overall, contract modifications are surprisingly frequent events, annually between 4% to 16% of all contracts were subsequently modified. This underlies the importance of the contract implementation phase compared to the contract award phase in terms of final outcomes. What is even more surprising is that a large number of contracts, over 2300, were modified more than once (Figure 17). On average modified contracts were modified 2.6 times. Contract modification have experienced a considerable spike in 2010 and 2011, that is after the new government came into power suggesting the potential links between electoral cycles and contract modification activities.

Figure 17.

**Number of contract modifications per contract, 2009-2011
(only those contracts are depicted which were modified at least once)**
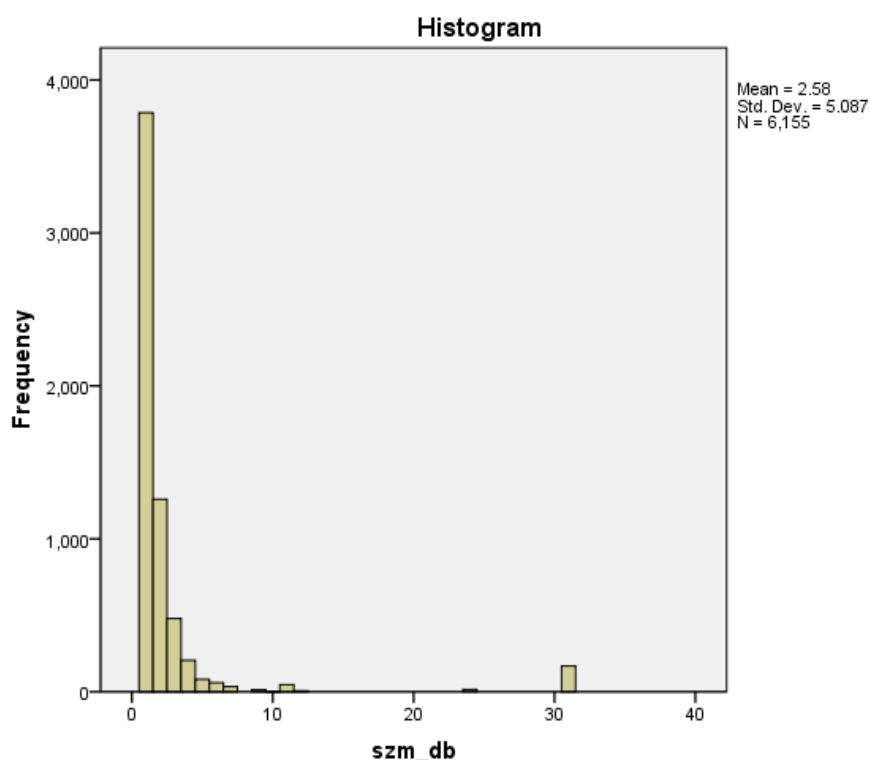
Source: PP

Whether a contract has been modified or not is a rather blunt indicator of corruption risks as it leaves aside two major ways of earning corrupt rents: 1) increasing final contract value and 2) increasing completion period for saving production costs. In order to gauge the first kind of corrupt practice, the following direct indicator of the corruption technique is proposed:

$$ARVCM_{it} = (\Sigma_j ((FCV_{itj} - OCV_{ijt}) / OCV_{itj}) / NCA_{it}$$

where $ARVCM_{it}$ refers to the average relative value of contract modifications[30] of the ith unit of observation, typically public organisation, over period t, FCV_{it} denotes the final contract value in the jth procedure of the ith unit of observation during period t, OCV_{it} refers to the original contract value of the jth procedure by the ith unit of observation over period t, and NCA_{it} refers to the total number of contracts awarded by the ith unit of observation over period t. This indicator takes into account that in absolute terms larger contracts are more likely to have larger deviations, hence a proportionate indicator is suggested.

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[30] This excludes the increases in contract value due to utilizing the pre-defined reserves. This source of additional spending as a corruption indicator is discussed below in section T5.2.

The final contract values differ in a great number of cases from the originally contracted contract values both exceeding it and falling under it (Figure 18) while the publication of these figures is frown with a number of errors (see section T3.5). Over 80% of the observed procedures fall within +/- 1% of the original contract value. Interestingly, in slightly more than 7% of the observed procedures, the final contract value excessively surpasses the original contract value (taking a 10% price increase as a threshold, arguably an arbitrary cut-point).

