



POLITICAL DETERMINANTS OF COMPETITION IN THE MOBILE TELECOMMUNICATION INDUSTRY

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RESEARCH QUESTIONS

- Can government intervention shape competitive outcomes?
- If so, why aren't all governments promoting competition?
- What are the redistributive effects of government intervention?



MOTIVATION

- Many neoclassical economists view product market competition as the product of economic forces.
- However, the political sector can also affect competition.
 - An example: Mexican telecom reforms of 2014-2016
 - Change in Carlos Slim's wealth (in Forbes): -\$32.5 bn (-41%)
 - Change in mobile phone traffic (Mexico): +59%
 - Change in "average revenue per user" (Mexico): -47%
- In Pigou's (1938) public interest theory, unregulated markets are prone to failures. Government intervention protects the public and should be associated with socially superior outcomes.
- According to Tullock (1967) and Stigler's (1971) theories, instead, incumbents capture the regulators to limit competition and enjoy higher profits.



WHY THE MOBILE SECTOR IS A GOOD ONE TO STUDY

- It is an important sector
 - that is highly regulated at the national level;
 - and heavily dependent upon a scarce resource controlled by the government: the electromagnetic spectrum.
- Additional benefits:
 - the technology is similar across countries;
 - there are less legacy issues than with the fixed phone;
 - there are very good data both on prices and quality.



DATA: COMPETITIVE OUTCOMES

- Market structure, prices, and other outcomes:
 - International Telecommunication Union (ITU)
 - U.N. specialized agency for Information and Communication Technologies
 - Data are collected from the national regulators
 - **Extent of competition; price of a mobile phone basket; price of a mobile internet plan**
 - Groupe Speciale Mobile Association (GSMA)
 - Association of nearly 800 operators in the mobile sector
 - Quarterly data for 237 countries and territories, starting in 2000.
 - **C2; Herfindahl; ARPU; EBITDA margin**



DATA: REGULATIONS

- Regulatory Score - ITU's Regulatory Tracker
 - Various aspects of regulations concerning the fixed phone, mobile phone, and internet;
 - Based on answers to a questionnaire (50 questions)
 - “Is number portability required and available to mobile phone subscribers?”
 - “Are individual users allowed to make VoIP or Internet telephony phone calls?”
 - “Is foreign ownership of spectrum-based operators limited?”
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DATA: QUALITY OF POLITICAL INSTITUTIONS (POLITY IV)

- Institutionalized Democracy: (additive scale 0-10)
 - Captures (1) the “presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders”, (2) “the existence of institutionalized constraints on the exercise of power by the executive” and (3) “the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation.”
 - In democratic societies, politicians will put more weight on the interest of consumers => pro-competition regulations (especially if those result in lower prices and better quality).



DATA: POLITICAL CONNECTIONS

- Extension of Faccio (2006)
 - Biographies of over 50,000 executives and “top” employees affiliated with firms in the telecommunication services business from Capital IQ.
 - Political connections: Fraction of top employees (including executives and board members) of a given operator who serve (or served) as heads of state, government ministers, or members of parliament in their country, or worked (in the government) for anybody in those positions.
 - The concentrated interests of producers would favor less competition.



SUMMARY STATISTICS (T2)

Variables	No. Obs	Mean	Min	Max
Regulatory Score	150	61.36	12.00	84.00
C2	182	83.30%	38.66%	100.00%
Mobile Cellular Basket	182	\$26.48	\$10.07	\$47.25
Mobile Internet Basket 1GB	161	\$38.85	\$11.24	\$100.28
EBITDA Margin	110	0.39	0.24	0.57
Democracy	158	5.81	0.00	10.00
Political Connections	141	3.91%	0.00%	50.00%



CONCENTRATION, PRICES, AND REGULATION (T4)

