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Second-generation indicators of high-level corruption using public procurement data

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Idea vera debet cum suo ideato convenire
A true idea must agree with its object

[Spinoza: Ethica; Axiomata VI.]

Overview

- Measurement approach
- Definition of corruption
- Data
- Proposed set of indicators
- Applications
- World Bank feasibility

Starting point

- Available indicators are either biased or too idiosyncratic
 - Perception-based survey instruments measure PERCEPTIONS
 - Experience-based survey instruments suffer from conformity bias and lack of access
 - Audits and case studies lack scope and representativeness
- Need for new indicators

The CRCB measurement approach

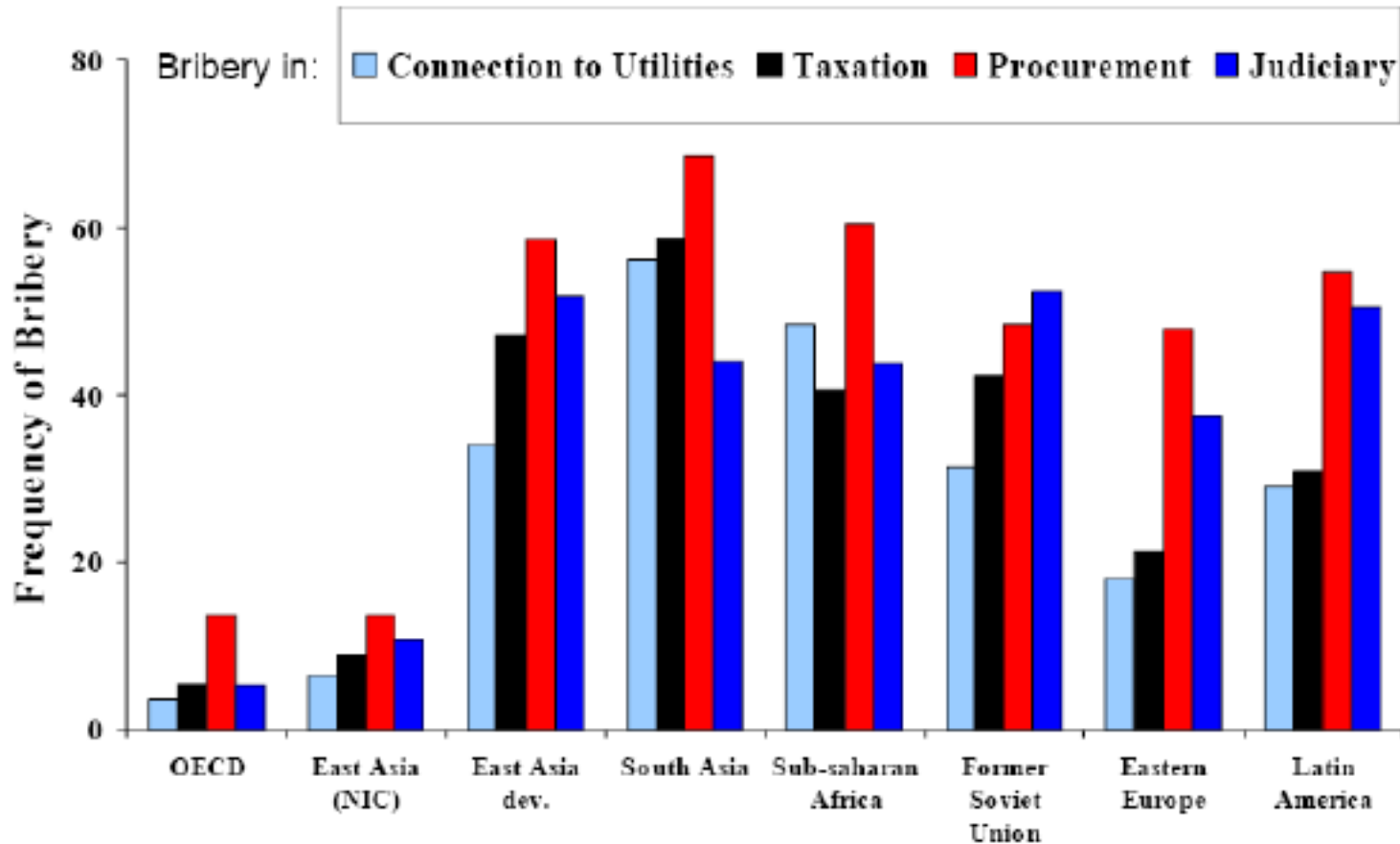
- New approach to corruption in PP
 - harnessing BIG DATA,
 - built on thorough understanding of context, and
 - ,open-ended’
- Indicator characteristics:
 - Specific
 - Real-time
 - ‘Objective’/hard
 - Micro-level
 - Aggregatable + comparative

Why public procurement?

1. A lot of money involved
2. Crucial role in development (e.g. capital accumulation)
3. Indicates the broader quality of institutions

Why public procurement?

4. Very corrupt



Definition of institutionalised grand corruption

- Specific definition (just like measurement)
- Institutionalised grand corruption in public procurement

institutionalised grand corruption in public procurement refers to the regular particularistic allocation and performance of public procurement contracts by bending universalistic rules and principles of good public procurement in order to benefit a group of individuals while denying access to all others.

Similar World Bank definition

- **The aim of corruption is to steer the contract to the favored bidder without detection.** This is done in a number of ways, including:
 - ***Avoiding competition*** through, e.g., unjustified sole sourcing or direct contracting awards.
 - ***Favoring a certain bidder*** by tailoring specifications, sharing inside information, *etc.*
 - ***Excluding qualified bidders*** through, e.g., restricted circulation of advertisements, biased evaluation processes, or bid tampering.
 - ***Avoiding detection*** of the schemes by negotiating the removal of audit rights, using shell companies to disguise the official's economic interest, *etc.*
- Source: World bank Integrity Presidency (2009) Fraud and Corruption. Awareness Handbook, World Bank, Washington DC. pp. 7.