Figure 18.
Distribution of procedures according to the relative value of contract modifications, 2009-2012
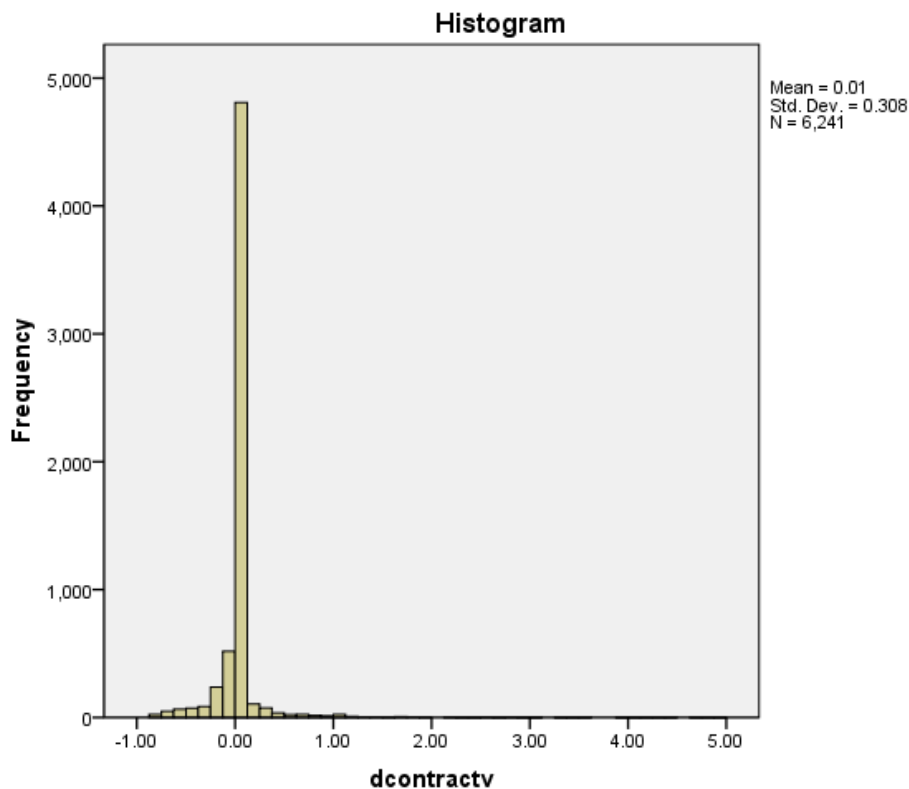
Source: PP
Note: Contract value deviations less than 80% and more than 500% were removed because they most likely represent data errors (for more details see section T3.5).

The 'well-connected' winner can also decrease its production costs by increasing the time available for delivery as it gives the supplier more flexibility to economise on its production factors and deliver when it is most beneficial for itself. This of course implies costs to the issuer in terms of foregone benefits of using the supplied products or goods. In order to capture this kind of potentially corrupt behaviour we propose the following indicator:

$$ARTCM_{it} = (\ \Sigma_j\ ((FCT_{itj} - OCT_{ijt})\ /\ OCT_{itj}\ )\ /\ NCA_{it}$$

where $ARTCM_{it}$ refers to the average relative change in the length of delivery due to contract modifications of the ith unit of observation, typically public organisation, over period t, FCT_{it}

denotes the final contract length in the *j*th procedure of the *i*th unit of observation during period *t*, OCT_{it} refers to the original contract length of the *j*th procedure by the *i*th unit of observation over period *t*, and NCA_{it} refers to the total number of contracts awarded by the *i*th unit of observation over period *t*. This indicator takes into account that in absolute terms longer contracts are more likely to have longer changes, hence a proportionate indicator is suggested.

A picture very similar to contract values is revealed by this indicator, albeit deviations are even more rare in this case (Figure 19). A large majority, about 90% of contracts has exactly the planned contract length, whereas only 4% of contracts considerably exceeds the originally planned or contracted length (taking a 10% increase in contract length as an arbitrary cut-point).

Figure 19.

