

Competitive Intensity and Corruption Risks in the Hungarian Public Procurement 2009-2015

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August 20 2016

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Abstract

The paper examines data from Hungarian public procurement in the period 2009-15. The data from 127,776 contracts were used for the analysis. The analysis focuses on information regarding the competitive intensity, price distortion, and corruption risks. We also analyze the performance of EU funded projects from these viewpoints. The results show that between 2009-15 the Hungarian public procurement is characterized by a reduction in competition, and an increase in the number of procurement without competition, reduced transparency, and rising tendency toward price distortion and corruption risks. The EU funded tenders have worse performance in case of corruption risks, competitive intensity, and transparency, compared with Hungarian-funded ones. The former ones are characterized by weaker competition, lower transparency, a higher level of price distortion, and higher corruption risks. The result points out the effects of crony capitalism on weakening competition and increasing price distortion, especially in EU funded public procurement. In Hungary the EU funds – besides their hypothetical positive influence on the development of the Hungarian economy – have certainly a special and perverse effect: they foster the practice of political favoritism and fuel crony capitalism.

Keywords – public procurement; corruption risk; corruption; price distortion; crony capitalism;

1 Introduction

The paper examines the data of the Hungarian public procurement in the period 2009-15. The data of 127,776 contracts were used for the analysis. The data were downloaded from the website of the Hungarian Public Procurement Authority (<http://www.kozbeszerzes.hu/>) and the Public Procurement Bulletin available online interface was used for data collection, and after transformation from

text formats to numerical formats and data clarification procedures, the data were structured into a database.

This database allows us to analyze the patterns of public money spending, existence of competition, procurement prices, and the nature of corruption frequently accompanying public procurement.

The study of corruption risks is the study of the conditions of corruption. If somebody wants to cheat (to be corrupt), then he/she sets up conditions to generate cheating. Corruption risk means that these conditions for cheating exist in the examined public procurement.

The analysis of corrupt and collusive behavior with hard data is an important new approach in the empirical research dealing with public procurement [10] [18] [3] [8] [6].

In this paper we measure the corruption risk using a composite indicator constructed by two elementary indicators. First one, the transparency of public procurement tenders (tenders with or without announcement); and second one that indicates the lack of competition during the tenders (single bidder).

These elementary indicators are the most important measures of the corruption risk and they have been subject to wide ranging validity tests indicating its value for measuring high-level corruption in public procurement [5] [6].

Public procurement is one of the most vulnerable areas to corruption [21] [9] [18] [16]. The OECD estimates that 57% of bribery committed by foreign enterprises were linked to public procurement [15]. The public procurement plays a decisive role within a national economy. According to calculations the weight of public procurement in the total government spending in the OECD countries was 29% in 2013 and the share of public procurement to the GDP was 14% for the EU member countries [2] [16]. The welfare losses related to public procurement corruption are substantial [9] [14] due to the high economic importance of

public procurement. According to conservative estimates 10-30% of the total value of public procurement could be considered as social losses due to corruption [18] [15] [16]. The paper primarily focuses on information on the competitive intensity, price distortion, and corruption risks of public procurement. We analyze the performance of EU funded projects from these viewpoints. Our earlier results pointed out that EU funded public procurement performed worse than national ones in Hungary in the period 2009-12 [1]. We also deal with the appearance of political favoritism in Hungarian public procurement procedures. Price distortion was analyzed by using the Benford's Law [12] [13] [11].

The first part of the study describes the indicators that we use, and we present the main descriptive findings, then we estimate the corruption risk and finally, at the end of the study we summarize our results.

2 Indicators

In the paper we use the following indicators:

EUFUND: Tender is funded by the EU [0,1]; The value of 1 means that the tender is funded by the EU, 0 otherwise.