	C2	Herfindahl- Hirschman Index	Lack Compet 5 Sectors W/R	Lack Compet 5 Sectors W/O R
Ln(GDP per capita)	-0.0131 (0.00878)	-187.2* (106.6)	-0.0934 (0.19)	0.317 (0.21)
Ln (Population)	-0.038*** (0.00537)	-362.4*** (70.1)	-0.0594 (0.1)	-0.0387 (0.0936)
Population Density	-0.00790* (0.00458)	-40.88 (61.42)	-0.0436 (0.104)	-0.122 (0.0796)
Inflation	0.00194 (0.00163)	20.5 (19.84)	0.0495 (0.0372)	0.203*** (0.0424)
Regulatory Score	-0.00106 (0.00070)	-18.52* (11.04)	-0.127*** (0.0137)	-0.0916*** (0.0196)
Intercept	1.596*** (0.103)	12717.3*** (1535.5)	12.14*** (2.548)	4.405* (2.307)
Number of Countries	148	148	148	120
R-squared	0.363	0.283	0.44	0.402
F	16.89	8.06	26.63	13.82



CONCENTRATION, PRICES, AND REGULATION (T4)

	Mobile Cellular Basket	Mobile Internet Basket 1GB	ARPU by Connection	EBITDA Margin
Ln(GDP per capita)	-1.119 (0.759)	-5.862*** (2.012)	5.857*** (0.656)	-0.032*** (0.00942)
Ln (Population)	-0.167 (0.466)	-0.634 (1.178)	-0.19 (0.386)	-0.00163 (0.00583)
Population Density	-2.499*** (0.816)	-0.73 (2.145)	2.542*** (0.604)	-0.00752 (0.0244)
Inflation	-0.617*** (0.211)	-0.564 (0.483)	-0.269*** (0.0912)	-0.000466 (0.00123)
Regulatory Score	-0.0114 (0.065)	-0.322** (0.137)	-0.0992* (0.0508)	-0.00106* (0.000584)
Intercept	44.00*** (10.15)	124.6*** (27.7)	-22.14*** (8.429)	0.780*** (0.139)
Number of Countries	148	138	148	94
R-squared	0.109	0.147	0.505	0.196
F	4.616	4.649	36.97	3.492



QUALITY OF SERVICE (IV REGRESSIONS, T5)

	Connections % 3G+	Connections % 4G	Network Coverage 3G+	Network Coverage 4G	Speed, in Mbit/s
Instrumented C2	-1.819 (1.533)	0.0327 (0.216)	-2.955 (2.089)	-0.451 (1.135)	-189.2 (269.9)
Ln(GDP per capita)	0.137*** (0.0302)	0.0202*** (0.00459)	0.134*** (0.044)	0.174*** (0.0238)	-2.494 (6.818)
Ln (Population)	-0.0385 (0.0619)	0.00818 (0.00905)	-0.0791 (0.0823)	-0.0125 (0.0441)	-6.95 (10.98)
Population Density	0.013 (0.0205)	0.0110*** (0.00312)	-0.0282 (0.0221)	0.0279* (0.015)	-1.655 (2.708)
Inflation	-0.00272 (0.00592)	-0.00150* (0.000831)	0.00235 (0.00679)	-0.00757*** (0.00236)	0.16 (0.78)
Intercept	1.053 (2.364)	-0.323 (0.34)	3.044 (3.321)	-0.754 (1.748)	303.6 (450.2)
Number of Countries	97	97	145	91	103
R-squared	0.131	0.335	.	0.609	.
F	17.46	15.77	19.17	32.66	0.457

