



CORRUPTION
RESEARCH CENTER
BUDAPEST

Anatomy of grand corruption: A composite corruption risk index based on objective data

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Idea vera debet cum suo ideato convenire

[Spinoza: Ethica; Axiomata VI.]



Outline

- Motivation
- Corruption & grand corruption
- Measurement
- Corruption Risk Index (CRI) & data
- Illustrative results



Motivation



Motivation

- Tools for measuring corruption
- Measurement of political effects (particularism) in public procurement
- *Corruption & firm effectiveness*
- *Corruption & state capacity*



Corruption & grand corruption

Corruption & grand corruption

- „abuse of power for private gain”
- Corruption: Holistic vs. Individualistic (Makro vs. Micro) approach

Corruption & grand corruption

$$C = f(c_1 tr_1, c_2 tr_2, c_k tr_k, \dots, c_n tr_n)$$

C: weight of corruption

c_k : share of corrupt transactions at tr_k

tr_k : number of k type transactions

Corruption & grand corruption

- Corruption: principal-agent-client model
- Corruption:
 - Bribery
 - Extortion
 - Embezzlement
 - Fraud

Corruption & grand corruption

- Mean areas of corruption:
 - Inspections
 - Licences
 - Public procurement
 - Regulation

Corruption & grand corruption

Institutionalised grand corruption in public spending (~particularistic allocation of public resources)

- Institutionalised=recurrent, stable
- Grand=high-level politics and business
- Corruption=particularism
- Public spending=public procurement



Measurement



Measurement

- Perceptions (TI CPI, WB)
- Attitudes (EU ESS)
- *Hypothetical situations and actions (EY & GVI)*



Measurement

Classical methods:

- Fuzzy (weak reliability)
- Inappropriate
- False
- Impossibility of causal analysis



Measurement

Need for new indicators:

- objective data describing actor behaviour
- micro level
- consistent comparisons across countries, organisations, and time
- thorough understanding of corruption in its context



Corruption Risk Index



CRI

CRI: Corruption Risk Index of the winner selection process in public procurement

- „Risk of corruption” instead of veritable cases of corruption
- Informations from actor behaviour
- A composit indicator
- $0 \leq \text{CRI} \leq 1$
- Similar concept: „Red Flags” (OLAF, EU)

CRI – initial

- Single bidder contract
- Call for tender not published in official journal
- Procedure type
- Length of eligibility criteria (in characters)
- Exceptionally short submission period
- Relative price of tender documentation

CRI – initial

- Call for tenders modification
- Exclusion of all but one bid
- Weight of non-price evaluation criteria
- Annulled procedure re-launched subsequently
- Length of decision period

CRI – initial

- Contract modification
- Contract lengthening
- Contract value increase
- Winner's market share

CRI

- *Number of bids*
- *Call for tender not published in official journal*
- *Procedure type*
- *Length of eligibility criteria*
- *Exceptionally short submission period*
- *Relative price of tender documentation*
- *Call for tenders modification*
- *Weight of non-price evaluation criteria*
- *Annulled procedure re-launched subsequently*
- *Length of decision period*
- *Contract modification*
- *Contract value increase*
- *Winner's market share*



Data

Only official sources: administrative data (from HPPA)
1998-2013

Characteristics:

- Low random measurement error: official records, fine attached to errors, many people checking quality (still there are surprising data errors!)
- High systematic error as publications are often gamed for corrupt purposes: we track and analyse errors

Data

- Hungarian data (+ Czech, Slovak, Italian, e.t.c.)
- 2009-2012
- Public procurement announcements:
<http://www.kozbeszerzes.hu/>
- Data extracted from online text files (i.e. crawler algorithms, text mining algorithms)
- 3.2% of GDP on transaction level
- 300+ variables per transaction

Data

	2009	2010	2011	2012	Total
Total number of contracts awarded	10918	17914	14070	10342	53244
Total number of unique winners	3987	5617	5587	4923	13557
Total number of unique issuers	1718	2871	2808	2344	5519
Combined value of awarded contracts (million EUR) *	4604	3834	1856	1298	11592

Notes: * = a 300 HUF/EUR uniform exchange rate was applied for exchanging HUF values.