Distribution of awarded contracts according to the relative change in contract length, 2009-2012, %
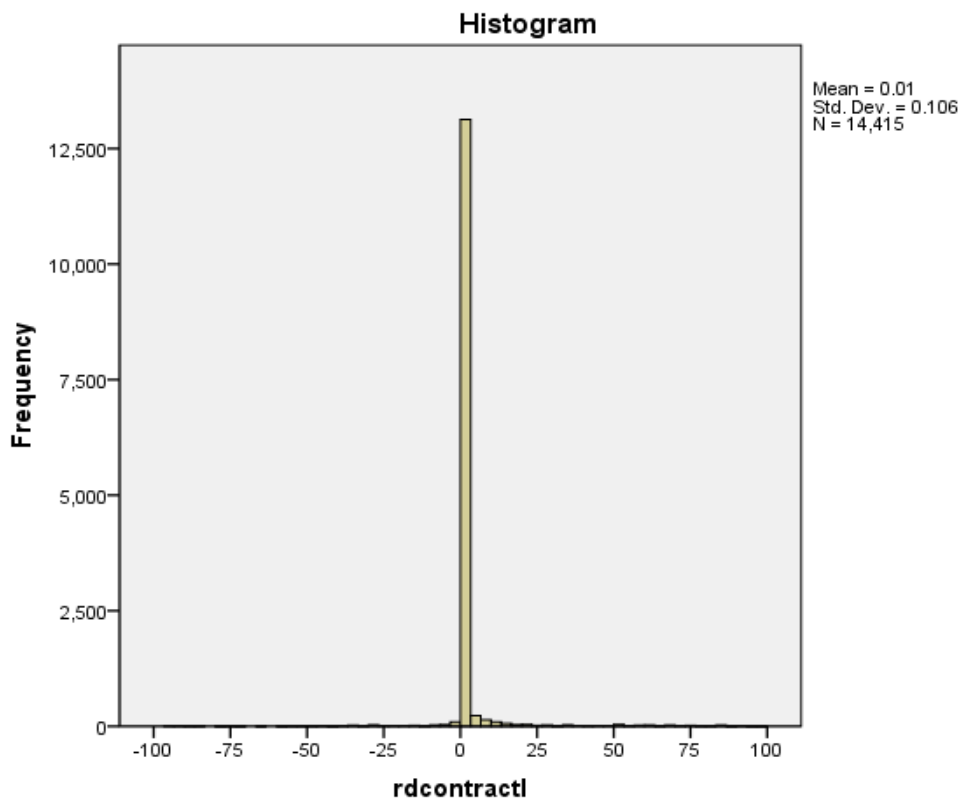
Source: PP

T5.2   Abusing an add-on contract or emergency reserve

This corruption technique comes in two variants sharing the same logic, but differing in the method of realisation. First, once a contract is awarded, the need for additional but linked services or goods can arise, justifying the award of one or more add-on contracts. For example,

unforeseen characteristics of a construction site may require additional work to be completed such as removing previously unknown objects from the site. This, nevertheless, creates the opportunity to extract rents in a corrupt manner (Papanek 2009). Invoking some sort of technical reason – justified or not – (e.g. that the company is already on the construction site with its machines and people) is sufficient to invite only the winner of the prior contract to the public procurement procedure for the add-on contract (European Court of Auditors 2012). Then the sole bidder can set a price substantially above market price earning extra profit for the corrupt network. If the well-connected bidder knows about the potential for add-on contracts it can offer low price and/or high quality for the first contract, even if it loses money on it, as it will be able to more than compensate for the losses in the second or later contracts. Second, additional services and goods can also be delivered within the framework of the main contract if it contained a reserve for unforeseen circumstances. According to interviewees, winning a contract at a competitive market price knowing that 10-15% of extra money will surely accompany the main contract from the reserve for 'unforeseen' events is the major technique for extracting the corrupt rent in Hungarian large infrastructure projects. While this variant of the corruption technique is essentially the same as the use of add-on contracts, it doesn't require any additional announcement or external intervention. Hence, it is very difficult to externally monitor.

While splitting up contracts is heavily regulated by the Public Procurement Law, it is relatively easy in complex projects, especially in construction, to name some unforeseen circumstances based on which add-on contracts can be awarded in a subsequent procedure. In addition, if the add-on contracts fall outside the Public Procurement Law, for example because they are small, then monitoring and external review becomes difficult.

A typical example of abusing add-on contracts was shared by one of our interviewees working as a supplier in the healthcare sector for several decades: "the contract for delivery of expensive machinery can be awarded to a company offering impossibly low prices making a considerable loss on the deal. However, moving the machines within the hospital from one room to another is not part of the original contract, rather there will be a separate contract between the hospital and the company using inflated prices (not announced anywhere publicly). For example 100 000 HUF (350 EUR) for moving a machine form one room to another, practically moving it 10 meters. Then you just need to move those machines a couple of times back and forth and you can imagine the amount of profit generated…".

An example for abusing emergency reserves comes from a large highway construction project where, according to the interviewee, it was easy to find justification for exhausting the contractual reserves simply by referring to the need for building auxiliary roads for the construction site. Such roads are built when bad weather such as heavy rain makes it hard to approach the construction site and deliver the necessary equipment and material. It is unlikely

that any review body would go and check weather data and contest the necessity of building expensive auxiliary roads.

