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# The drivers of antitrust effectiveness

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# Motivation

Antitrust law design and enforcing differs across countries

Open question: what is the institution set up and practices that drive effectiveness in antitrust enforcement

- Just higher per capita income, higher public policy quality?
- Independence of competition authority?
- *Per se* or Rule of Reason?
- Civil and criminal sanctions for restrains of competition?
- What is the legal mandate for mergers?

# Outline

- Motivation
- Literature review
- Objective
- Empirical strategy
- Data
- Results
- Conclusions

# What has already been addressed

## The impact of competition policy on

- Country Growth Dutz and Hayri (2000)
- Country TFP Voigt (2006)  
Borrell & Tolosa (2008)
- Country Inflation Przybyla and Roma (2005)
- Ind. markups & conc. Symeonidis (2001)  
Kee & Hoekman (2007)  
McCloughan, Lyons & Batt (2007)
- Ind. wages & TFP Symeonidis (2003)

## The 'country' drivers of antitrust effectiveness (CORRUPTION)

- Emerson (2006), Krakowski (2005), Kronthaler (2007)  
Aghion & Schankerman (2004)  
Glaeser & Shleifer (2003)

# What is pending

## Studying the 'policy' drivers of antitrust effectiveness

### Literature on regulatory effectiveness

Gutierrez (2003), Stern & Trillas (2003)

Levine, Stern and Trillas (2005)

Cubbin & Stern (2006)

### Fundamentals of policy variance

Carlton & Picker (2007), Baker (2003), Gal (2003), Gual et al (2005)

Kaplow & Shapiro (2007), Berges-Senou (2002), Barros (2003)

Demouguin & Fluet (2004), Borrell (2007)

### Reviews of antitrust regimes

Nicholson (2004), *CUTS international*

*Global Competition Review, International Competition Network*

# Objective

## Aim of the paper

Identification and estimation of the impact of antitrust policy design and enforcement on policy effectiveness

## Data

Cross-country information

## Findings

Effectiveness is driven by:

1. Per capita GDP and EU membership (quality of inst. & policy)
2. Authority independence
3. Tough cartel prosecution (leniency)
4. Economic approach to dominance
5. Merger policy focused on fostering competition

# Empirical strategy

Explore the relationship between subjective indicators of effectiveness and policy observables

**How to measure  
the effectiveness of  
competition policy?**

## **Subjective indicators as a *proxy***

Surveys, mostly to business people

Dutz & Hayri (2000), Krakowski (2005), Borrell & Tolosa (2008)

## **Policy observables and broad indicators**

Information on policy characteristics

Serebrisky (2004) or Voigt (2006)

## **How WEF measure effectiveness of competition policy?**

Methodology: Questionnaire

Population: Expert opinions of business leaders and entrepreneurs.

Question: Anti-monopoly policy in your country is (1=lax and not effective at promoting competition; 7=effective and promotes competition)

Properties: Measure perception of effectiveness of competition policy



13 observable policy characteristics for 47 countries, 4 broad indicators, 2 factors:

**1. Authority independence:** independence of antitrust decisions + independence of prosecution

**2. Active stance of cartel policy:** defining cartels as *per se* illegal + civil sanctions + criminal penalties + guidelines + leniency programs

**3. Economic approach in dominance law:** - defining abuses as *per se* illegal - threshold + level of threshold

**4. Competition focused merger policy:** Government final say + mandate competition in merger + merger guidelines

## What do we expect?

Effectiveness perception depends on

1. Per capita GDP and correlated variables (corruption, governance, rule of law, openness, etc.)
2. Specialized administrative or judicial body
3. Use of clear-cut prohibitions and deterrent fines on competition restraints
4. Clear and competition oriented legal mandate on mergers

**Table 1**  
**VARIABLES IN THE DATASET**

<b>Name</b>	<b>Acronym</b>	<b>Source</b>	<b>Description</b>
Antitrust effectiveness	effectiv	WEF	Anti-monopoly policy in your country (1 = is lax and not effective at promoting competition, 7 = effectively promotes competition)
Independence on antitrust decisions	indcard	Authors	1 = There is an independent competition authority; 0 = In other case
Government prosecution	mininst	Authors	1 = There is an competition authority but a dependent ministry of the executive files complains; 0 = In other case
Cartel per se illegal	cartperse	Authors	1 = Cartels are per se illegal; 0 = Cartels are adjudicated using the rule of reason
Published guidelines for cartel enforcement	cartelguide	Authors	1 = Competition authority has published some cartel guidelines; 0 = Otherwise
Criminal sanctions	penalcart	Authors	1 = Cartels are criminal felonies; 0 = In other case
Punitive damages	danoscart	Authors	1 = It is possible to claim for punitive damages; 0 = Otherwise
Leniency programs	leniency	Authors	1 = There is a leniency program; 0 = Otherwise