The CRCB data template

- Public procurement data
- Company financial and registry data
- Company ownership and management data
- Political officeholder data
- Treasury accounts of public organisations

Blueprint for measuring institutionalised grand corruption in PP

1. Corruption Risk Index (CRI): generation and allocation of rents
2. Political Influence Indicator (PII): political influence on companies' market success
3. Political Control Indicator (PCI): direct political control of contractors

Corruption Risk Index (CRI)

- Probability of institutionalised grand corruption to occur

$$0 \leq CRI^t \leq 1$$

where 0=minimal corruption risk; 1=maximal observed corruption risk

- Composite indicator of 13 elementary risk (CI) indicators

$$CRI^t = \sum_j w_j * CI_j^t$$

CRI construction

1. Wide set of potential components: 30 CIs
2. Narrowing down the list to the relevant components: 13 CIs
 - Set of regressions on single bidder and winner contract share (follow from definition!)
3. CRI calculation: determining weights
 - Stronger predictor → higher weight
 - Norming to 0-1 band

Components of CRI

1. *Single bidder*
2. *Call for tender not published in official journal*
3. *Procedure type*
4. *Length of eligibility criteria*
5. *Length of submission period*
6. *Relative price of tender documentation*
7. *Call for tenders modification*
8. *Weight of non-price evaluation criteria*
9. *Annulled procedure re-launched subsequently*
10. *Length of decision period*
11. *Contract modification*
12. *Contract value/duration increase*
13. *Winner's contract share*

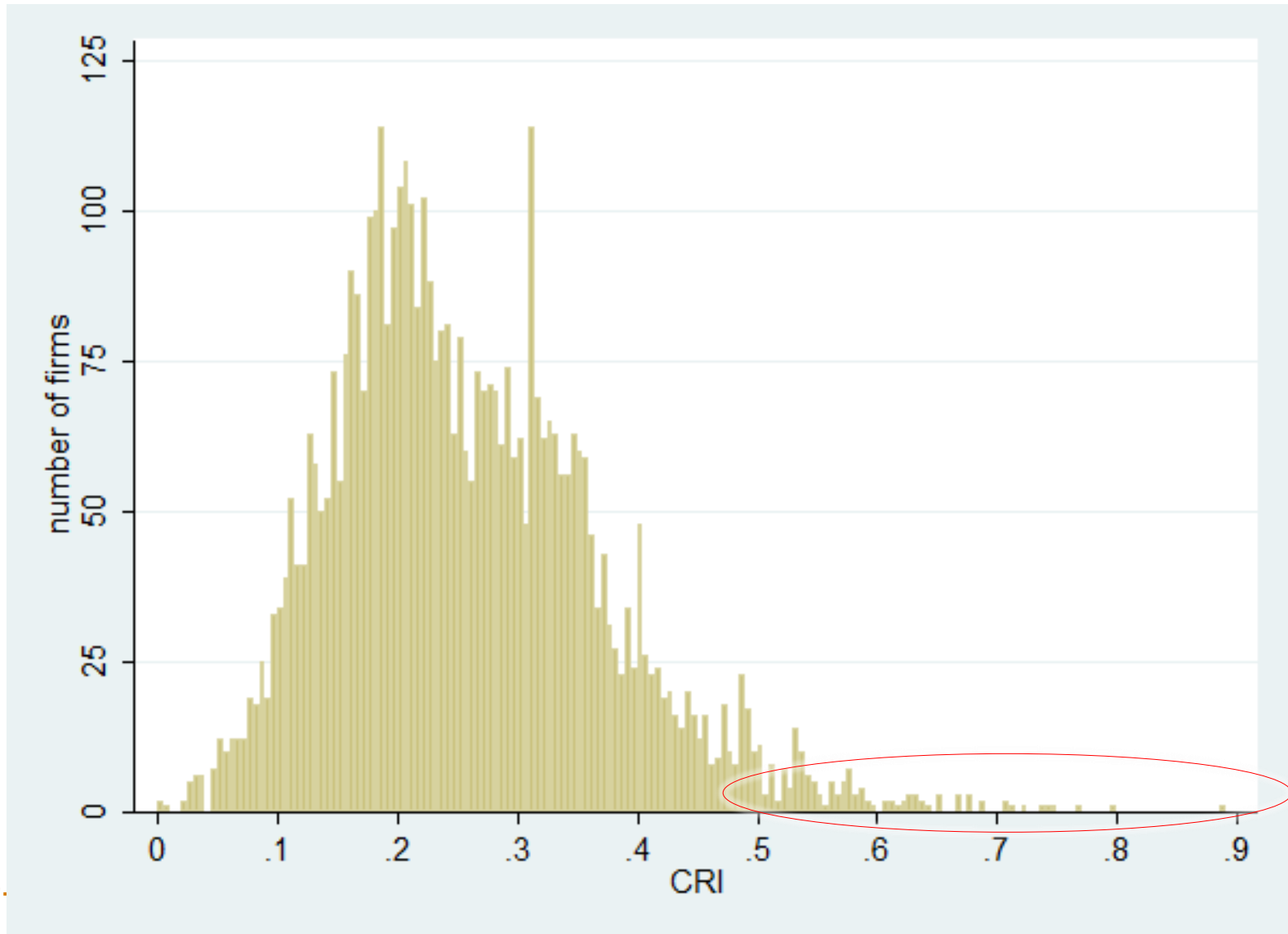
What kind of CRI distributions arise?