ICI: Index of Competitive Intensity [$0.301 \leq ICI \leq 1$]; It measures the competitive intensity: low value means low intensity, high value means high intensity. X : the number of bidders in a tender. $ICI = \ln x / \ln 10$ in case where $2 \leq x \leq 10$, and $ICI = 1$ if $x > 10$. If $x = 1$, $ICI = 99$; and if $ICI = 99$, this means missing value.

CRONY_MGTS: Company is owned by Lőrincz Mészáros (Orban's friend from their childhood), István Garancsi (Orban's hiker partner), István Tiborcz (Orban's son-in-law), or Lajos Simicska (Orban's college room-mate), the cronies / family members of Viktor Orban Prime Minister [0,1]; the value of 1 means that the winner company is owned by Mészáros, or Garancsi, or Tiborcz, or Simicska; 0 otherwise.

LNNCV: Natural logarithm of net contract value (in HUF)

TI: Transparency Index [0,1]; the value of 0 means the tender was issued without announcement; the value of 1 means the tender was issued with announcement.

SB: Single bidder [0,1]; the value of 0 means there were more than one bidder; the value of 1 means there was only one bidder.

CR2: Corruption Risk Indicator [0, 0.5, 1]; the value of 0 means low corruption risk (more than one bidder and tender with announcement), the value of 1 means high corruption risk (only one bidder and tender without announcement).

FIDESZ: period of the Fidesz governments (the first: 2010-14 and the second: 2014-) [0,1]; the value is 0 from January 2009 to June 2010; and 1 from July 2010 to December 2015.

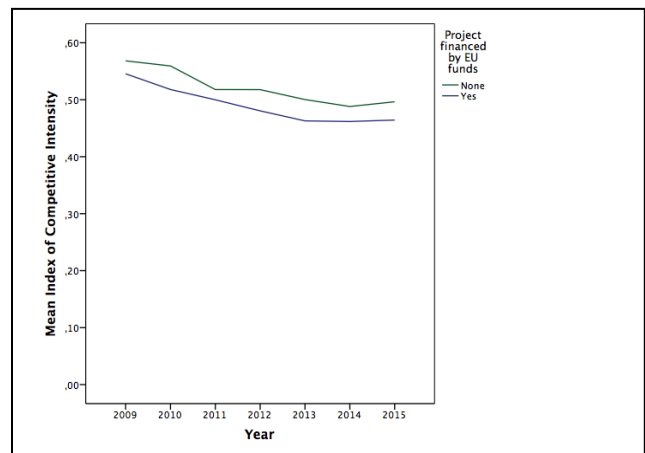
3 Descriptive Statistics & Trends

The results show that in the period 2009-15 the Hungarian public procurement is characterized by weakening competition, the increasing number of procurement without competition, weakening transparency and rising tendency of price distortion and corruption risks.

3.1 Competitive intensity

The level competitive intensity (ICI) of the Hungarian public procurement reduced during the years examined and the level of transparency deteriorated during the period. The EU funded tenders had lower competitive intensity than the Hungarian funded ones during the whole period (Figure 1.)

Figure 1. The Index of Competitive Intensity (ICI) in Hungarian public procurement in EU funded and non-EU funded tenders, 2009-2015, $N = 86,722$



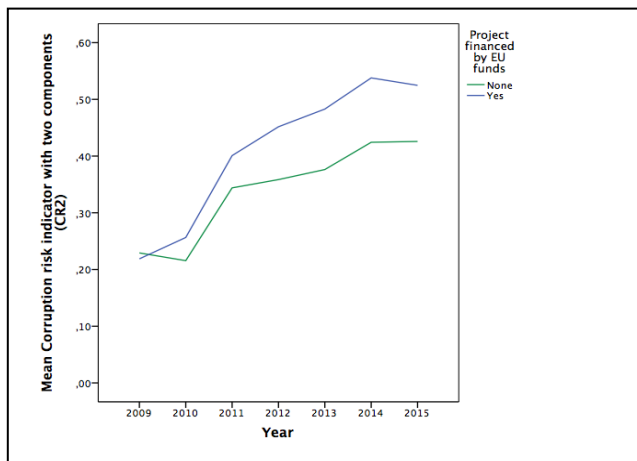
3.2 Corruption Risk

The rate of successful public procurement without competition (with one bidder only) was very high: 26-32% of total number of contract.