Abusing add-on contracts comes very close to T2.1 - tinkering with thresholds and exceptions, but in this case at least one of the contracts is awarded under the umbrella of the Public Procurement Law and rules on combining contracts and exceptions are circumvented only for the other contract(s). Abusing emergency reserves is very similar in effect to T5.1 – modifying the contract strategically with the important difference that the contract modification can be achieved within the framework of the original contract. Furthermore, both of the variants of this technique can be substitutes for the techniques limiting competition during the bidding phase as there is no need to limit competition if the 'pre-selected' bidder can win through a fair competitive procedure and subsequently increase its profit through abusing add-on contracts and emergency reserves.

There could be conceived two direct indicators for this corruption technique, reflecting the two variants it comes in:

A) proportion of add-on contracts, and

B) proportion of contracts exhausting the planned reserves.

Focusing simply on the regularity of using add-on contracts signals the most substantive corruption risks, especially if this practice is standard in the given context. As add-on contracts may well fall below the threshold for applying the Public Procurement Law many of the less costly instances of this techniques cannot be recorded by our database. The proposed indicator is the following:

$$PAOC_{it} = NAOC_{it} \,/\, NCA_{it}$$

where $PAOC_{it}$ refers to the proportion of awarded contracts followed by at least one add-on contract over the total number of contracts awarded by the ith unit of observation, typically public organisation, over period t, $NAOC_{it}$ denotes the total number of awarded contracts followed by at least one add-on contract of the ith unit of observation during period t, and NCA_{it} refers to the total number of contracts awarded by the ith unit of observation over period t.

Our method of identifying add-on contracts could only rely on simple key-word search in the contract title which often highlight the fact that a contract is on top of an existing one. Unfortunately, there is no standardized definition in the Public Procurement Law of add-on contracts and no uniform way of linking add-on contracts to main contracts. By implication, our identification procedure may only scratch the surface of the phenomenon. We identified 128 add-on contracts throughout 2009-2012 with a total value of 6.5 million EUR.

Gauging the regularity of exhausting the pre-defined emergency reserve can be directly measured in the following way even though some issuers may not readily report the reserves built-in their contracts[31]:

$$PEER_{it} = NEEC_{it} / NECA_{it}$$

where $PEER_{it}$ refers to the proportion of awarded contracts exhausting the emergency reserve over the total number of contracts containing such a reserve provision awarded by the ith unit of observation, typically public organisation, over period t, $NEEC_{it}$ denotes the total number of awarded contracts exhausting the emergency reserve of the ith unit of observation during period t, and $NECA_{it}$ refers to the total number of contracts containing a reserve provision awarded by the ith unit of observation over period t.

While it was possible to screen contracts for identifying whether they contain an emergency reserve, number of cases is too low to provide a meaningful analysis. Further work is needed in this respect to identify more relevant cases.

T5.3   Performance violating the contract

At the end of the day, looking at contractual relationships, reported characteristics of public tendering and contracts are useful only to the degree they reflect what is happening in reality, that is whether performance is according to contract or not. However, if the issuer and contractor are parts of the same corrupt network, it is relatively easy to simply deviate from contractual obligations secretly and earn profit on it. This can be done by lower than agreed quality or lower quantity (Meagher Patrick 1997; Piga 2011). Such a corruption technique violates the principle of accountability and it has been observed in a range of countries (OECD 2007; Papanek 2009; Transparency International 2006). A simple way to implement such transactions is to bribe the technical controller or involve the controllers in the network directly. In the case of large construction projects, low quality or deficient quantity may not be visible at all at for a couple of years. Often quoted examples by our interviewees were lower than contracted quality cables and tubes in the wall or deficient strength of the base for roads due to lower than contracted quantity of some expensive material.

If control was ineffective during the construction phase, it is very difficult to exercise effective ex-post control in the case of construction projects. The only means to keep this corruption technique at bay in construction projects is the effective enforcement of guarantee clauses forcing the suppliers to factor in future repair costs under a scenario that their 'connections' may not be in power anymore. For services contracts, performance cannot be

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[31] While there are numerous examples of reporting contractual emergency reserves, there is no clear evidence that this practice would be mandatory for every issuer or that the Public Procurement Authority would regularly control and enforce its reporting. Hence, we have the suspicion that the above indicator is downward biased.

effectively checked in many cases if the buyer and contractor cooperate in perpetrating corruption (see at section T5.2 on the example of add-on services contracts).