average
CRI

Per
winning
bidder

2009-
2012

Hungary



Political Influence Indicator (PII)

- Whether a company's market success depends on the political group in power

$$PII_i = \begin{cases} 1, & \text{if company } i \text{ is dependent on gov't} \\ 0, & \text{if company } i \text{ is NOT dependent on gov't} \end{cases}$$

PII construction

1. Baseline regressions

- Explaining contract volume: BEFORE-AFTER gov't change

2. Benchmark regressions

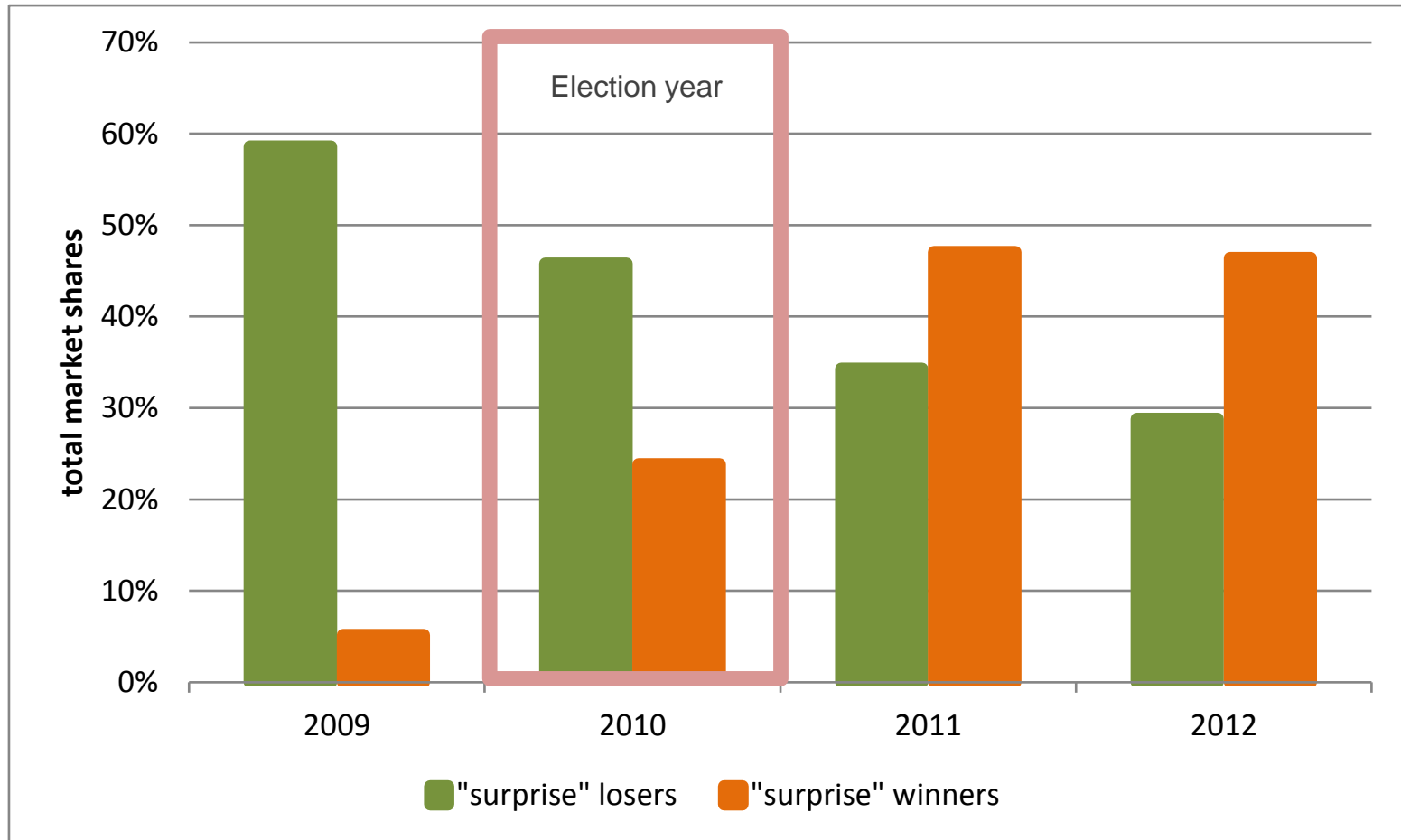
- Same regressions as in 1), but for periods WITHOUT gov't change

3. Marking companies

- Significant and substantial differences between 1) and 2)

How does this look in practice?

Hungary, total public procurement market, HU, 2009-2012



Political Control Indicator (PCI)

- Whether a company has direct political connections

$$PCI_i = \begin{cases} 1, & \text{if company } i \text{ has pol. connections} \\ 0, & \text{if company } i \text{ does NOT have pol. conn.} \end{cases}$$

PCI construction

1. Collecting names

- Winners: company registry
- Political officeholders: electoral registry, company registry, treasury records

2. Matching names/individuals

- Biographical data
- Statistical matching: name frequency, geographical distance

3. Marking companies

Indicator validity 1.