We defined a corruption risk indicator (CR2) by using information on the level of transparency of contracts and the lack of competition in public procurement. As a result of the modification of the public procurement law in 2010, from 2011 there were fewer announcements before public procurement than earlier.

The CR2 shows that the Hungarian public procurement for the period of 2009-14 was wholly characterized by raising tendency of corruption risk (Figure 2.).

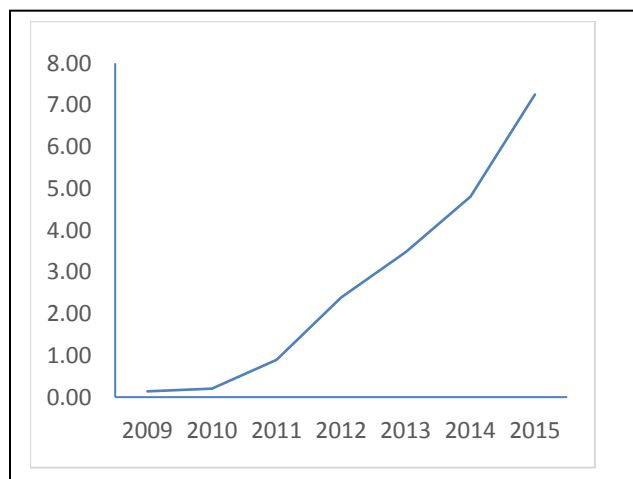
Figure 2. The Corruption Risk Indicator (CR2) in Hungarian public procurement in EU funded and non-EU funded tenders, 2009-15, N = 120,221



3.3 Price Distortion

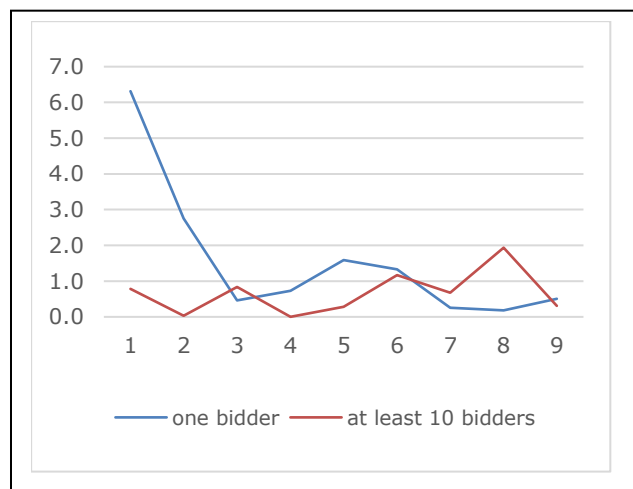
The analysis of first digits of contract prices indicates that the contract prices of all Hungarian public procurement fits into the theoretical distribution for the whole period. But there are crucial differences in price distortion among the contract prices in each year. Price distortion was increasing throughout the whole period; while in 2009 and 2010 contract prices fitted well into the theoretical distribution, after those years the ratio of price distortion got more and more significant (Figure 3). Our assumption is that this phenomenon indicates the frequency and the growing tendency of overpricing, which also signifies the weakening of competition (Figure 4.) and the increasing corruption risks.

Figure 3. The mean squared error (MSE) of contract prices of Hungarian public tenders from the theoretical (Benford's) distribution by year, first digits, 2009-2015, N = 123,224.