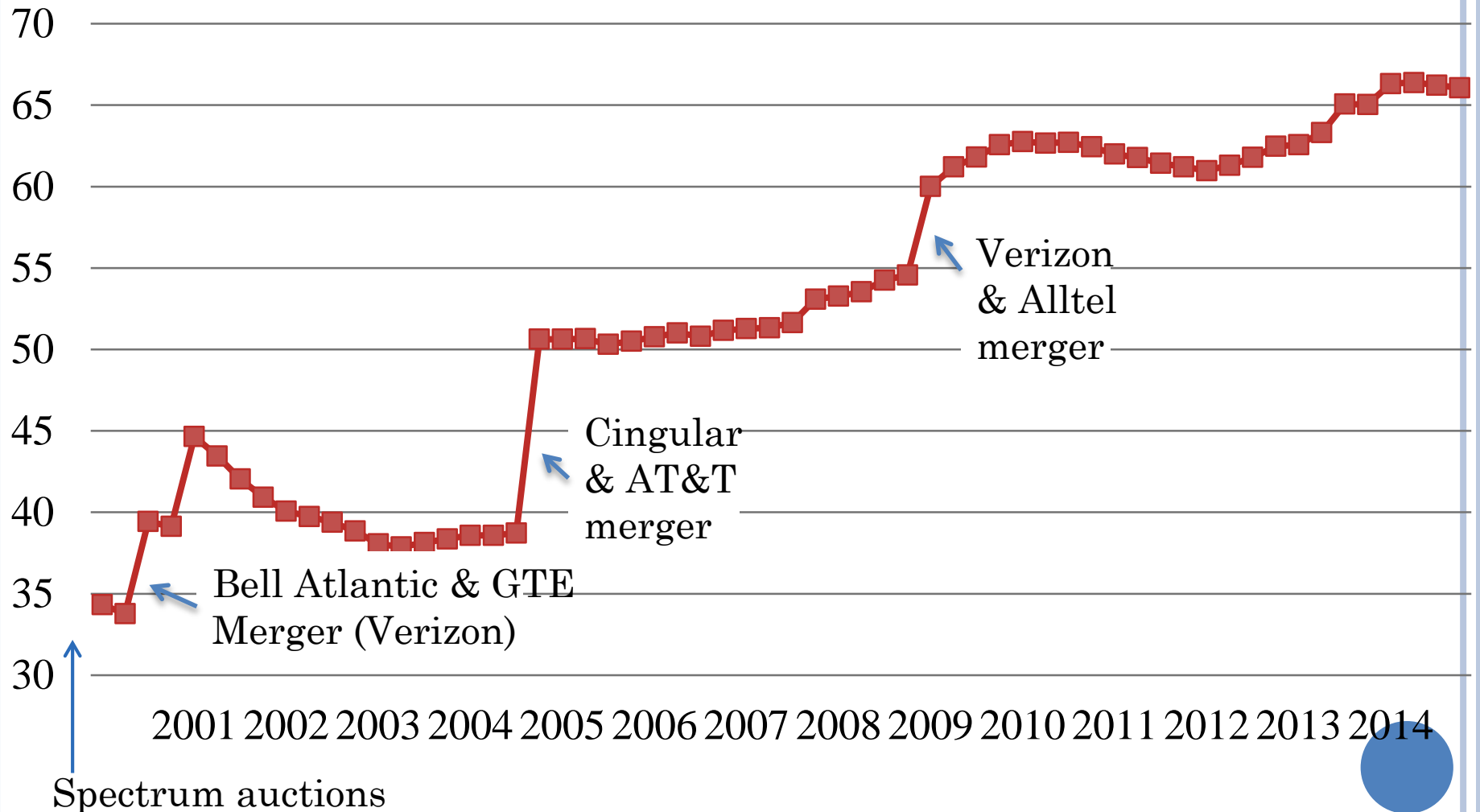
DETERMINANTS OF REGULATION (T7&T8)

	(1)	(2)	(3)	(4)
Ln(GDP per capita)	8.548*** (1.668)	4.317*** (1.085)	4.363*** (1.141)	6.196*** (1.158)
Ln(Population)	-0.896 (0.917)	1.117** (0.531)	1.056 (0.732)	0.239 (0.692)
Population Density/1000	-0.275 (0.522)	0.893 (0.631)	0.484 (0.613)	4.12 (3.419)
Tax Evasion	-2.128 (1.276)			
Telecom Sales Tax Rate		46.03*** (15.89)		
Telecom Corporate Tax Rate			-6.235 (14.52)	
Taxes as a Proportion of TCMO				43.15** (17.22)
Democracy				
Political Connections				
Intercept	6.989 (23.44)	-2.886 (13.74)	6.34 (14.33)	-4.887 (18.09)
Number of Countries	55	140	132	95
R-squared	0.273	0.163	0.136	0.346
F	9.134	7.832	6.377	9.503

REDISTRIBUTIVE EFFECTS

	U.S.	Germany	Denmark
Regulatory Score	76.5	78.5	76

ANTITRUST AND THE MARKET SHARE OF THE 2 LARGEST U.S. OPERATORS, C2 (%)



Note: Q1 2000 through Q3 2015. Based on GSMA data.

5. CONCLUSIONS

- In the mobile telecommunication industry, concentration, competition, and prices are substantially affected by regulatory choices.
- The design of these choices appears to be affected more by political lobbying than economic principles.
- Government intervention appears to have large redistributive effects.