- Our corruption indicators co-vary
- CRI + PCI, HU, 2009-2012

Group	N	Mean CRI	Std. Err.	Std. Dev.	95% Conf.Interval	
0= <i>no</i> political connection	2900	0.254	0.002	0.111	0.250	0.258
1=politically connected	1449	0.265	0.003	0.110	0.260	0.271
combined	4349	0.258	0.002	0.111	0.254	0.261
difference (CRI1-CRI0)		-0.011***	0.004		-0.018	-0.004

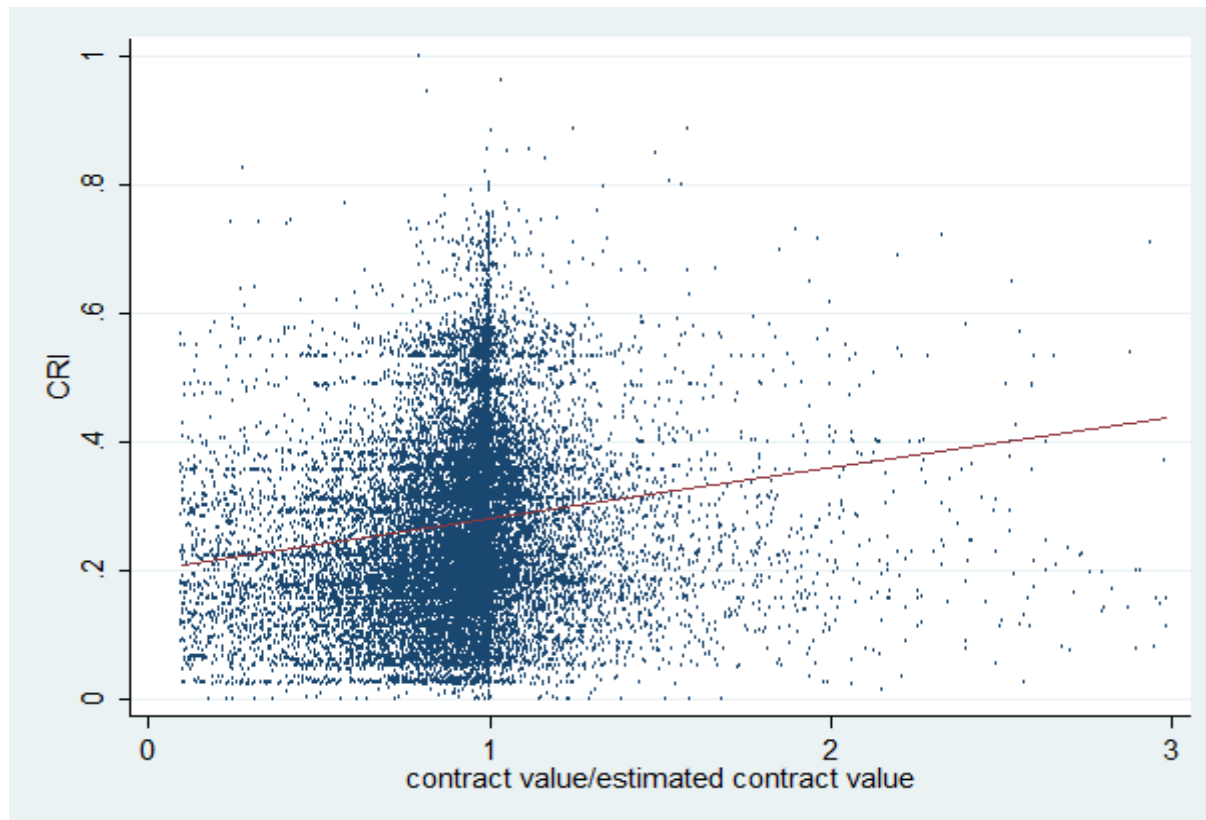
Indicator validity 2.

- Our indicators relate to external variables as expected: **money laundering, diversion of funds**
- Financial Secrecy Index + CRI in HU, 2009-2012



Indicator validity 2.

- Our indicators relate to external variables as expected: **rent extraction** from PP contracts
- Relative contract value + CRI in HU, 2009-2012



Limitations

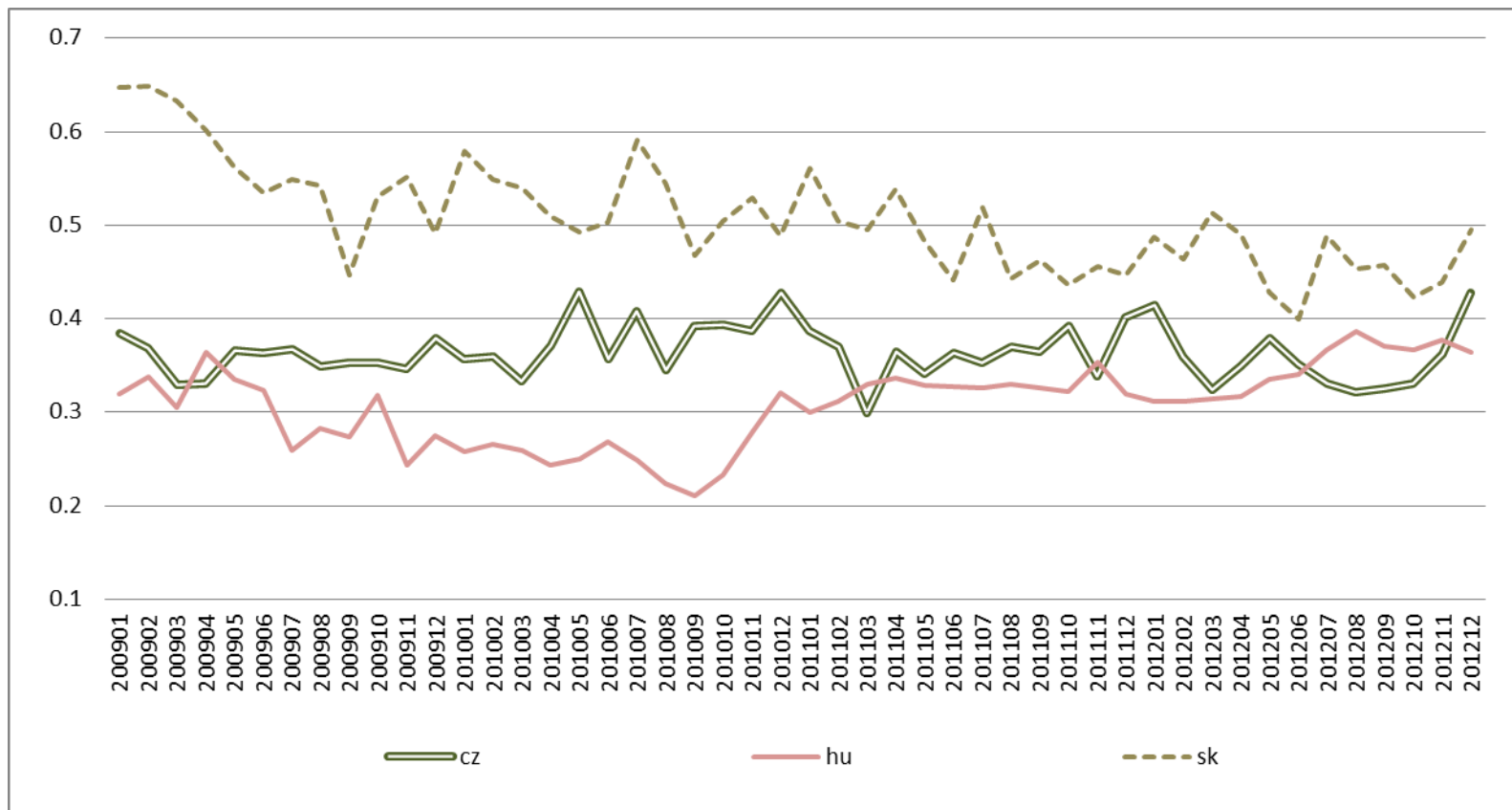
- You get what you measure: **no general indicator of corruption!**
- Reflexivity
- Two essential requirements
 - **Scope:** transparency is a prerequisite: minimum amount of coverage and detail is necessary
 - **Variance:** we need to compare corrupt to non-corrupt: some countries might not work