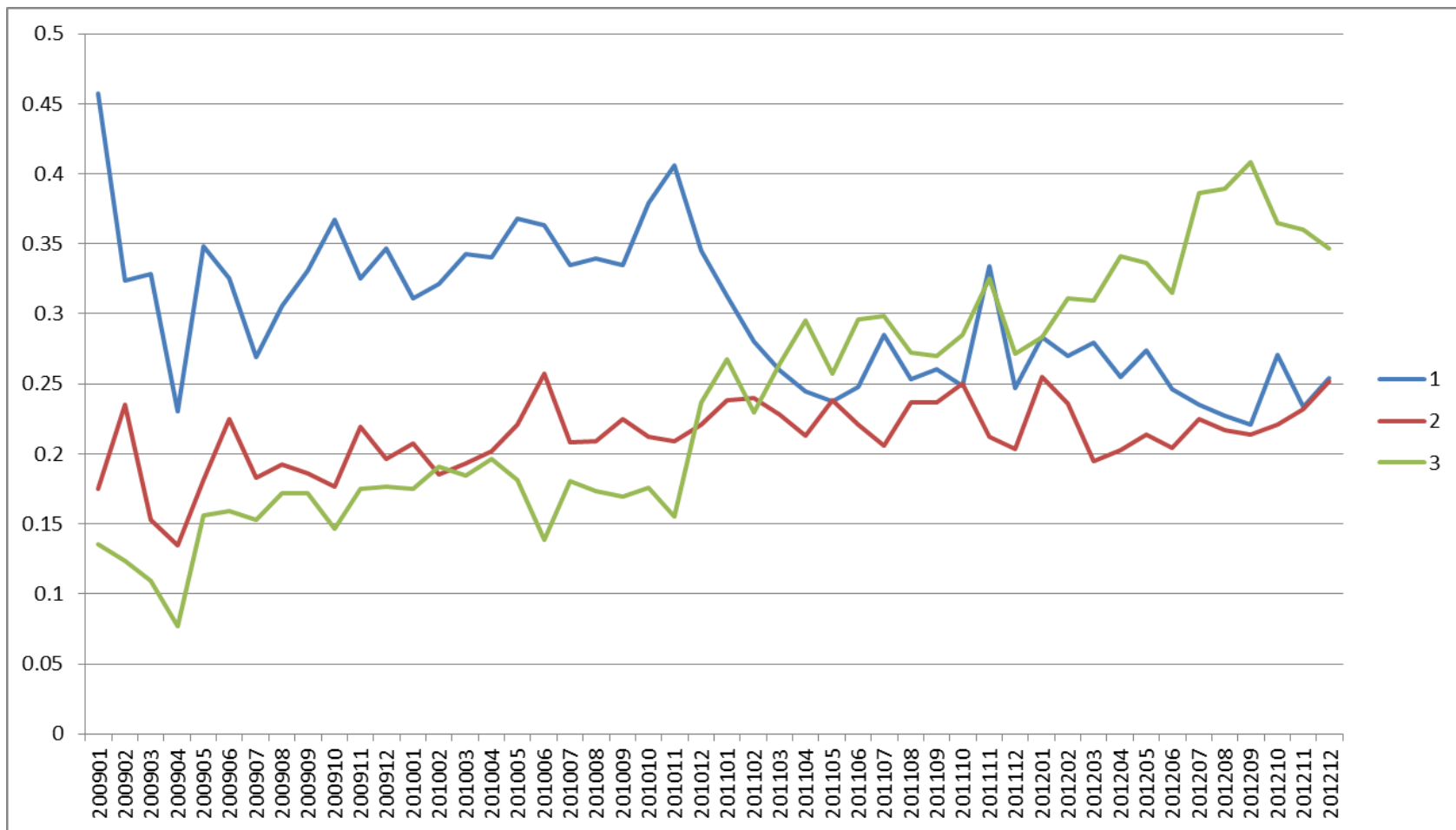
Data

phase	indicator name	indicator definition
submission	Single bidder contract	0=more than one bid received 1=ONE bid received
	Call for tender not published in official journal	0=call for tender published in official journal 1=NO call for tenders published in official journal
	Procedure type	0=open procedure 1=invitation procedure 2=negotiation procedure 3=other procedures (e.g. competitive dialogue) 4=missing/erroneous procedure type
	Length of eligibility criteria	number of characters of the eligibility criteria MINUS average number of characters of the given market's eligibility criteria
	Exceptionally short submission period	0=normal submission period 1=accelerated submission period 2=exceptional submission period 3=exceptional submission period abusing a weekend 4=missing*
	Relative price of tender documentation	price of tender documentation DIVIDED BY contract value
	Call for tenders modification	0=call for tenders NOT modified 1=call for tenders modified
assessment	Exclusion of all but one bid	0=at least two bids NOT excluded 1=all but one bid excluded
	Weight of non-price evaluation criteria	proportion of NON-price related evaluation criteria within all criteria
	Annulled procedure re-launched subsequently***	0=contract awarded in a NON-annulled procedure 1=contract awarded in procedure annulled, but re-launched
	Length of decision period	number of days between submission deadline and announcing contract award
delivery	Contract modification	0=contract NOT modified during delivery 1=contract modified during delivery
	Contract lengthening	relative contract extension (days of extension/days of contract length)
	Contract value increase	relative contract price increase (change in contract value/original, contracted contract value)



