

The impact of explicit and implicit FDI restrictions on telecommunications

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This paper explores the importance of FDI restrictions on telecommunications services

- Following Molnar (2008), FDI is a critical factor to foster competitiveness in telecommunications
- We consider competitiveness to include not only pricing trends but also product innovation, service quality, and infrastructure investment
- Again following Molnar (2008), “FDI restrictions, such as ownership barriers or restrictions in the operations of foreign affiliates have a sizeable negative impact on inward FDI in telecommunications”
- Our focus is to identify the causality chain that leads from FDI restrictions to limits in competitiveness
- Our methodology consists on case studies that highlight the relationships
 - How can FDI restrictions limit investment in infrastructure: the case of Next Generation Access Networks in Canada
 - The impact FDI restrictions on consumer welfare: telecommunications pricing in Mexico
 - How can convergence restrictions result in FDI restrictions: the Brazilian regulations for telco-content distribution cross-ownership
 - Implicit FDI restrictions: the “national champion” imperative
- We conclude with some prescriptions for enhancing competitiveness

Agenda

- 1. Market structure, static efficiencies and innovation**
- 2. Infrastructure-based competition and FDI restrictions: the Canadian case**
- 3. Consumer welfare and FDI restrictions: the Mexican case**
- 4. Implicit FDI restrictions: the national champion imperative**
- 5. Infrastructure-based competition and low FDI restrictions: prescriptive model**
- 6. Conclusion**

The development of infrastructure-based competition is one of the key objectives behind the deregulation of telecom services

- The model is based on the competition between vertically-integrated operators that manage their own network infrastructures and have sufficient stand-alone capacity for investment and innovation
- Infrastructure-based competition is opposed to service-based competition, defined as the model where industry players without infrastructure deliver services to the market by leasing capacity from a network operator at regulated wholesale prices
- Infrastructure-based competition could be intermodal, which refers to competitors that supply the same market on the basis of different platform “modes” (e.g. telco vs. cable)
- Infrastructure-based competition could also be intramodal in the case where industry players offer services based on independent but similar networks (e.g. wireless competition)
- The options of competitive platforms include cable TV, wireline telecommunications, fixed wireless telecommunications, mobile wireless and satellite

The infrastructure-based competition model presupposes the existence of two or three vertically-integrated players

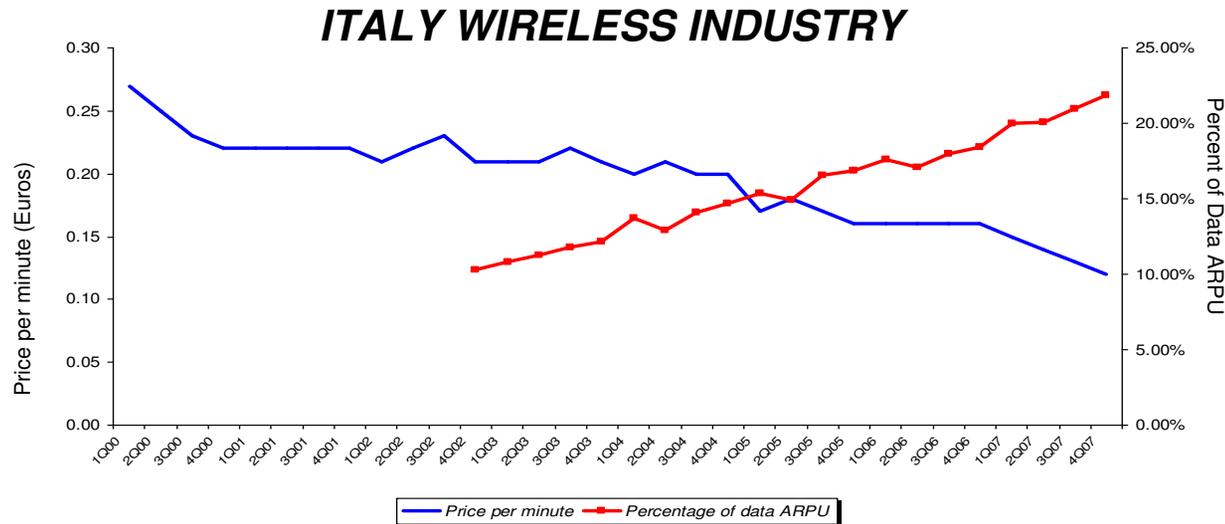
- Competition among a reduced number of vertically-integrated firms results in sufficient static and dynamic efficiencies
- What is the ideal number of operators “to strike the delicate balance between ensuring access and providing incentives to invest in infrastructure”?
 - European horizontal merger guidelines: 5-6 players result in effective competitive; could go down to 4
 - “Four are few and six are many” (Selten, 1973)
 - “Two are few and four are many” (Huck, Norman and Oechssler, 2004)
 - “While the exact number of firms that is optimal (...) cannot generally be exactly determined, two might be few” (Opta, 2006)
 - “2.5 are enough” (Noam, 2006)