**N = 47 Year = 2004**

**Table 1**  
**VARIABLES IN THE DATASET**

*(Continued)*

Name	Acronym	Source	Description
Dominance abuses per se illegal	dompos	Authors	1 = Per se for dominant position; 0 = Rule of Reason for dominant position
Dominance defined by market share	thresdom	GCR	1 = It exist a threshold above which a position is qualified as dominant; 0 = In other case
Dominance threshold (0 or 20 to 70%)	levthresd	GCR	1 = If it exists, level of the threshold dominant position; 0 = In other case
Published merger guidelines	mergerguide	Authors	1 = Competition authority has published some merger guidelines; 0 = Otherwise
Government has the last say mergers	findecmerg	Authors	1 = Government has the last say on mergers; 0 = Competition authority takes decisions regarding mergers
Protecting competition in merger law	objectimerg	Authors	1 = Legal mandate for merger control is protecting competition; 0 = It is protecting the public interest in general
Per capita GDP	cgdp	Penn Tables	GDP (current US dollars), 2003

**N = 47 Year = 2004**

**Table 2**  
**DESCRIPTIVE STATISTICS**

	Acronym	Obs	Mean	Std. Dev.	Min	Max
Antitrust effectiveness	effectiv	47	4.66	0.89	2.8	6.1
Independence on antitrust decisions	indcart	47	0.94	0.25	0	1
Government prosecution	minist	47	0.13	0.34	0	1
Cartel per se illegal	cartperse	47	0.34	0.48	0	1
Published guidelines for cartel enforcement	cartelguide	47	0.23	0.43	0	1
Criminal sanctions	penalcart	47	0.36	0.49	0	1
Punitive damages	danoscart	47	0.23	0.43	0	1
Leniency programs	leniency	47	0.47	0.50	0	1
Dominance abuses per se illegal	dompos	47	0.32	0.47	0	1
Dominance defined by market share	thresdom	47	0.70	0.46	0	1
Dominance threshold (0 or 20 to 70%)	levthresd	47	28.36	21.15	0	70
Published merger guidelines	merguide	47	0.62	0.49	0	1
Government has the last say mergers	findecmerg	47	0.43	0.50	0	1
Protecting competition in merger law	obtectimerg	47	0.91	0.28	0	1

**Table 2**  
**DESCRIPTIVE STATISTICS**

	Acronym	Obs	Mean	Std. Dev.	Min	Max
Authority Independence	ind	47	0.87	0.28	0	1
Active stance in cartel policy	cartel	47	1.64	1.24	0	5
Economic approach in dominance law	dominance	47	-0,74	0.56	-1,75	0
Competition focussed merger policy	merger_pol	47	2.11	0.87	0	3
Per capita GDP	cgdp	47	19,164.81	9,111,38	3,212,53	37,313.33
EU-15	eu15	47	0.30	0.46	0	1
EU-Enlargement 2004	eu15-25	47	0.21	0.41	0	1
Bulgaria & Romania	eu-25-27	47	0.04	0.20	0	1