Illustrative results

Results – number of bids

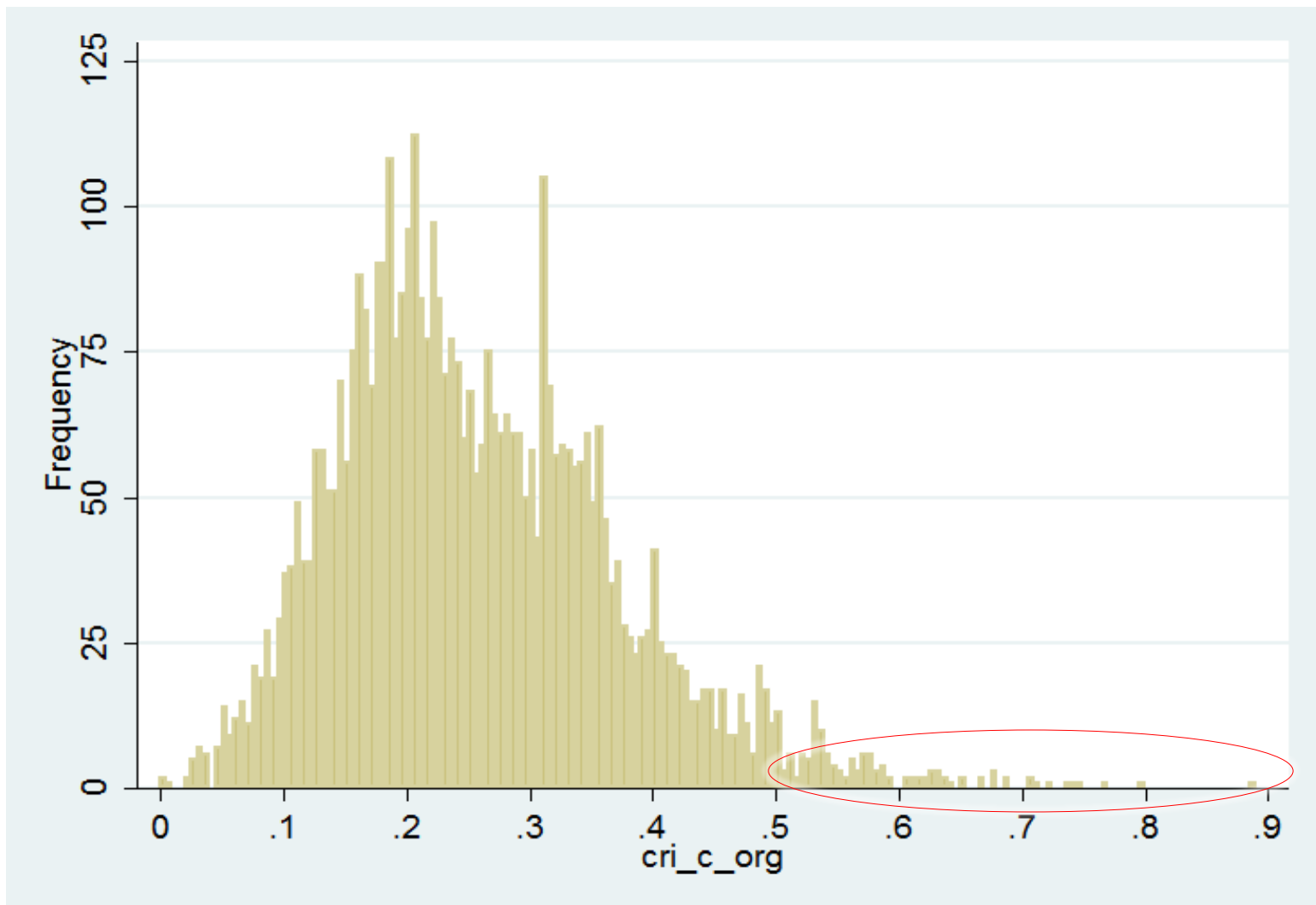


Results