Under consolidated market conditions, platform-based competition generates sufficient dynamic efficiencies

- In high density markets, the minimum efficient market share is lower than aggregate demand
- While network effects are high, they are secondary to innovation in terms of generating competitive advantage (Srinivassan et al, 2004; Liebowitz and Margolis, 1994, 1999; MacCormack and Iansiti, 2008)
- Multi-homing costs are not high enough to become a barrier to entry
- Each platform is sufficiently different to generate a certain level of market power in its original niche (thereby generating enough profits)

Intramodal competition in consolidated markets can also be effective

- Infrastructure-based competition can be of intramodal nature, such as in the case of the wireless industry
- Entry and exit of players allows for the “hit and run” principle (Baumol) which prevents tacit collusion



1Q00-2Q00	3Q00-3Q02	4Q02-1Q03	2Q03-4Q07
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- Similarly, the variation in leadership position could lead to high market share volatility and consequently price decline
- Beyond price competition, innovation is another important variable driving competitive advantage

Principles of platform-based competition

- Symmetric regulation for all platforms (technological neutrality)
- Open equipment attachment (hardware neutrality)
- Cross-platform interconnection (interconnection neutrality)
- Contribution to and eligibility for Universal Service support (US neutrality)
- Platform-to-platform number portability
- Services can be bundled, but the basic service of each platform (POTS; basic cable; mobile voice access) must also be offered unbundled

FDI restrictions, principally ownership barriers, represent an obstacle to the emergence of a viable industry model

- Infrastructure-based competition entails participation of self-sustaining critical mass players
- There is only a limited number of nations that can domestically generate two or more of these players
- As a result, ownership restrictions constitute a challenge to generate a viable industry model
- At this point, these countries are left with two options
 - Create a market structure with only one power exercising significant market power and a few wireless and peripheral niche players (“1.5 markets”)
 - Migrate to service-based competition model that does not exhibit sufficient momentum to allow smaller players to climb up the “ladder of investment”