**Table 3**  
**DISTRIBUTION OF OBJECTIVE FEATURES OF COMPETITION POLICY**

Variable	Value	Countries for which the variable takes the value shown
Independence on antitrust decisions	0	Colombia, Costa Rica, Venezuela
Government prosecution	1	<i>Belgium, France, India, Latvia, Spain, Malta</i>
Cartel per se illegal	1	Australia, <i>Austria</i> , Chile, Costa Rica, Slovenia, <i>France, Greece, Hungary, Italy, Korea</i> , Latvia, Mexico, Romania, South Africa, <i>USA</i> , Venezuela
Published guidelines for cartel enforcement	1	<i>Canada, Greece, Netherlands, Ireland, Japan, Korea, Malta, New Zealand, Sweden, United Kingdom, USA</i>
Criminal sanctions	1	<i>Canada, Czech Republic, Estonia, France, India, Ireland, Island, Israel, Japan, Korea, Mexico, Norway, Slovak Republic, Slovenia, Taiwan, United Kingdom, USA</i>
Punitive damages	1	<i>Canada, Croatia, Czech Republic, Hungary, New Zealand, Norway, Slovak Republic, Slovenia, Taiwan, USA</i>
Leniency programs	1	<i>Canada, Cyprus, Czech Republic, Finland, France, Netherlands, Hungary, Ireland, Korea, New Zealand, Norway, Poland, Romania, South Africa, Slovak Republic, Sweden, United Kingdom, USA</i>

**Table 3**  
**DISTRIBUTION OF OBJECTIVE FEATURES OF COMPETITION POLICY**

Variable	Value	Countries for which the variable takes the value shown
Dominance abuses per se illegal	1	Costa Rica, Croatia, <i>Czech Republic, Denmark, France, Greece, Hungary</i> , India, <i>Ireland, Italy</i> , Latvia, <i>Mexico, Romania</i> , South, <i>Venezuela</i>
Dominance defined by market share	0	<i>Australia, Belgium</i> , Chile, Cyprus, Colombia, Costa Rica, <i>Finland, Japan</i> , Kenya, <i>Luxemburg, Mexico, New Zealand, Portugal, Romania, Spain, Venezuela</i>
Published merger guidelines	1	<i>Australia, Austria, Belgium, Brazil, Canada, Czech Republic, Finland, Germany, Greece, Ireland, Japan Korea, Latvia, Lithuania, Malta, Netherlands, New Zealand, Norway, Poland, Romania</i> , South Africa, <i>Slovak Republic, Spain, Sweden, Switzerland</i> , Taiwan, <i>United Kingdom, USA, Venezuela</i>
Protecting competition in merger law	0	Argentina, <i>Poland, Portugal</i> , Taiwan
Government has the last say on mergers	1	Argentina, <i>Belgium</i> , Cyprus, Colombia, Costa Rica, <i>Finland, France, Germany, Greece</i> , India, Israel, <i>Italy, Malta, Norway, New Zealand, Poland, Portugal, Romania, Spain, Taiwan</i>



## Parsimonious specification: controlling just for Per Capita GDP

**Table 4**  
**CORRELATION BETWEEN PER CAPITA GDP AND OTHER COVARIATES**

	Source	Per capita GDP
Intensity of Local Competition	WEF	0.60
Descentralization of Corporate Activity	WEF	0.72
Openness of Customs Regime	WEF	0.72
Efficiency of Legal Framework	WEF	0.76
Voice and Accountability	WBI	0.81
Regulatory Quality	WBI	0.82
Perception of Corruption Index	TI	0.88
Control of Corruption	WBI	0.89
Rule of Law	WBI	0.91

*Source:* World Economic Forum (WEF), World Bank Institute (WBI), Transparency International (TI), and Penn Table.

## Non-correlated policy characteristics

1. Barlett test of sphericity not rejected
2. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy below 50%

Table 5

### CORRELATION AMONG ANTITRUST FEATURES AND INCOME

		CGPD_03	indcart	mininst	cartperse	cartel-guide	penalcart	daoscart
Per capita GDP	cgdp_03	1.00						
Independence on antitrust decisions	indcart	0.34	1.00					
Government prosecution	mininst	-0.02	0.10	1.00				
Cartel per se	cartperse	-0.10	-0.18	-0.01	1.00			
Cartel guide	cartelguide	0.42	0.14	-0.06	-0.08	1.00		
Criminal sanctions	penalcart	0.15	0.20	-0.02	-0.07	0.21	1.00	
Punitive damages	daoscart	0.21	0.14	-0.21	-0.08	0.05	0.32	1.00
Leniency programs	leniency	0.34	0.24	-0.10	-0.04	0.29	0.18	0.29
Per se dominance abuses rules	dompos	-0.31	-0.19	0.15	0.47	-0.16	-0.04	-0.06
Dominance defined by market share	thresdom	0.11	0.40	-0.03	-0.12	0.14	0.30	0.25
Dominance threshold (0 or 20 to 70%)	levthresd	0.27	0.35	-0.05	-0.04	0.27	0.38	0.28
Published merger guidelines	merguide	0.34	0.15	0.04	-0.08	0.44	0.05	0.13
Government has the last say on mergers	findecmerg	-0.01	-0.13	0.32	-0.16	-0.17	-0.20	-0.07
Protecting competition in merger law	objetimerg	0.13	-0.08	0.12	0.22	0.17	0.07	-0.01