Applications – overview

- 1. Evaluating countries:** against each other or the same country over time
- 2. Evaluating large funding programmes:** e.g. EU structural funds in CEE
- 3. Assessing the network structure of corruption:** e.g. identifying key points of policy intervention
- 4. Evaluating regulatory or organisational reform:** e.g. loosening transparency regulations, integrity systems
- 5. Risk-based audit of actors/transactions**

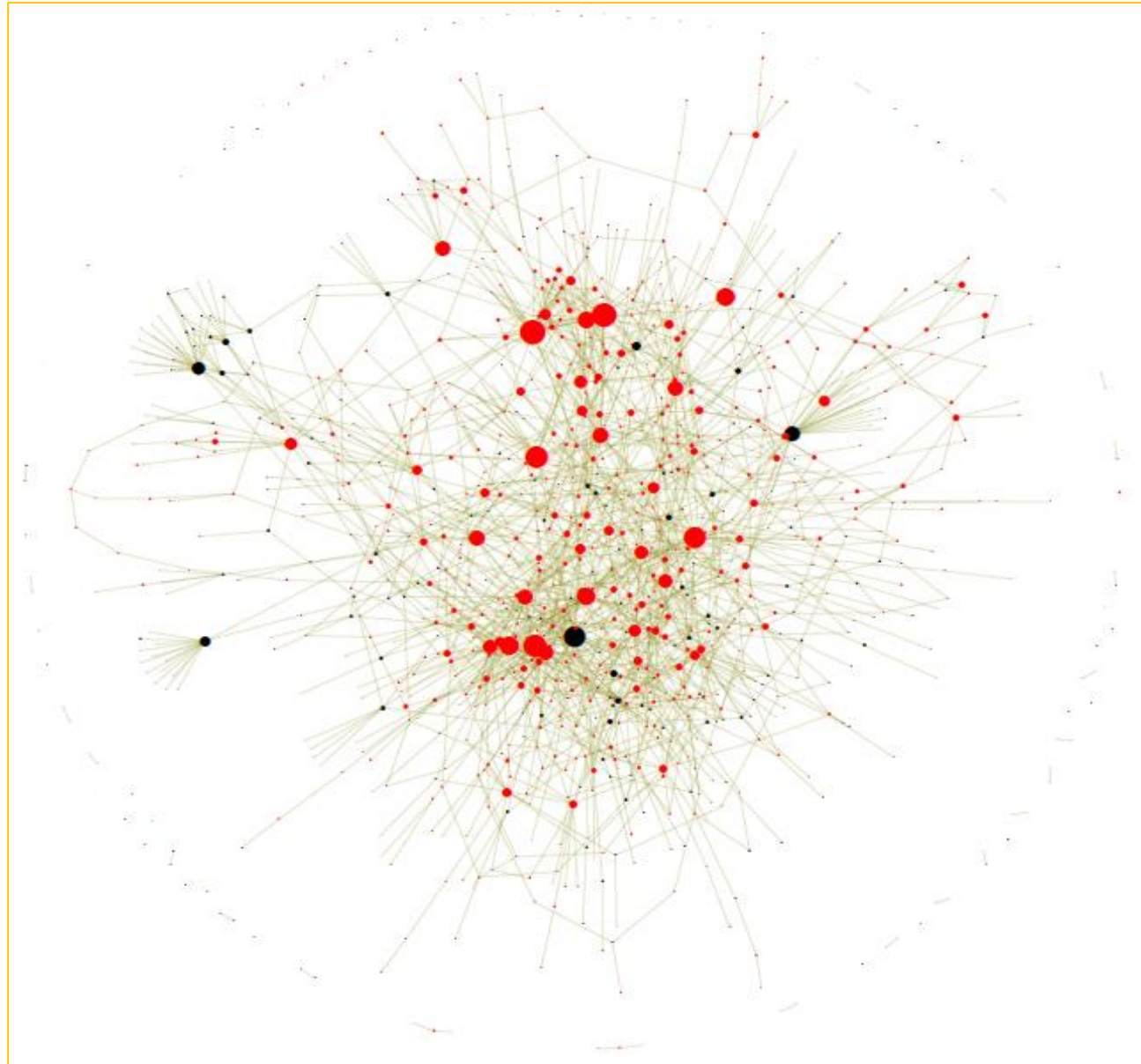
Applications 1. – tracking corruption over time and across countries