This corruption technique can be combined with practically any of the above techniques, while it may be a substitute for T5.1 – modifying contracts strategically as modification is not necessary if contractual obligations can be simply violated without consequences.

Unfortunately, due to its invisible nature even to thorough audits, this corruption technique could not be associated with any direct or indirect indicators. It is, nevertheless, suggested that we can consider this technique as an unmeasured, but very likely correlate of the above techniques. Based on media reports, low quality/quantity performance is typical of high corruption risk contracts.

4.6 Summary of corruption techniques and their indicators

As there are many corruption techniques and indicators, it is worth summarizing the above discussion in one table outlining corruption techniques and the corresponding direct and indirect indicators (Table 9). It is clear from the above discussion as well as the below table that a number of indicators could signal multiple techniques and that some techniques are likely substitutes or complements for each other bearing consequences for the correlations across their indicators. Later on, these hypothesized relationships across indicators can be used for verifying corruption indicators.

Table 9.

Summary of corruption techniques and their indicators

ID	Name	Direct indicator	Indirect indicator
T1.1	Defining unnecessary needs	-	-
T1.2	Defining needs to benefit a particular supplier	A) Prevalence of avoiding centralised procurement	-
T2.1	Tinkering with thresholds and exceptions	A) Proportion of non-open procedures B) Average corruption risk score of procedures followed C) Frequency of actual contract value above estimated contract value	D) Contract value according to Public Procurement Law/total procurement contract value
T2.2	Tailoring eligibility criteria	A) Length of eligibility criteria	-
T2.3	Abusing formal and administrative requirements	A) Length of eligibility criteria B) Proportion of excluded bids	-
T2.4	Tailoring evaluation criteria	A) Length of evaluation criteria B) Weight of non-price criteria	-
T2.5	Using long term complex contracts	A) Combined value of framework contracts and PPPs / total contract value B) Average contract duration	-
T2.6	Tinkering with submission period	A) Proportion of tenders with accelerated submission periods B) Proportion of tenders with extremely short submission periods C) Average contract value per weekday available for submission	-
T3.1	Selective information provision	-	A) Proportion of tenders with extremely short submission periods B) Proportion of procedures with call for tenders modified within all procedures
T3.2	Avoiding publication of call for tenders	A) Proportion of tenders without call for tenders in the official journal	-
T3.3	Strategically modifying call for tenders	A) Proportion of procedures with call for tenders modified within all procedures	-
T3.4	Excessively pricey documents, difficult access to documents	A) Price of documentation/estimated contract value	-
T3.5	Deliberate errors in document publication	A) Prevalence of extremely erroneous contract award announcements B) Hiding or erroneously reporting the final contract value	-
T4.1	Strategically annulling procedures	A) Proportion of annulled procedures re-launched subsequently	B) Decrease in the number of bids received in subsequent rounds
T4.2	Repeated violations of public procurement rules	A) Repeated court rulings against the issuer within the same procedure	-
T4.3	Unfair scoring	-	A) Average contract value per weekday available for decision B) Length of evaluation criteria C) Weight of non-price criteria
T4.4	Abusing unit prices in the contract	A) Proportion of contracts using unit prices	-
T5.1	Modifying contracts strategically	A) Proportion of modified contracts B) Difference between the awarded and final contract value C) Difference between originally planned and final completion period	-
T5.2	Abusing add-on contracts	A) Proportion of add-on contracts B) Proportion of contracts exhausting the planned reserves	-
T5.3	Performance violating contract	-	-

5. Instead of conclusions: the use of such an inventory and some reservations

According the academic literature, interviews, and the media analysis, the list of corruption techniques in use has not changed much in the last 10 years in Hungary or internationally. While quantitative analysis revealed that the prevalence of individual techniques changed probably due to regulatory action and the evolution of corruption networks' resources. These observations suggests that there may be a reliable basis for the time series analysis performed later.

The indicators presented in this paper by no means exhaust the full list of corruption techniques and the potential measurement tools. On the one hand, they can only represent the best available evidence collected by the authors. On the other hand, they primarily relate to the Hungarian and Eastern European context. For these reasons, this paper shall be considered as a living book to which further techniques and indicators will be added as more evidence is unearthed either from Hungary or from other countries. Currently, research by the authors and further colleagues is ongoing in a range of countries such as Croatia, Czech Republic, Romania, Russia, and Slovakia which hopefully will add further detail and evidence to this list.