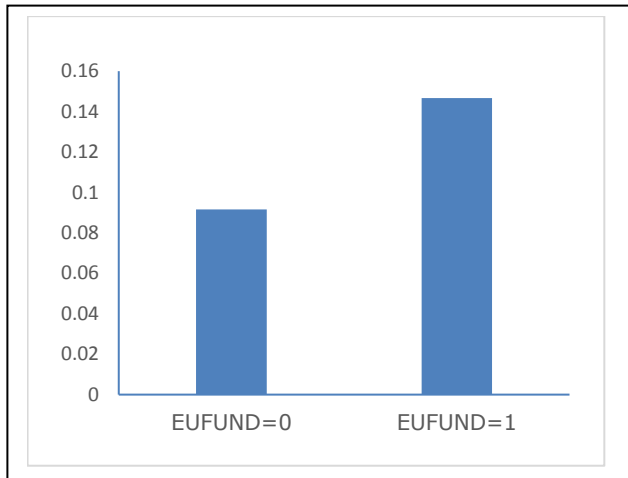
While the prices of projects financed domestically loosely fit into the theoretically expected distribution, those financed by the EU do not fit at all (Figure 5.). Therefore, the phenomenon of overpricing could be much more frequent or it could have a much wider scale in EU funded public procurement than in case of other public procurement.

Figure 4. Price distortion in Hungarian public procurement by the competitive intensity, 2009-2015, N = 129,888, X axis: digits of contract prices, Y axis: MSE



Our results point out that the strength of price distortion decreases as competitive intensity becomes more significant. The prices of public procurement are remarkably distorted when there is no competition and the level of transparency is low compared to those successful tenders with competition and transparency. Our results indicate that the strength of price distortion increases significantly with the increase of corruption risk.

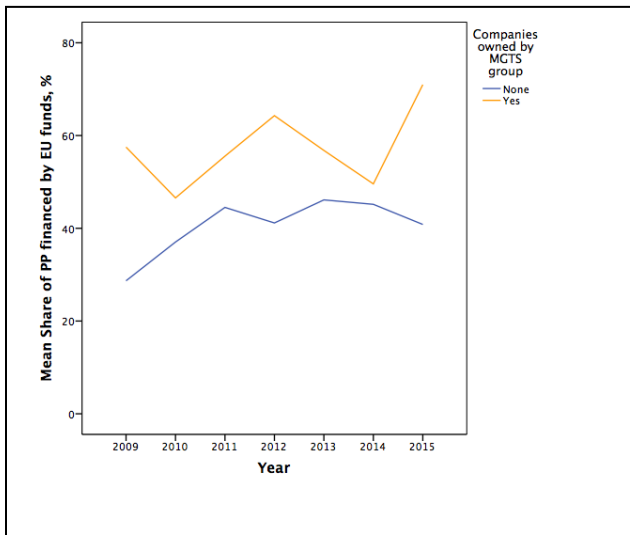
Figure 5. Price distortion of contract prices of Hungarian public procurement by EU funded and non-EU funded tenders, 2009-2015, N = 128,422, Y axis : Cramer's V



3.4 Crony Capitalism

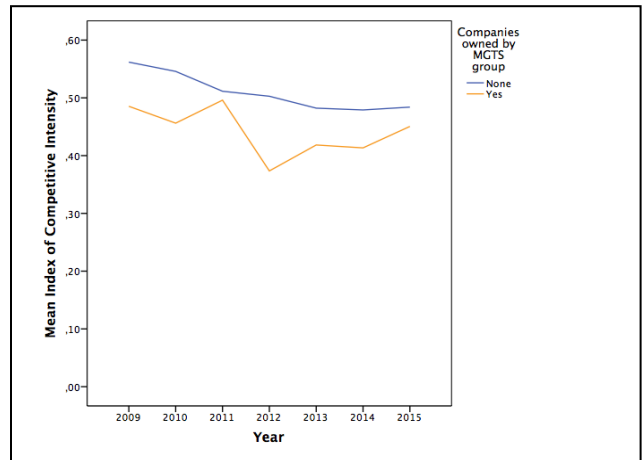
The crony capitalism in several channels deteriorates the economic performance and long term growth in a country [4] [7] [19]. Our dataset provides the opportunity to examine some aspects of crony capitalism in the Hungarian public procurement. To analyze this issue we have chosen four businessmen close to the Hungarian Prime Minister, Viktor Orban (CRONY_MGTS). We founded 66 companies owned by Orban's cronies, and these companies won 441 tenders over the period.