- Avg. CRI over time in CZ, HU, SK: 2009-2012



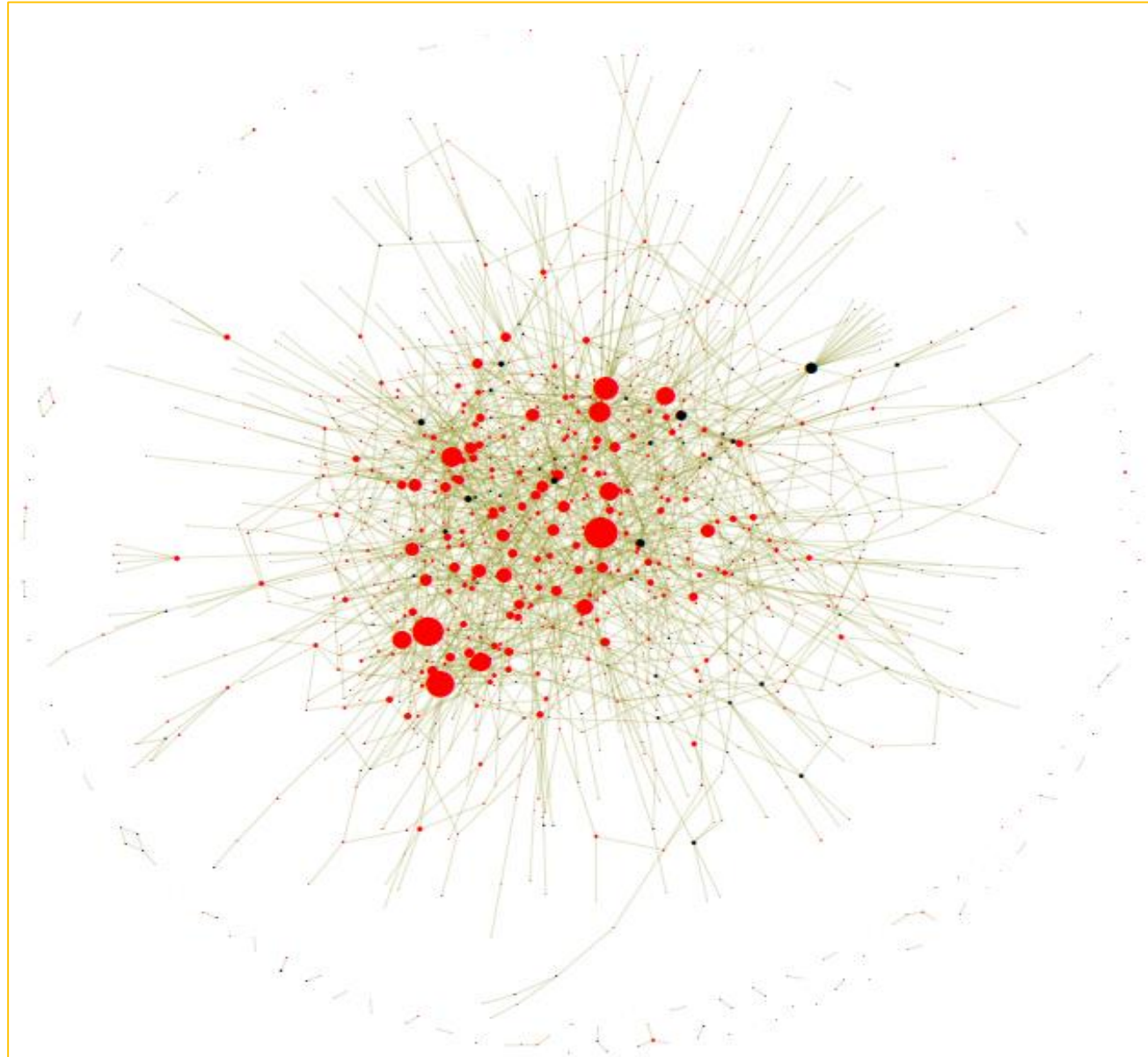
Applications 2. State capture

Captured
org.s'
network,
HU,
2009-
2010Q2



Applications 2.: State capture

Captured
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2012Q2



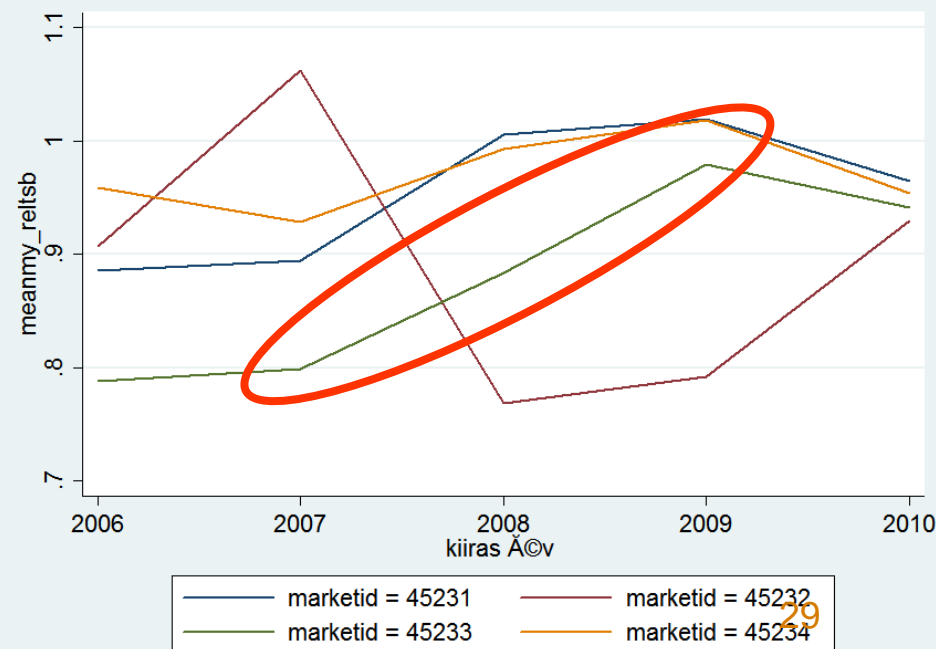