5.1 Use of such an inventory

First and foremost, the long list of corruption techniques and the corresponding indicators set out above provide a solid basis on which indicator verification can take place and a composite corruption indicator can be built. Any composite indicator developed from these elementary measures should take into account the substitutability and synergies existing between many of the above variables. Hence, the analysis of their co-variation can increase our trust in their validity and usefulness as indicators of corruption. In a further paper, the authors links each of these elementary indicators situated on the input side of the corruption process to outcome indicators of the corrupt procurement process. Outcome indicators in this respect directly relate to the corrupt selection of bidders. Examples include single bidder contracts, exclusion of all but one bidder, or political office of winning bidder's owners.

Second, while the above list may appear very long and some description very cumbersome, it allows for a detecting changes over time in the relative use of these techniques. Thus, it also increases our confidence in linking the whole set of corruption indicators to the underlying actual level of corruption as hopefully only a few major techniques remained unaccounted for.

Third, this list may also be useful for audit and control institutions which aim at curbing corruption in public procurement and other areas of public spending in which bidding and auctions are a major method of resource allocation (e.g. EU funding for enterprise development or publicly owned land allocation).

5.2 Interpretation challenges

There are three main challenges to this paper's approach as we can see:

1. **The benchmark is moving**: the legal and societal norms are changing over time, so does the benchmark according to which we define corruption. But, principles and overarching objectives of public procurement are stable throughout our observation period hence this problem can be partially sidelined. Of course, the details of the legal framework are changing constantly which may be considered as a corruption risk on its own, but these can be taken into account in the details of the indicators developed without touching on the underlying principles (e.g. legally binding thresholds may change from year to year, the underlying behaviour of abusing exceptions remains the same and can be precisely measured).

2. **Confounding administrative incompetence and corruption**: Arguably, many of the behavioural patterns revealed by our indicators can also be produced by simple administrative incompetence that has nothing to do with corruption. On the one hand, carefully defining corruption indicators may solve a large part of this critique, as some non-random, but moderate values may very well result from incompetent procurement management, however, recurrent and gross errors and misconduct suggest deliberate action. On the other hand, systematically controlling for administrative capacity from independent sources such as the Treasury's institutional annual wage statistics and testing relationships among individual indicators can vastly increase our confidence in measurement and refine the indicators (e.g. length of eligibility criteria in general is unrelated to the decrease in the number of bidders while above a certain threshold it turns out to be a significant and powerful predictor). Nevertheless, one could argue that administrative incompetence may very well co-evolve with corruption. Therefore, to some degree, disentangling the two may not be fully possible (Golden and Picci 2005).

3. **Indicators and underlying mechanism describe attempts at solving the widespread problem of low trust in business transactions rather than corruption**: In a low trust environment where many companies cannot be trusted to deliver, official records are imprecise, and the courts are inefficient at resolving business disputes the behaviour described as corrupt may very well aim at getting

things done in spite of generally unreliable business relationships. For example, deliberately tailoring the tender to the company of a cousin may serve the public interest if the family tie is used by the officials to enforce the contract. Now, this often implies an extra costs which we interpreted as corrupt rent; however, it may simply be the cost of extra-contractual monitoring and enforcement mechanism that has nothing to do with corruption. Further qualitative and quantitative work is needed to rule out this alternative explanation.

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Appendix A-examples of corruption techniques in the Hungarian media

This appendix contains more detailed information about the methods and results of the media review conducted in order to support the development of corruption techniques and indicators in section 4.

The keywords used in identifying potentially relevant articles from the complete population of articles in our database referred to corruption, embezzlement, bribery, and cronism. In Hungarian, these were: antikorrupciós, korrupció-ellenes, korrupció-megelőzési, korrupcióellenes, korrupciómegelőzési, korrupciómentes, korrupciómentesen, korrupciómentesség, korrupciómentesít, korrupciótlanítási, csúszópénz, kenőpénz, kenőpénzes, közkenőpénz, megken, Korrupciókutató-központ, korrupció, korrupció-elterjedtség, korrupció-kutató, korrupció-érzékelési, korrupciófelismerési, korrupciógyanús, korrupciógyár, korrupciós, corrupt, korruptabb, mutyi, mutyizik, mutyizás, pénzmosás, megveszteget, megvesztegethető, megvesztegetés, megvesztegető, veszteget, vesztegetett, vesztegetés, vesztegetési.

After eliminating articles which discussed the same case, we ended up with 42 articles which made concrete references to at least one potentially or actually corrupt public procurement procedure and revealed at least one specific corruption technique. Mapping each article according to the techniques discussed can be found below (Table 10)

Table 10.