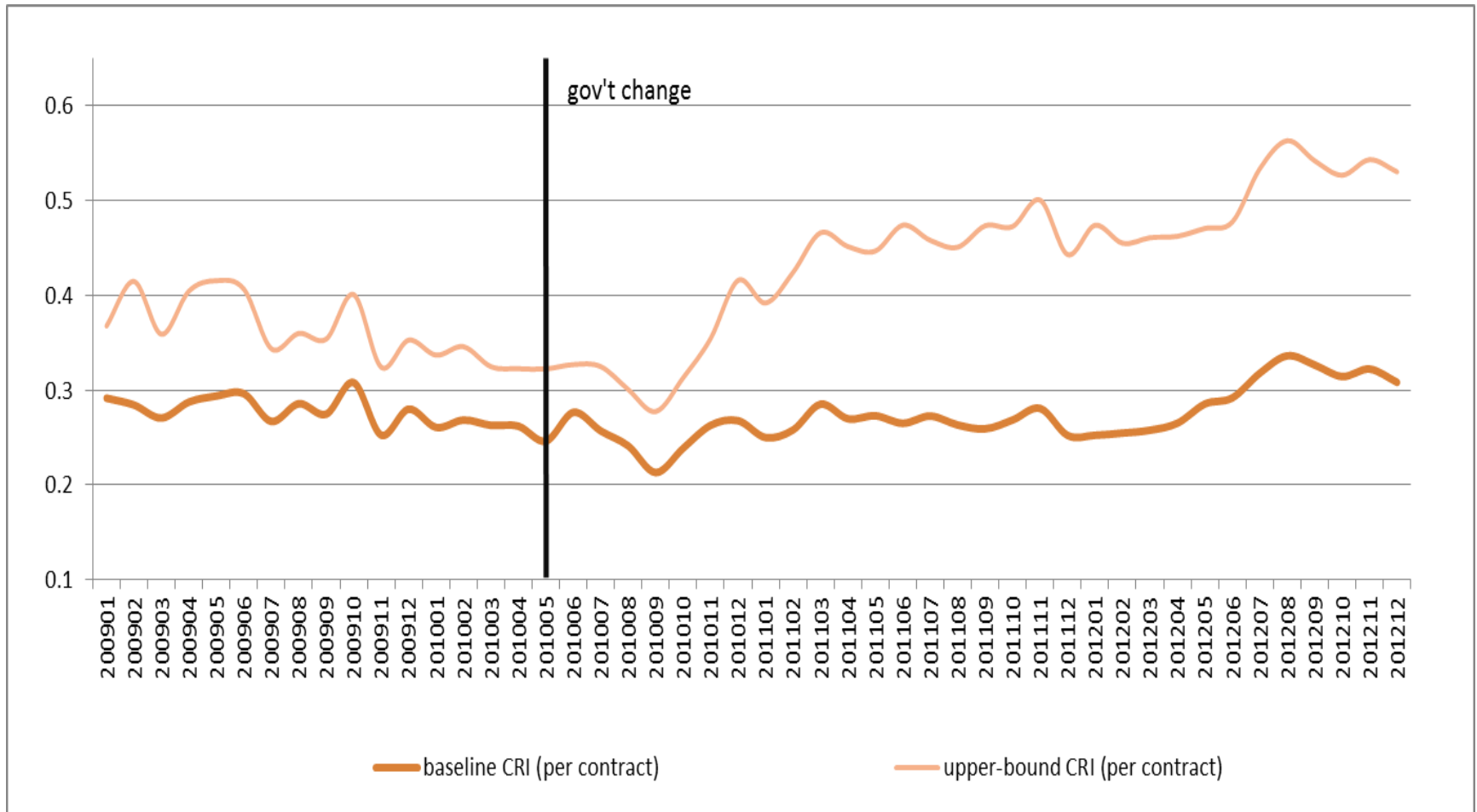
average
CRI

Per
winning
bidder

2009-
2012

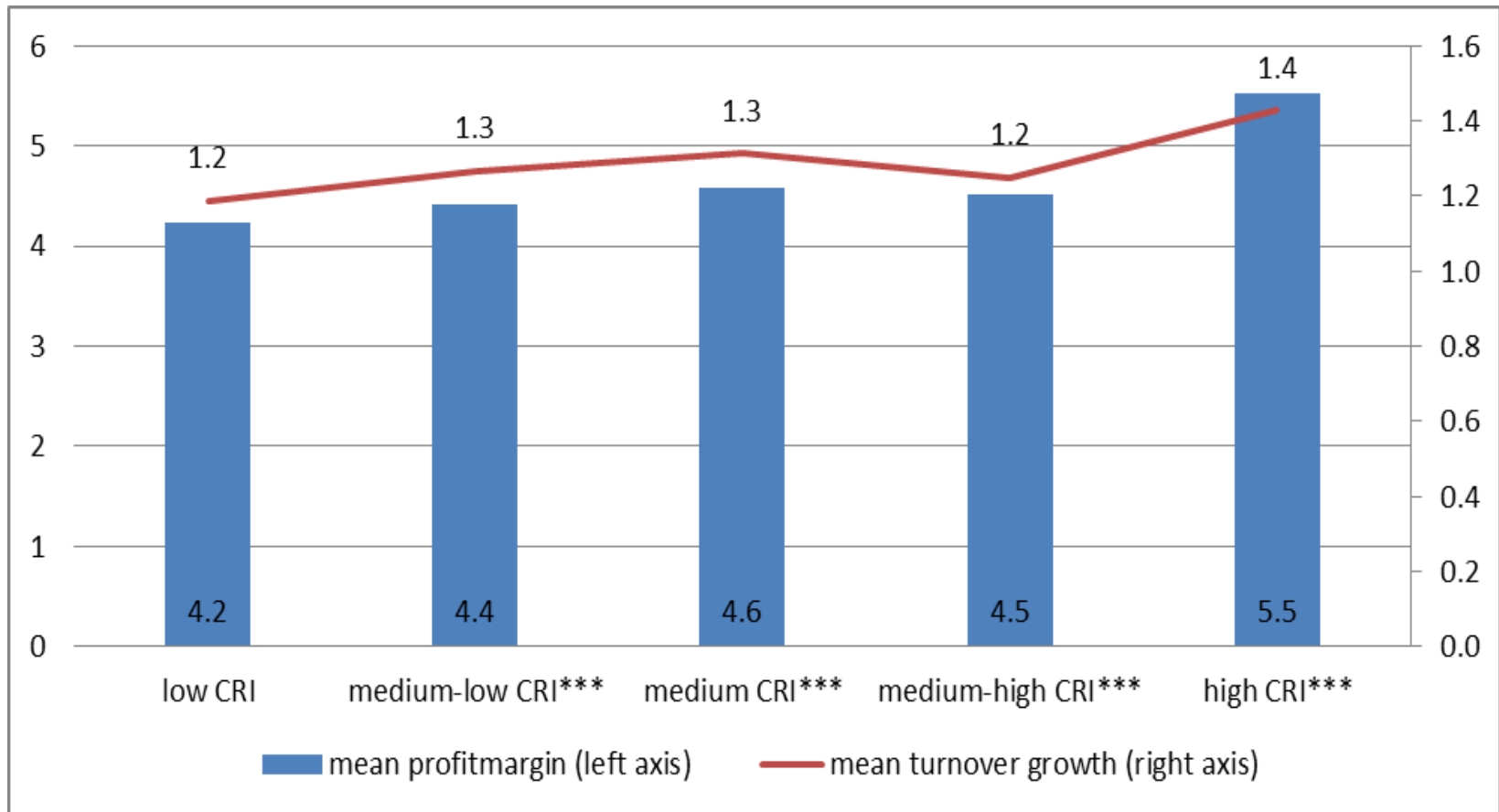