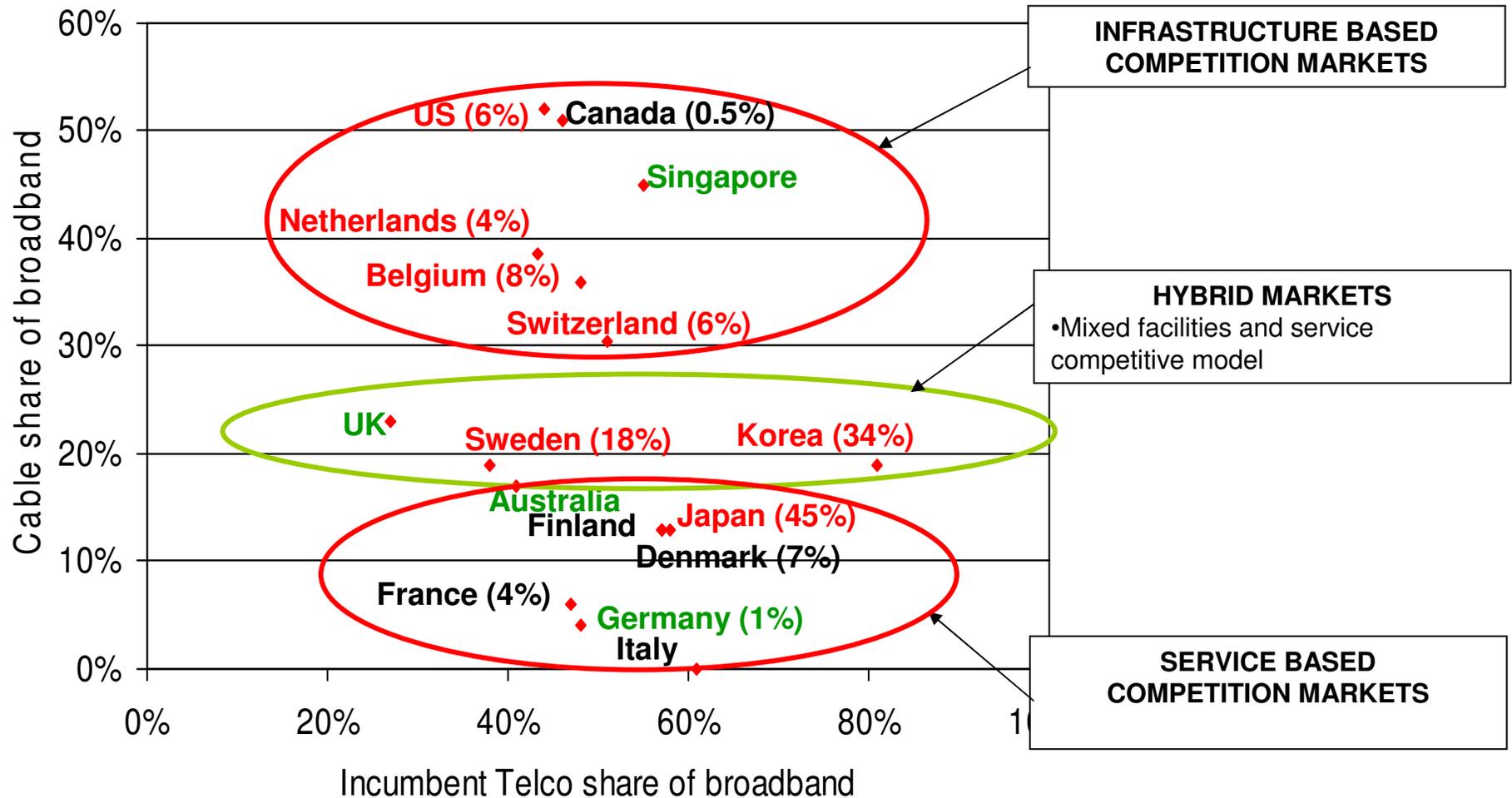
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Our study indicates that there are four factors driving the pace of fiber deployment

- Market structure: facilities-based competition conducted between one (or more) telco and/or cable player within a “2.5-3.0 players” industry structure
- Active government policy: subsidies to underserved areas, demand-side incentives, co-investment in NGAN
- Monopoly of NGAN access; assuming natural monopoly characteristic of the access market (or recognizing the need to provide additional investment incentives), the government enacts a monopoly of access rule
- Density: high urban concentration

Infrastructure-based competition and hybrid markets are at the forefront of fiber deployment



Notes: Data labels in red indicate fiber deployed; data labels in black no fiber program; data labels in green indicate upcoming fiber program; numbers between brackets FTTx as % broadband accesses

Platform-based competition is positively affecting the deployment of FTTH/FTTC

- Most countries with important presence of cable are engaged in fiber deployment programs (US, Netherlands, Belgium)
- Exceptions (Singapore) are in the process of accelerating deployment
 - Singaporean government recently assigned to a Singtel-led consortium the responsibility to deploy a national fiber network
- Fiber deployment in hybrid competition countries (platform-based and service-based) responds to specific features
 - Korea was a latecomer to unbundling broadband (2002), after facilities were deployed
 - In Sweden, the government originally assigned a key role in fiber deployment to municipalities; after TeliaSonera's merger, Sweden migrated to an infrastructure-based player model

Conversely, service-based competition markets tend to lag regarding FTTH/FTTC deployment

- There is substantial evidence indicating that service-based competition models (e.g. under wholesale unbundling requirements) reduces investment in telecommunications platforms
 - Low LLU rates improve broadband penetration in the short run but reduce platform investment (Wallsten, 2006; Flamm, 2005; Distaso et al., 2004)
 - Incumbent telecom capex data indicates that the EU (service-based competition) lags North American markets (platform-based competition) (Waverman et al., 2004; Crandall, 2007)
- As a result, service-based markets tend to lag in fiber deployment
 - All service-based countries in our sample have either deployment restricted to high-density markets or no fiber at all
 - Similarly, in those environments, cable operators are somewhat reluctant to deploy DOCSIS 3.0 (Australia)
 - The Japanese exception is explained by a shift in the past five years from service-based competition to infrastructure-based