Corruption techniques' discussion in the Hungarian media, 2008-2012

c.tech. ID	corr. techn. Name / article ID**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
T1.1	Defining unnecessary needs				x											x																x											
T1.2	Defining needs to benefit a particular supplier	x			x												x																										x
T2.1	Tinkering with thresholds and exceptions			x		x	x	x	x		x			x	x			x			x		x				x		x	x		x	x								x		x
T2.2	Tailoring eligibility criteria	x	x		x						x		x	x				x	x						x	x	x	x		x													
T2.3	Abusing formal and administrative requirements																										x																
T2.4	Tailoring evaluation criteria																										x		x														
T2.5	Using long term complex contracts			x												x																											
T2.6	Tinkering with submission period			x		x		x					x				x	x																								x	
T3.1	Selective information provision	x																																									
T3.2	Avoiding publication of call for tenders			x		x	x	x	x		x			x	x			x			x		x				x		x	x		x	x								x		X
T3.3	Strategically modifying call for tenders																																										
T3.4	Excessively pricey documents, difficult access to documents																																										
T3.5	Deliberate errors in document publication																																										
T4.1	Strategically annulling procedures																								x													x*	x		x		
T4.2	Repeated violations of public procurement rules																					x			x																x		
T4.3	Unfair scoring																																										
T4.4	Abusing unit prices in the contract																																										
T5.1	Modifying contracts strategically								x							x																											
T5.2	Abusing add-on contracts															x																									x		
T5.3	Performance violating contract														x																x												

*Note: * combined with data from MaKAB; ** Titles and hyperlinks to the articles can be found below*

Table 11.

IDs, titles, and hyperlinks of articles discussing corruption techniques in the Hungarian media, 2008-2012 (linked to Table 10), continued overleaf

ID	title	source
1	Most 100 ezer forintos bicikliket venne a Posta	http://index.hu/gazdasag/magyar/pst090122/
2	Háziversenyen dőlt el a papírtender	http://index.hu/belfold/2009/11/05/haziversenyen_dolt_el_a_papirtender/
3	Fidesz: Panírban számolták a kenőpénzt	http://index.hu/belfold/2010/03/31/fidesz_panirban_szamoltak_a_kenopenzt/
4	Ejtették a kellemetlenné vált ötmilliárdos légifotóbizniszt	http://index.hu/belfold/2010/10/28/otmilliardot_sporolt_az_index_az_orszagnak/
5	Az NBH-nak is kínos az eredetiségvizsgálós cég bűnügye	http://www.origo.hu/itthon/20100311-mentesseg-a-kozbeszerzes-alol-nemzetbiztonsagi-okok-miatt.html
6	Hat nap alatt költött 770 milliót a Daimler-botrányban felbukkanó Volánbusz	http://www.origo.hu/itthon/20100324-daimlerugy-hallgat-a-mercedes-a-magyarorszagi-korrupcios-vadakrol.htm
7	Trükkös HM-es ingatlanüzemeltetés	http://www.mno.hu/portal/781468
8	A pártfinanszírozás debreceni modellje	http://www.nol.hu/belfold/20110430-a_debreceni_modell
9	Gyanús elemek a csuklósbusz- tenderben? Demszkynek korai az idő	http://mno.hu/portal/541455
10	Milliárdok a Kossuth téri mélygarázsra	http://mno.hu/portal/585854
11	Volt HM-es dandártábornokot vádolnak vesztegetéssel	http://hvg.hu/itthon/20110927_katona_karoly_dandartabornok#rss
12	Jól van, Zsoltikám: egy Nokiás-doboz hányattatásai	http://m.index.hu/belfold/budapest/2011/10/08/egy_nokias-doboz_hanyattatasai/
13	Verseny nélküli megbízás a Közbeszerzések Tanácsánál	http://www.vg.hu/kozelet/jog/verseny-nelkuli-megbizas-a-kozbeszerzesek-tanacsanal-363931
14	A Lakos család esete a budapesti beruházásokkal	http://hetivalasz.hu/reflektor/szennyes-25374/
15	Úton állók	http://hetivalasz.hu/itthon/uton-allok-18664/
16	Rendőrvicc	http://hetivalasz.hu/itthon/rendorvicc-23619/
17	Korrupciós kiskáté kezdo vállalkozóknak	http://index.hu/belfold/2011/12/09/korrupcios_kiskate_kezdo_vallalkozoknak/
18	Feljelentés gyanúsan gyors közbeszerzés miatt	http://index.hu/belfold/2012/08/21/gyanusan_gyors_kozbeszerzes_miatt_tesz_feljelentest_az_lmp/
19	Villámtendert írt ki autóvásárlásra a rendőrség	http://index.hu/belfold/2012/08/24/villamtendert_irt_ki_autovasarlasra_a_rendorseg/
20	A verseny csak látszat? - sorra nyeri a tendereket a volt Fidesz-pártigazgató cége	https://www.napi.hu/magyar_vallalatok/a_verseny_csak_latszat_sorra_nyeri_a_tendereket_a_volt_fidesz-partigazgato_cege.530349.html
21	Kétmilliós bírság az OMSZ-nek az esetkocsik beszerzése miatt	http://index.hu/belfold/2012/06/06/ketmillios_birsag_az_omsz-nek_az_esetkocsik_beszerzese_miatt/
22	Titkosították a Ludovika Campus beruházását is	http://index.hu/belfold/2012/08/08/titkositottak_a_ludovika_campus_beruhazasat_is/
23	Budapest Szíve európai uniós bírságot kaphat	http://index.hu/belfold/budapest/2012/03/06/tarlost_es_rogant_egyutt_szivatja_az_eu/
24	Egy kicsit könnyebb lesz lopni a MÁV-nál-Cégekre szabott beszerzések	http://index.hu/gazdasag/magyar/2012/09/10/mav/