Results



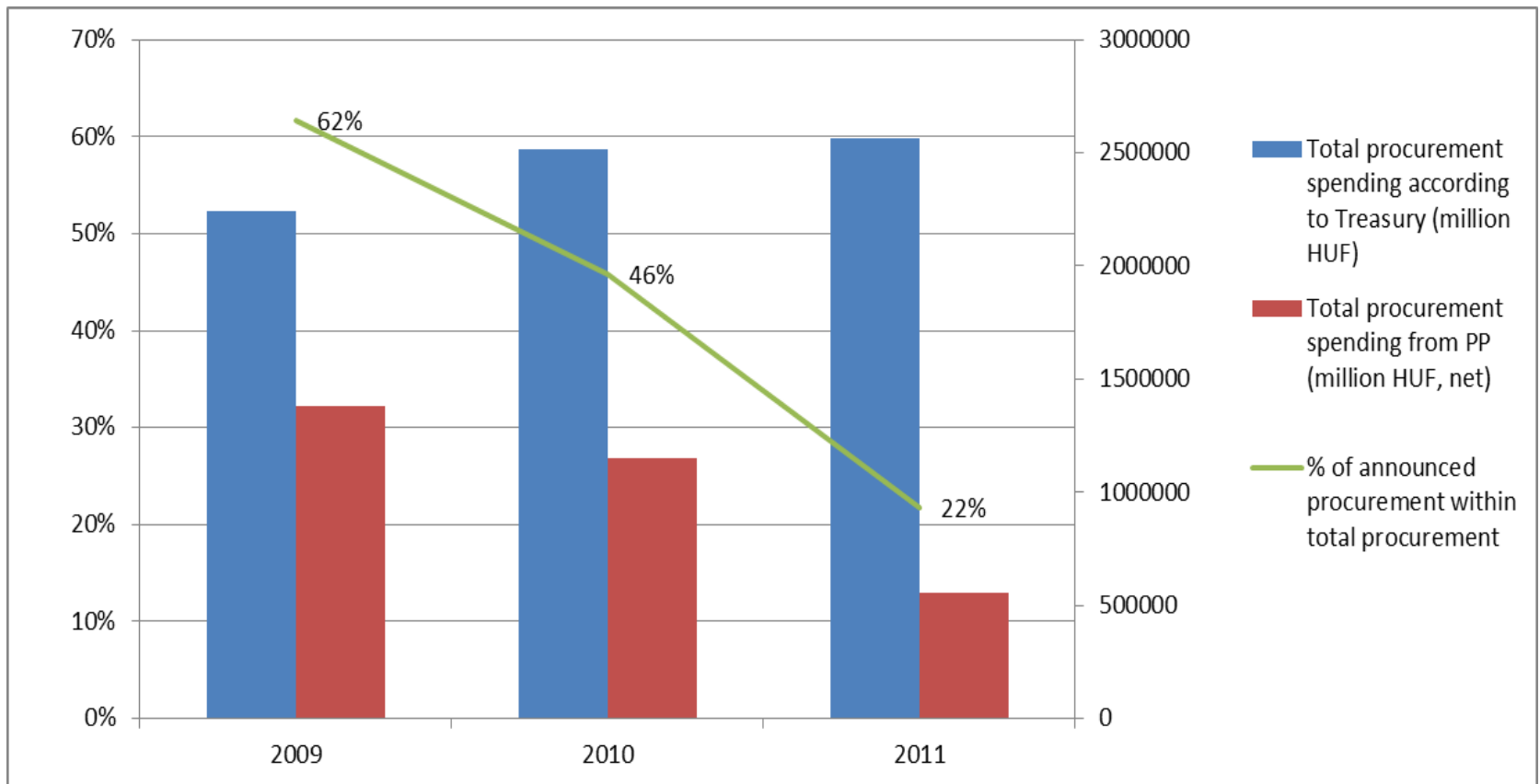
Results

Profitability and turnover