## Non-correlated policy characteristics

1. Barlett test of sphericity not rejected
2. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy below 50%

**Table 5**  
**CORRELATION AMONG ANTITRUST FEATURES AND INCOME**

		leniency	dompos	thresdom	levthresd	merg- guide	findec- merg	objecti- merg
Leniency programs	leniency	1.00						
Per se dominance abuses rules	dompos	-0.09	1.00					
Dominance defined by market share	thresdom	0.05	0.05	1.00				
Dominance threshold (0 or 20 to 70%)	levthresd	0.14	0.05	0.88	1.00			
Published merger guidelines	mergguide	0.48	-0.21	0.06	0.15	1.00		
Government has the last say on mergers	findecmerg	-0.03	-0.04	-0.29	-0.31	-0.12	1.00	
Protecting competition in merger law	objetimerg	0.13	0.21	-0.03	0.09	0.07	-0.35	1.00

## Correlated broad policy indicators

1. Barlett test of sphericity rejected
2. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy above 50%

**Table 6**  
**CORRELATION AMONG POLICY DOMAIN INDICATORS**

		cgdp_2003	ind	cartel	dominant	merger_pol
Per capita GDP	cgdp_03	1.00				
Authority Independence	ind	0.30	1.00			
Active stance in cartel policy	cartel	0.38	0.27	1.00		
Economic approach in dominance law	dominant	0.28	0.04	-0.09	1.00	
Competition focussed merger policy	merger_pol	0.24	0.19	0.42	-0.02	1.00

**Table 7**  
**FACTOR ANALYSIS USING PRINCIPAL COMPONENTS**

	Factor 1		Factor 2	
	Factor loading	Weights of variables in factor	Factor loading	Weights of variables in factor
Authority Independence	0.61	0.23	0.30	0.09
Active stance in cartel policy	0.81	0.41	-0.15	0.02
Economic approach in dominance law	-0.05	0.00	0.96	0.89
Competition focussed merger policy	0.76	0.36	-0.06	0.00
<b>Selection criteria</b>				
Eigenvalues	1.60		1.02	
Variance explained by factors	1.40		0.26	
Total variance explained by factors			0.66	
Bartlett test of sphericity			Chi(6) = 12.64**	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.571	

Factor loading based on rotated component matrix using the varimax method (orthogonal).

Weights using normalised square factor loading

\*\* : for 5% significance level

Table 9

**IMPACT OF BROAD INDICATORS OF POLICY DESIGN OF EFFECTIVENESS**

	log(effectiveness)			
	(1) OLS	(2) OLS	(3) IV	(4) IV
Intercept	-0.45*** (12.48)	-1.52*** (2.89)	-2.88*** (6.84)	-2.03*** (4.58)
Factor 1: Authority Independence, active stance in cartel policy and competition focussed merger policy	0.09*** (5.40)	0.07*** (3.03)	0.08*** (2.32)	0.06*** (3.12)
Factor 2: Economic approach in dominance law	0.07*** (2.97)	0.04* (1.95)	0.04*** (2.30)	0.05*** (2.48)
Log per capita GDP		0.11** (2.07)	0.25*** (5.90)	0.16*** (3.66)
EU-15	0.16*** (3.58)	0.09* (1.76)		0.07* (1.83)
EU-Enlargement 2004 Bulgaria & Romania	-0.09 (1.65)	-0.10* (1.99)		-0.09* (1.93)
	-0.23*** (5.54)	-0.18*** (2.81)		-0.13** (2.04)
R <sup>2</sup>	0.63	0.68	0.53	0.66
F test	F(5,41)=71.08***	F(6,40)=30.17***	F(3,43)=21.97***	F(6,40)=29.15***
Hansen Over-id J test			Chi(1)=0.87	Chi(1)=1.0