Similarly, functional Separation does not promote NGAN deployment

- In the UK, there is consensus that Ofcom's undertakings represent a disincentive to fiber deployment
 - In that regard, BT's announced fiber program for 1 Billion GBP incremental investment in July 20 was triggered by Virgin's DOCSIS 3.0 announcement and to meet shareholder criticism for lagging in investment
 - As a result, the plan addresses only a portion of Britain's needs, and given the way investment is scaled up, it will not have material impact before 2010
 - Finally, the proposed FTTC platform does not provide a step-function change regarding ADSL2+, available to a large portion of the UK population
- In Sweden, while TeliSonera's network unit, Skanova, is functionally separated, the incentive to invest in fiber was primarily driven by Telenor's FTTN deployment in urban areas

Government intervention acts as a good incentive to deploy fiber in service competition environments

- Japan is the preeminent example of industrial policy as an incentive
 - Loan systems with interest rates lower than market are made available to any carrier with a fiber installation plan
 - Tax deductions assigned to carriers engaged in fiber deployment
- Korea has also been active in this domain, primarily intervening in the process of industry consolidation leading to the creation of strong broadband players
- Sweden has put in place a series of demand (tax deductions) and supply incentives to promote fiber deployment

However, Canada, an infrastructure-based competition market, significantly lags commercial deployment of NGAN

TELECOMMUNICATIONS CARRIERS

- Bell Canada is deploying Fiber to the Node (FTTN) within less than a kilometer of homes throughout the Quebec-Windsor corridor
 - Roll-out to be completed by 2011
 - So far, most of its VDSL offers are bundled with Express Vu, its IPTV offer (20,000 subs)
- Aliant currently has 205,000 homes passed through FTTN in Atlantic Canada
- In 2008, TELUS expects to continue field trials of fiber to the home (FTTH) technologies utilizing Standard-based gigabit passive optical network (GPON) technology

CABLE TV PLAYERS

- Videotron (Docsis 2.0) : Offers the highest speed in the market (50Mbps)
 - This year the 50 Mbps and 30 Mbps services are available for 112,000 homes
 - Next year this service would be available for 933,000 homes in the Quebec area
 - Currently testing wideband technology Docsis 3.0 (speeds up to 100Mbps)
- Shaw Communications will deploy DOCSIS 3.0 during the next year (Atlantic Canada)
- Rogers does not plan to upgrade its network for 2009

Canada's restrictive set of rules limiting foreign investment is acting as a principal impediment in fostering NGAN investment

- Section 16 of the Telecommunications Act requires that in order to be eligible to operate in Canada, a common carrier must be a “Canadian-owned and controlled corporation”
 - Subsection 16(3) defines Canadian ownership as requiring (a) 80% of board of directors must be Canadians, (b) Canadians must own no less than 80% of voting shares, and © the corporation must not be controlled by persons who are not Canadians
 - A provision set for holding companies means that foreign ownership is limited to 47%
- At the outset of the liberalization of the market, foreign players invested as minority owners but later decided to withdraw
 - ATT previously held minority stakes in Unitel and Rogers and Verizon was a minority shareholder in Telus
 - In the first years of this decade, both carriers sold their interests because of strategic and competitive difficulties of operating in such a restrictive environment
- Despite this situation, there is still interest in investing in Canada, if the ownership rules were to be relaxed
 - In 2007, Primus, a US-based carrier, joined other major American firms in expressing their interest in building or purchasing its own network and not limit its activities to reselling services offered by Canadian carriers
 - Similarly, ATT and Verizon have both indicated that they would like to significantly expand their Canadian operations by building their own networks, and/or acquire spectrum

Canada's restrictive and inflexible rules limiting FDI act as a principal impediment in fostering NGAN investment

- The withdrawal of foreign investors has contributed to the gradual consolidation of the market

	BCE (*)	Rogers	Telus	Other(**)
Sales	20,554	10,245	9,184	7,296
Percent	43%	22%	19%	15%

(*) includes Alliant and Nothwest

(**) includes Manitoba telecom, Sasktel, Cogeco, Videotron and Shaw

- Business priorities of cable operator, Rogers, in wireless has reduced the competitive incentive from Bell Canada and Telus to invest in fiber in the access network
- The protracted private equity take-over of BCE has limited the drive to deploy and offer high-speed Internet access
 - BCE trails both Rogers and Telus in the wireless market
 - Approximately 1.2 million subscribers have moved to the cable companies which offer triple and quad play
- Furthermore, because foreign carriers with investment capacity were precluded to bid in the BCE auction, the resulting private equity deal, if succeeding, would raise the carrier's debt to capital, with a net impact on its capital expenditures
 - The foreign ownership restriction limited the pool of bidders
 - With significantly increased debt, BCE will not be capable of increasing its capex to deploy fiber (by some estimates, the carrier would need to double its capex)
 - Furthermore, some estimates indicate that the \$2Billion Capex could be reduced by \$300 million
- Killing the deal will further aggravate BCE's situation and favor free riders with no incentive to invest in NGAN