growth of winners, 2009-2012

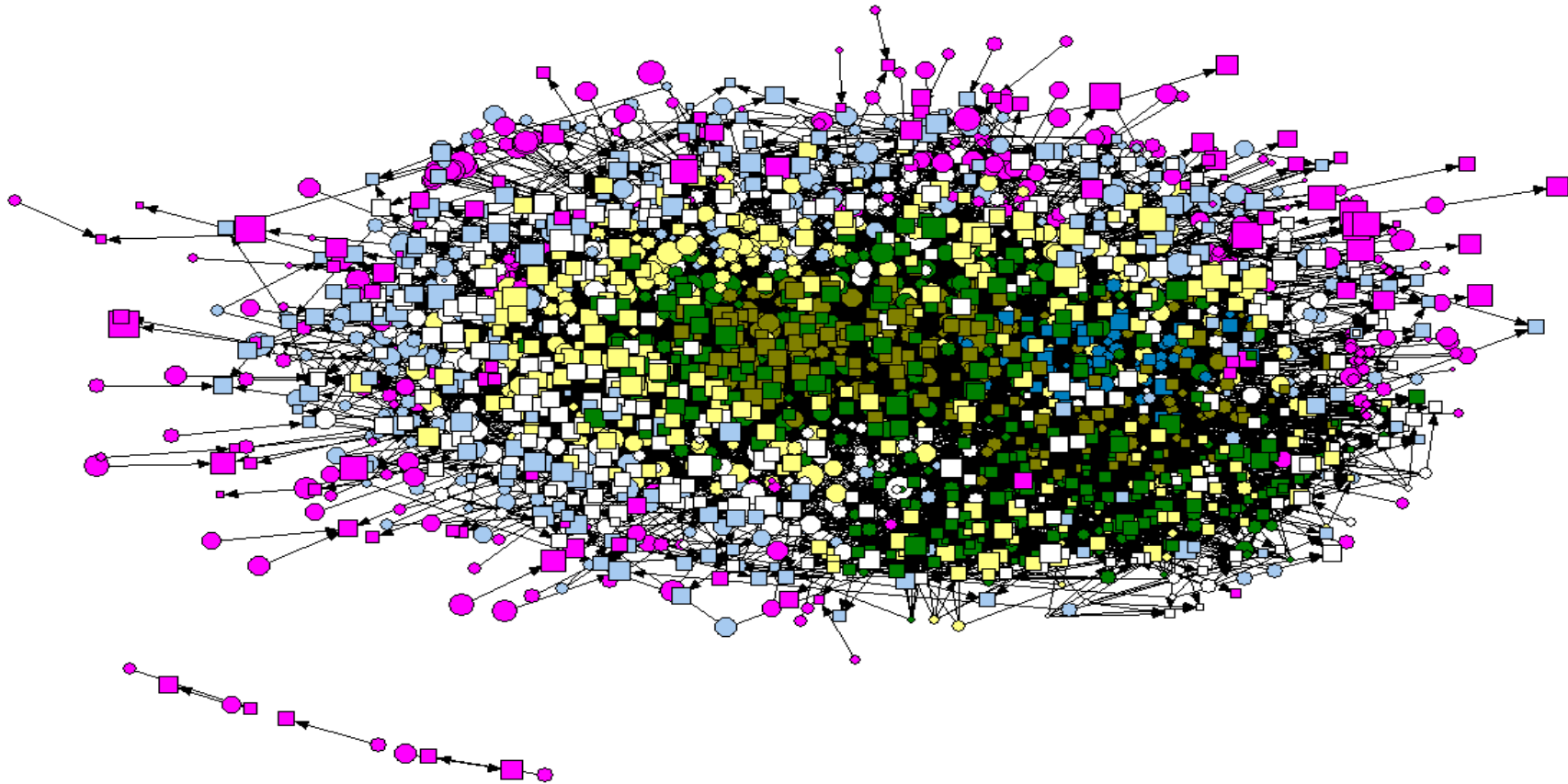


Results

Change of government