**Table 8**  
**IMPACT OF BROAD INDICATORS OF POLICY DESIGN OF EFFECTIVENESS**

	log(effectiveness)							
	(1) OLS		(2) OLS		(3) IV		(4) IV	
Intercept	-0.60***	(6.72)	-0.64***	(9.01)	-2.97***	(5.60)	-2.17***	(3.92)
Authority Independence	0.13	(1.47)	0.14*	(1.87)	0.03	(0.50)	0.08	(1.50)
Active stance in cartel policy	0.05**	(2.03)	0.05***	(2.70)	0.02	(0.99)	0.02	(1.56)
Economic approach in dominance law	0.13***	(2.73)	0.12***	(2.81)	0.08**	(2.02)	0.09***	(2.43)
Competition focussed merger policy	0.04	(1.17)	0.04	(1.47)	0.04	(1.55)	0.04*	(1.84)
Log per capita GDP					0.25***	(4.63)	0.16***	(2.82)
EU-15			0.16***	(3.25)			0.07	(1.61)
EU-Enlargement 2004			-0.09	(1.53)			-0.08*	(1.90)
Bulgaria & Romania			-0.23***	(4.27)			-0.13*	(1.69)
R <sup>2</sup>	0.35		0.63		0.54		0.65	
F test	F(4,42)=6.32***		F(7,39)=55.09***		F(5,41)=7.50***		F(8,38)=19.36***	
Hansen Over-id J test					Chi(1)=0.87		Chi(1)=0.94	

**Table 10**  
**IMPACT OF DETAILED FEATURES OF COMPETITION POLICY**  
**OF EFFECTIVENESS**

	log(effectiveness)							
	(1) OLS		(2) OLS		(3) IV		(4) IV	
Intercept	-0.89***	(5.50)	-0.87***	(8.89)	-2.66***	(6.18)	-1.92***	(5.07)
Independence on antitrust decisions	0.26***	(3.13)	0.26***	(4.05)	0.10*	(1.70)	0.19***	(3.15)
Government prosecution	-0.03	(0.43)	-0.03	(0.56)	-0.01	(0.24)	-0.01	(0.22)
Cartel per se	0.02	(0.30)	0.03	(0.58)	0.00	(0.06)	0.01	(0.29)
Cartel guide	0.02	(0.41)	-0.04	(0.81)	-0.04	(0.93)	-0.06*	(1.73)
Criminal sanctions	0.07	(1.22)	0.07	(1.19)	0.09***	(2.12)	0.07	(1.64)
Punitive damages	-0.05	(0.75)	-0.01	(0.18)	-0.09*	(1.77)	-0.05	(0.88)
Leniency damages	0.06	(1.16)	0.06	(1.37)	0.06	(1.55)	0.07**	(2.06)
Per se dominance abuses rules	-0.12	(1.61)	-0.13**	(2.23)	-0.05	(1.11)	-0.08**	(1.98)
Dominance defined by market share	-0.24***	(2.57)	-0.20***	(2.66)	-0.11	(1.36)	-0.14*	(1.88)
Dominance threshold (0 or 20 to 70%)	0.005***	(2.54)	0.004**	(2.25)	0.002	(1.04)	0.003*	(1.73)
Published merger guidelines	0.06	(0.96)	0.05	(1.19)	0.04	(1.04)	0.04	(1.34)
Government has the last say on mergers	0.07	(1.16)	0.03	(0.70)	0.03	(0.82)	0.02	(0.72)
Protecting competition in merger law	0.19	(1.45)	0.19**	(2.35)	0.15*	(1.78)	0.17**	(2.56)
Log per capita GDP					0.20***	(4.20)	0.12***	(2.81)
EU-15			0.11**	(2.06)			0.04	(1.02)
EU-Enlargement 2004			-0.11*	(1.93)			-0.12***	(2.74)
Bulgaria & Romania			-0.29***	(5.39)			-0.22***	(4.38)
R <sup>2</sup>	0.53		0.75		0.68		0.78	
F test	F(13,33)=12.96***		F(16,30)=27.14***		F(14,32)=11.37***		F(17,29)=33.20***	
Hansen Over-id J test					Chi-sq(1)=1.44		Chi-sq(1)=0.46	



# Conclusions

Although there is not a unique way to make competition authorities more effective

1. Institutional learning matters
  - Independent authority
  - Active cartel policy, and leniency in particular stands out as good for effectiveness
  - It is good to have a competition focused merger policy
2. Using economics in abuse of dominant position cases matters