The political pressure is mounting to rescind the FDI rules

- In 2002, the House of Commons Committee on Industry, Science and Technology expressed its concerns that FDI restrictions affected the telecommunications industry access to capital
- The Telecommunications Policy Review Panel recommended in 2006 the rules limiting FDI be softened in favor of more flexible ones, and fold the sectoral rules into a new general approach to foreign investment
- The Minister of Communications indicated that he personally favored the easing of limits on foreign ownership
- The Competition Policy Review Panel, established in July 2007 to review both the Competition Act and the Investment Canada Act, recommended in June 2008:
 - Amending the *Investment Canada Act* to reduce barriers to foreign investment by increasing review thresholds; reversing the onus to require the government to demonstrate that an investment would be contrary to the national interest before disallowing a transaction; increasing transparency and predictability; and preserving a distinct approach for the cultural sector while also initiating a broad review of Canada's cultural policies;
 - Liberalizing investment restrictions in the Canadian air transport, uranium mining, and telecommunications and broadcasting sectors, and removing the *de facto* ban on mergers in the financial services sector;
 - Updating and modernizing the *Competition Act* in line with best practices internationally;
 - Creating a Canadian Competitiveness Council to give voice to and advocate for competition in Canada, and ensure sustained attention by governments on national competitiveness

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The Mexican fixed line telecommunications market is dominated by Telmex which controls 78.5 % of the market and 77% of the profits

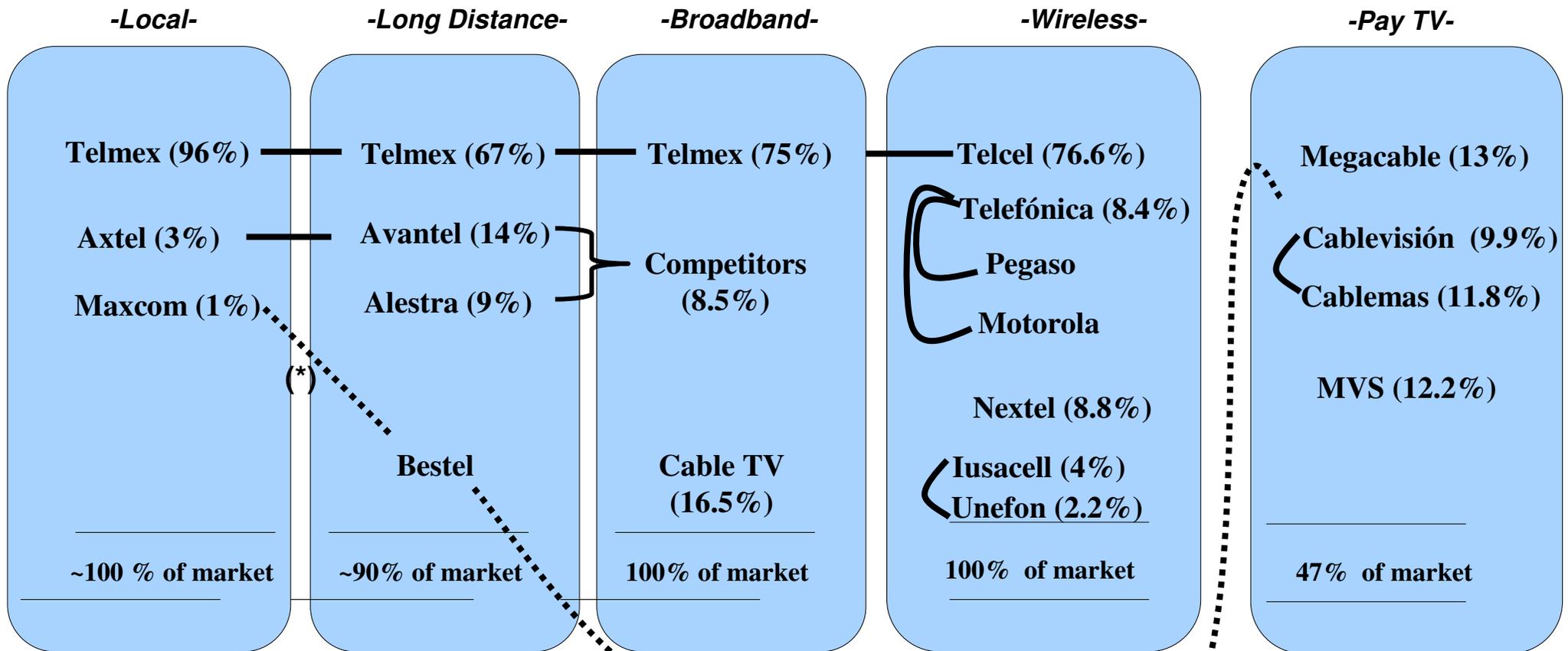
Mexico: Key Telecommunications Players (2007)