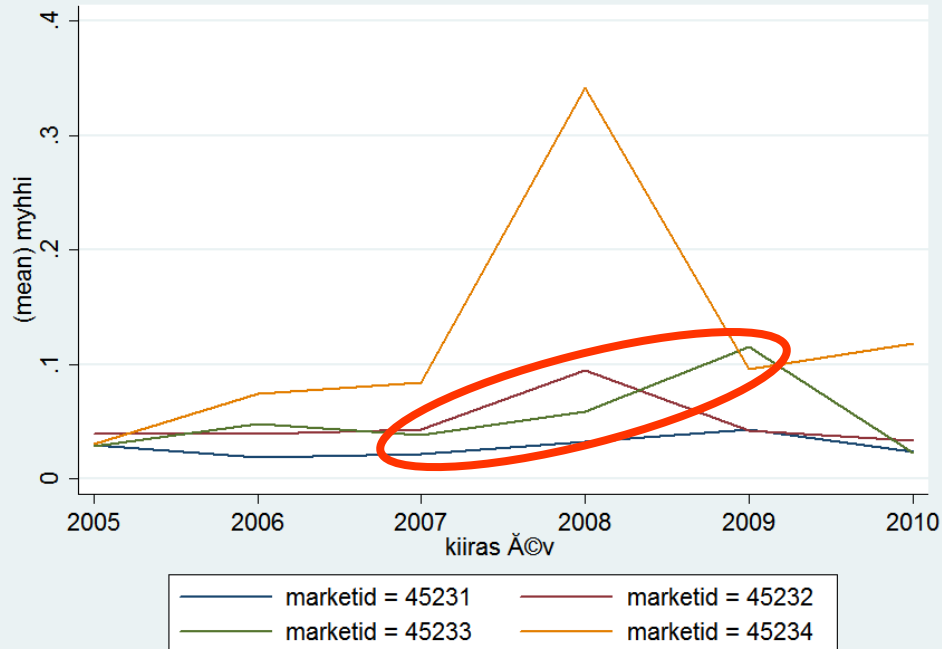
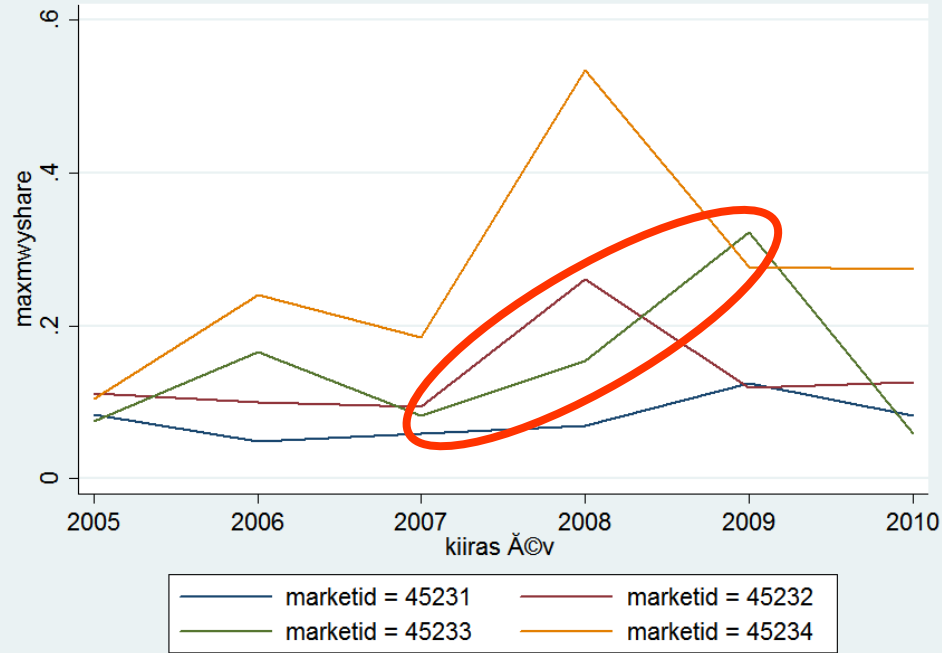
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Initial red flags

Market structure changing to monopolistic (leader market share and HHI)

Organised along geographical dimensions

Increased prices (relative contract value)