Figure 6. The share of EU financed tenders in the tenders won by the companies related to CRONY_MGTS group and in other tenders, 2019-2015, %, N = 132,968



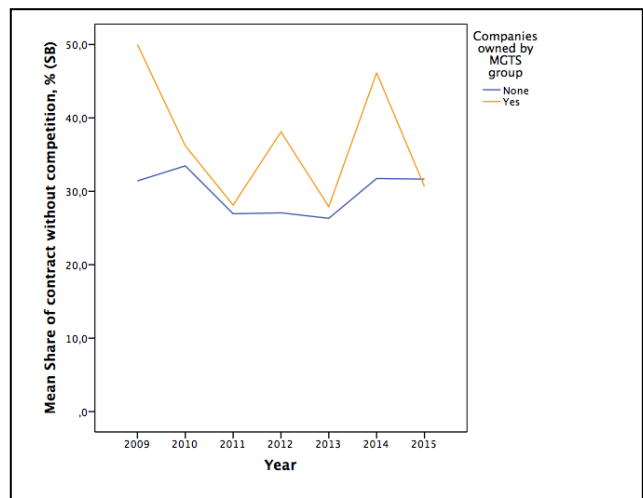
The results show that the CRONY_MGTS' companies like to apply for and to win public procurement supported by the EU (Figure 6.). The analysis of competitive intensity shows that in tenders won by CRONY_MGTS firms during the whole period had weaker competition than in tenders won by other companies (Figure 7.). Obviously, the lower competitive intensity at tenders won by cronies is a sign of political favoritism.

Figure 7. The Index of Competitive Intensity (ICI) in Hungarian public procurement by CRONY_MGTS, 2009-2015, N = 93,265



The crony companies were significantly more frequent winners at tenders, which are characterized by the lack of competition (tenders with single bidder). It also provides evidence for the presence of political favoritism. (Figure 8.) Finally, the analysis of contract prices shows that a slightly higher price distortion is observed in contracts won by crony companies than by other ones.

Figure 8. Share of public procurement tenders with Single Bidder (SB) by CRONY_MGTS, 2009-15, N = 131,499



4 Estimations

4.1 Competitive Intensity

We estimate the Index of Competitive Intensity (ICI) by using OLS and ordered logit estimations.

We can find the results of the estimation in Table 1. The results show that the level of competitive intensity cannot really explain by the variables used during the process of estimation. Therefore, the results point out the significant effects both EU funding and Fidesz governments.

Table 1. Estimation of ICI

parameters	OLS ¹	Ordered Logit ²
EUFUND	-0.033 (-23.86)	-0.311 (-23.07)
FIDESZ	-0.060 (-37.18)	-0.519 (-32.29)
LNNCV	0.000 (1.44)	0.008 (2.19)
Constant	0.524 (80.76)	-
Sectoral dummies	YES	YES
N	84,543	84,543
F / LR chi2	374.65	2593.20
Prob > F / Prob > chi2	0.000	0.000
Adj R ² / Pseudo R ²	0.032	0.010

1: *t* values are in parentheses

2: *z* values are in parentheses

EU funding does not result more intensive competition in the Hungarian public procurement. On the contrary, the estimation results show that in the period 2009-15 public tenders financed partly by the EU were executed in significantly lower level of competitive intensity (with fewer valid tenders) than those were financed by the Hungarian taxpayers.