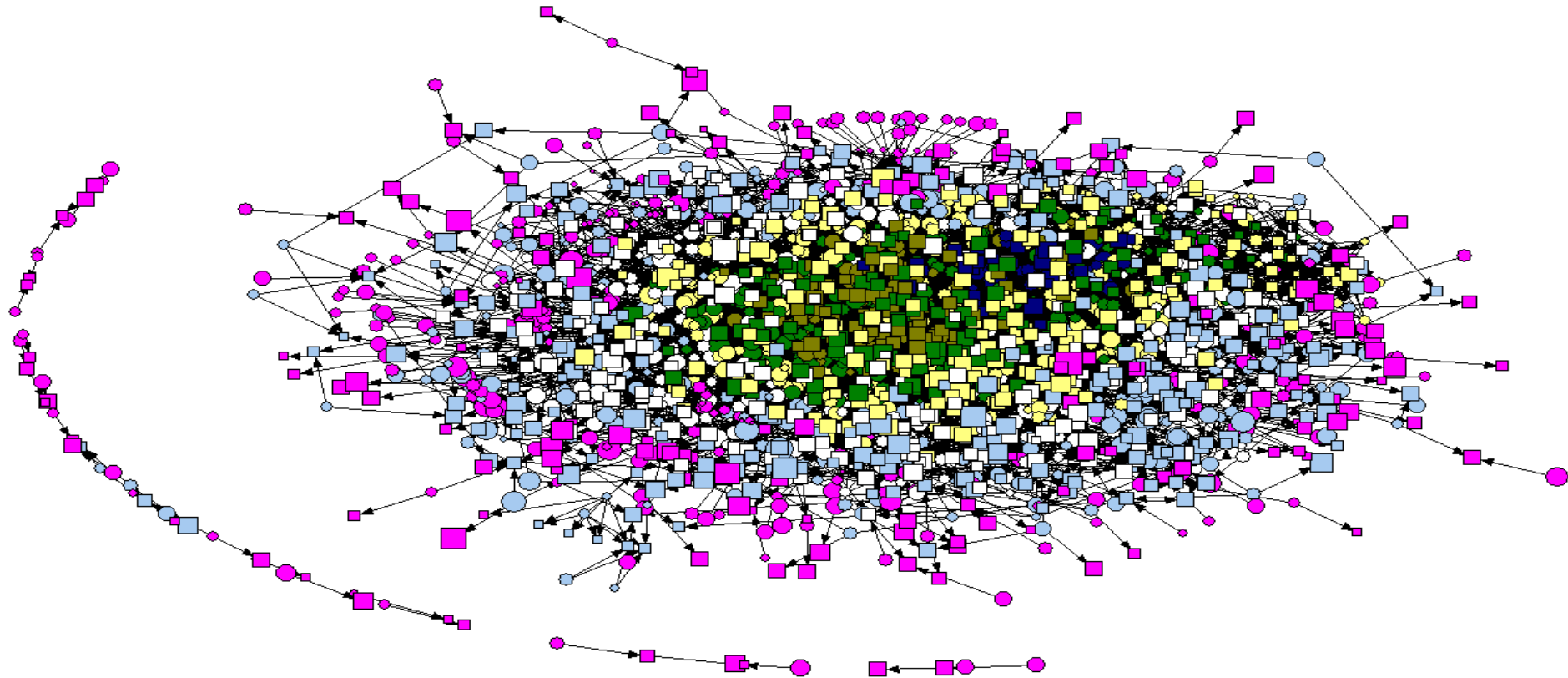


Network: 2009-2010



- Spring embedding, CRI, k-cores, weighted

Network: 2011-2012



- Spring embedding, CRI, k-cores, weighted



Thank you for your attention!