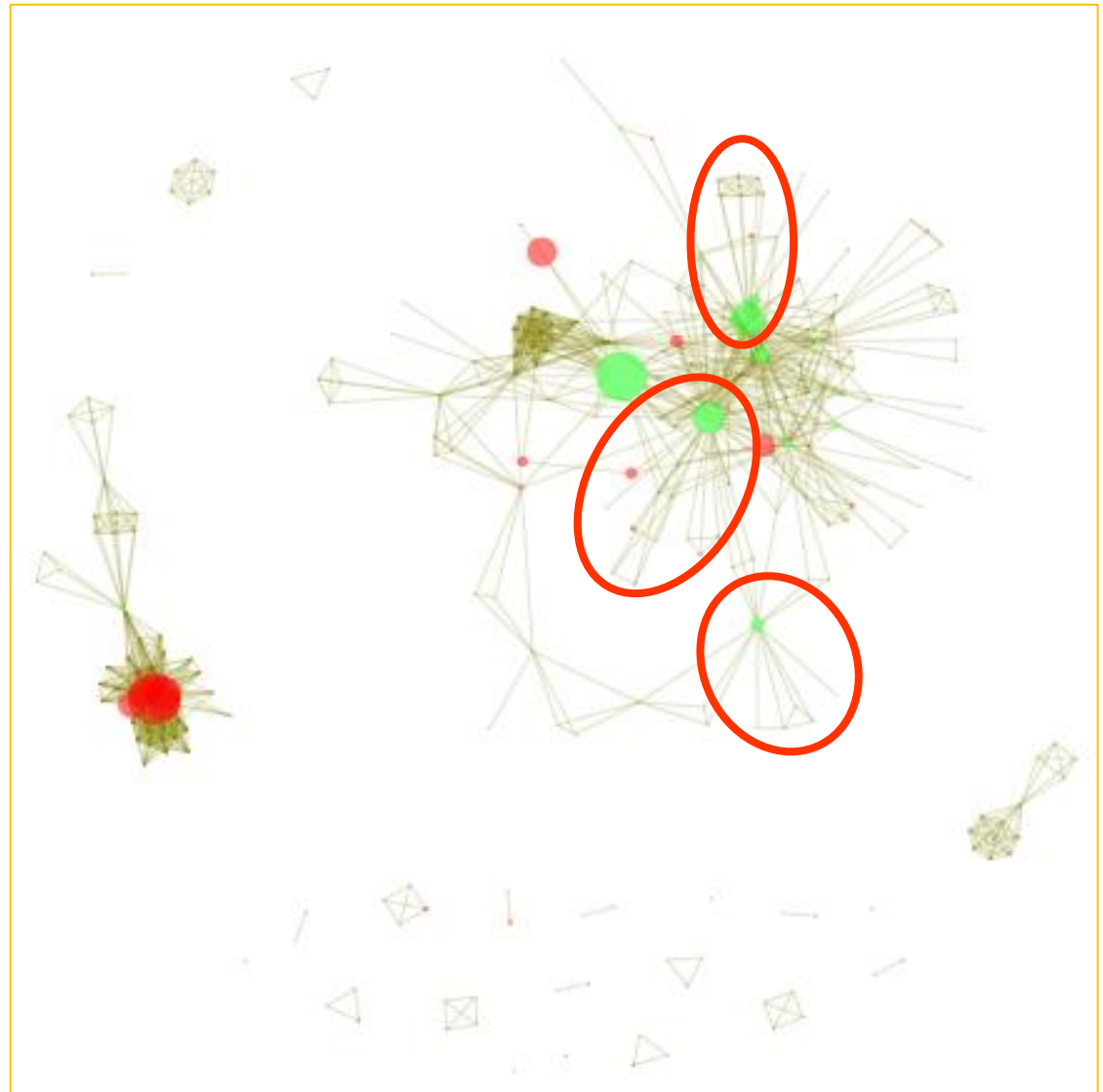
Application 3: co-bidding patterns benchmark

- 2007
- Dense networks
- Few cutpoints
- Cutpoints **don't benefit** from position



Applications 3.: cartel

- co-bidding network
- 2009
- Dense networks
- Many cutpoints
- **Cutpoints seem to benefit from position**



WB announcement data

Notice Type	Invitation for Bids
Borrower Bid Reference	SLRP II/CW/ICB-09
Language of Notice	English
Contact Information on Advertisement	
Organization/ Department	Roads Department of Georgia
Name	Vakhtang Razmadze
Title	N/A
Address	12 Al. Kazbegi Ave.
City	Tbilisi
Province/State	N/A
Postal Code	0180
Country	Georgia
Phone	+995322370508
Fax	N/A
Email	info@georoad.ge
Website	www.georoad.ge

1. The Government of Georgia, Ministry of Regional Development and Infrastructure, Roads Department has received a financing from the World Bank towards the cost of the Second Secondary and Local Roads Development Project and it intends to apply the proceeds to payments under Contract for Rehabilitation and Maintenance of Roads in Kakheti Region under Output- and Performance-based Contracting (OPRC).

2. The Roads Department of Georgia intends to pilot Output- and Performance-based Road Contracts (OPRC) as a method for achieving sustainable and cost effective road asset management whilst at the same time meeting the needs of road users. The pilot project is expected to cover a road network size of about 225 km comprising paved roads and unpaved roads in a single

Applicability to World Bank

- Public procurement data
 - WB own data: prior review contr., simplification
 - Linking WB data to national procurement, DAA
- Company registry data
 - OpenCorporates
 - Commercial data providers
- Linking up with project and disbursement data

Looking forward to the discussion!

Further information about this approach

Corruption Research Center Budapest: www.crcb.eu

Published material:

Fazekas, M., Tóth, I. J. (2014), *In respectable society: on how elite configuration influences patterns of state capture in Hungary*. Conference paper, MPSA Annual Conference, Chicago, USA, 3 April 2014.

Fazekas, M., Tóth, I. J. (2014), *Three indicators of institutionalised grand corruption using administrative data*. Budapest: Corruption Research Centre.

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Fazekas, M., Tóth, I. J., & King, L. P. (2013). *Corruption manual for beginners: Inventory of elementary “corruption techniques” in public procurement using the case of Hungary*. CRC-WP/2013:01, Corruption Research Centre, Budapest.

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