The estimates also show that during the regime of the Fidesz governments the competitive intensity decreased significantly compared to the period before. This phenomenon is undoubtedly linked to the development of the risks of corruption, as well.

The results also reveal that bigger projects are realized in somewhat more intensive competitions: competitive intensity slightly increases with the increase of the contract value.

4.2 Corruption Risks

We estimate corruptions risks with CR2 by using OLS and ordered logit estimations. The results show that the effect of

the indicators both for the EU funding and the two Fidesz governments (Jul. 2010 - May 2014 and June 2014 - Dec. 2015) is significant even if we control them with the contract values and the effects of the industrial sectors.

The results clearly show that in the period 2009-15 the corruption risks of the public procurement using EU funds as well were higher than the ones based exclusively on national funding (See Table 2).

Table 2. Estimation of CR2

parameters	OLS ¹	Ordered Logit ²
EUFUND	0.065 (32.25)	0.391 (32.06)
FIDESZ	0.180 (76.57)	1.144 (76.08)
LNNCV	-0.013 (-24.74)	-0.083 (-24.80)
Constant	0.471 (50.13)	-
Sectoral dummies	YES	YES
N	115,614	115,614
F / LR chi2	1582.73	12833.52
Prob > F / Prob > chi2	0.000	0.000
Adj R ² / Pseudo R ²	0.099	0.056

1: *t* values are in parentheses

2: *z* values are in parentheses

EU institutions, and the strict administrative regulations of the EU going along with them did not improve the transparency of the public procurement in Hungary. They were not able to achieve transparency in the field of EU funded public procurement either. Furthermore, they failed to attain higher competitive intensity and lower corruption risk.

What is more, both in the case of the public procurement carried out without a competition and in the case of the indicator containing information on the transparency in public procurement (CR2) we received significant and positive results: EU funding actually increases corruption risks.

Finally, we shall examine the indicator referring to the Fidesz government. The measured effect of corruption risks by CR2 is positive according to both estimations: during the Fidesz government the level of corruption risks was significantly higher than before. This can clearly be linked to the radical decrease in the transparency of public procurement, i.e. the significant decrease of the publication of tender announcements. The starting point of this effect is linked to one act, namely to the approval and to the coming into effect of the Act CIII of 2011 on public procurement.

5 Conclusions

During our analysis we detect some negative characteristics of public procurement financed by the EU (high probability of lack of competition, less competitive intensity, less transparency and consequently higher corruption risks, and finally greater level of price distortion); we also discovered that the crony companies liked to get involved in and win public procurement financed by the EU; and the public procurement won by crony companies can be described with similar negative characteristics, such as the EU financed ones.

These results indicate a very special scenario: the practice of spending of the EU funds by public procurement in Hungary has probably a positive effect, i.e. it helps the convergence of the Hungarian economy with the EU countries, but – as a perverse effect – certainly it results in the emergence and reinforcement of the economic model of crony capitalism as well.

Therefore, on examining the effects of the EU funds on the Hungarian economy we cannot disregard its negative effect, which badly affect the market economy. Our findings are warning signs for the EU citizens, the EU decision makers and for the Hungarian citizens, as well.

We could also see that the public procurement conducted during the Orbán's governments (2010-14 and from 2014-) are characterized by lower competitive intensity and higher corruption risks. This is partly due to the effects of the new law on public procurement, which came into effect in January 2012 (Act CVIII of 2011).

The increase of the corruption risks during the Fidesz governments can clearly be observed after the approval and the coming into effect of this new law on public procurement. The new legislation was probably unprepared, it was not preceded by an impact assessment, and its inventors did not take into account the consequences relating to the corruption risks. If the *par excellence* objective of the Fidesz governments concerning the public procurement was to restrict and decrease corruption, then it is obvious that here we are faced with a government failure.

Acknowledgements

The database building was supported partially by EU 7th Framework Programme, ANTICORRP project (Grant number: 290529)

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