25	Ötödik nekifutásra tudott csak nyerni a Zsurmó Csongrádban	http://index.hu/belfold/2012/09/13/otodszorre_is_kozgep_nyerte_el_a_milliardos_csongradi_munkat/
26	Menő korrupciós technikák	http://www.fn.hu/cegek/20080611/meno_korrupcios_technikak/
27	MSZP: lopva költ a kormány	http://www.hir24.hu/belfold/2011/08/25/mszp-lopva-kolt-a-kormany/
28	Hogyan rothasztja a túlzott győzni akarás a társadalmat?	http://www.fn.hu/belfold/20100421/hogyan_rothasztja_tulzott_gyozni/
29	Egymilliárdért szerez be nyomkövetőket a rendőrség	http://index.hu/belfold/2012/10/31/egymilliardert_szerez_be_nyomkovetoket_a_rendorseg/
30	Projektiroda-vezető lett, akitől félmilliárdot követelnek	http://index.hu/belfold/2012/11/22/projektiroda_vezeto_lett_akitol_felmilliardot_kovetelnek/
31	Egy NFÜ-s vezető egykori üzlettársa is nyertese a kétmilliárdos megbízásnak	http://www.origo.hu/itthon/20110220-nemzeti-fejlesztesi-ugynokseg-draga-tanacsadoi-szerzodese-a.html
32	Versenymentes ügyvédek	http://www.nol.hu/archivum/archiv-482235
33	Az orvosbárókat kell meggyőzni	http://hvg.hu/gazdasag/20120531_korhazi_korrupcio_orvosbarok#rss
34	A gemkapoccsal is mutyiztak az önkormányzatok?	http://www.fn.hu/belfold/20091016/gemkapoccsal_is_mutyiztak/
35	Újra tendergyőztes a Fidesz volt kabinettitkára	http://index.hu/belfold/2012/04/04/ujra_tendergyoztes_a_fidesz_volt_kabinettitkara/
36	Megint az IMG nyert egy állami tenderen	http://index.hu/kultur/media/2012/11/12/az_img_kapja_az_mtva_1_5_milliardjat/
37	Offshore lovag a közbeszerzési bizottság elnöke?	http://varanus.blog.hu/?utm_source=ketrec&utm_medium=link&utm_content=2013_02_01&utm_campaign=ir
38	Nem tudtunk hülyébbek lenni a kormánynál	http://index.hu/belfold/2013/02/12/megprobaltunk_hulyebbek_lenni_a_kormanynal/
39	Két forintot engedett az árból a Közgép - kétmilliárddal emelte a tétet	http://www.napi.hu/magyar_vallalatok/ket_forintot_engedett_az_arbol_a_kozgep_ketmilliarddal_emelte_a_tetet.552308.html
40	Közbeszerzés nélkül épül újjá a fél Belváros	http://index.hu/belfold/2013/05/16/kozbeszerzes_nelkul_epul_ujja_a_belvaros/
41	Bűzlött az iskolagyümölcs-tender, lefújták	http://index.hu/gazdasag/2013/06/12/budos_volt_az_iskolagyumolcs-tender_lefujtak/
42	A kormány kedvenc újjáépítői	http://index.hu/belfold/2013/07/05/a_kormany_kedvenc_ujjaepitoi/