Segment	Carrier	Revenues USD '000'000	Share	Income USD '000'000	Share
Fixed telephony	Telmex	12,017.50	39.0 %	3,251.00	41.8 %
	Maxcom	215.60	0.7 %	14.80	0.2 %
	Axtel/Avantel	1,122.00	3.6 %	45.00	0.6 %
	Alestra	453.00	1.5 %	41.00	0.5 %
Mobile telephony	America Movil	11,699.00	37.9 %	3,742.00	48.1 %
	Iusacell/Unefon	966.00	3.1 %	-118.00	
	Nextel	1,792.70	5.8 %	489.90	6.3 %
	Movistar	2,062.00	6.7 %	228.10	2.9 %
Cable TV	Cablevision	246.00	0.8 %	27.00	0.3 %
	Megacable	123.00	0.4 %	45.00	0.6 %
	Cablemas	129.00	0.4 %	9.00	0.1 %
	Total	30,825.80		7,774.80	

Sources: Operators; analysis by the author

Telmex' position in fixed telephony results in spill-over dominance in other sectors of the industry

MEXICO: COMMUNICATIONS MARKET STRUCTURE



(*) Maxcom sold approximately 20% of its equity to a private company linked to Bestel

(**) Partnership between Bestel y Megacable

Sources: Operators; analysis by the author

Dominance is enhanced by FDI restrictions which put a limit on the possibility of building an infrastructure-based competition model

- The Mexican Law puts a 49% foreign ownership limit for the fixed line telecommunications sector
- Foreign participation in the Mexican market is limited to institutional investors except in the wireless industry

Carrier	Primary Investor	Institutional investor	Private investor	
			Family	Percent ownership
Telmex (fixed)	Carso (71%)	18 investors (29%)		
Maxcom (fixed)	Bank of America (40%)	13 investors (13%)	•Vazquez •Aguirre	46.89%
Axtel (fixed)		23 investors (20%)	•Milmo •Santes	80%
Alestra (fixed)	Grupo Alfa (51%)	ATT (49%)		
America Movil (mobile)	ATT (23.4%)	70 investors (26.5%)	•Slim	50.1 %
Iusacell (mobile)	Movil Access (55.5%)	5 investors (29.1%)	•Salinas	15.45%
Movistar (mobile)	Telefonica (100%)			
Nextel (mobile)		110 investors (98.7%)		
Megacable (cable TV)		28 investors (49%)	•Yamuni	51%
Cablemas (cable TV)			•Alvarez	100%
Cablevision (cable TV)	Televisa (100%)			

 Foreign Investors

There is a direct relationship between market structure and consumer welfare

- Lowest service penetration among peers

Lines per 100 population

Country	Fixed telephony	Mobile Telephony	Broadband
Argentina	24.2 %	85.0 %	6.6 %
Brazil	22.1 %	67.5 %	4.4 %
Chile	20.4 %	85.0 %	8.8 %
Mexico	19.0 %	64.2 %	4.3 %

Source: Katz (2008)

- Highest PPP pricing of basket of fixed telecommunications services and second highest in mobile

Country	Fixed telephony	Mobile Telephony
Argentina	6.8	7.8
Brazil	15.6	26.2
Chile	9.7	11.8
Mexico	16.1	13.9

Source: World Bank (2006)

- Lowest service quality

Broadband Lines broken down by download speeds

Country	<256 Kbps	256-512 Kbps	512 Kbps-1Mbps	>1 Mbps
Argentina	3 %	16 %	57 %	24 %
Brazil	13 %	28 %	31 %	28 %
Chile	12 %	38 %	37 %	13 %
Mexico				

Source: Katz (2008)

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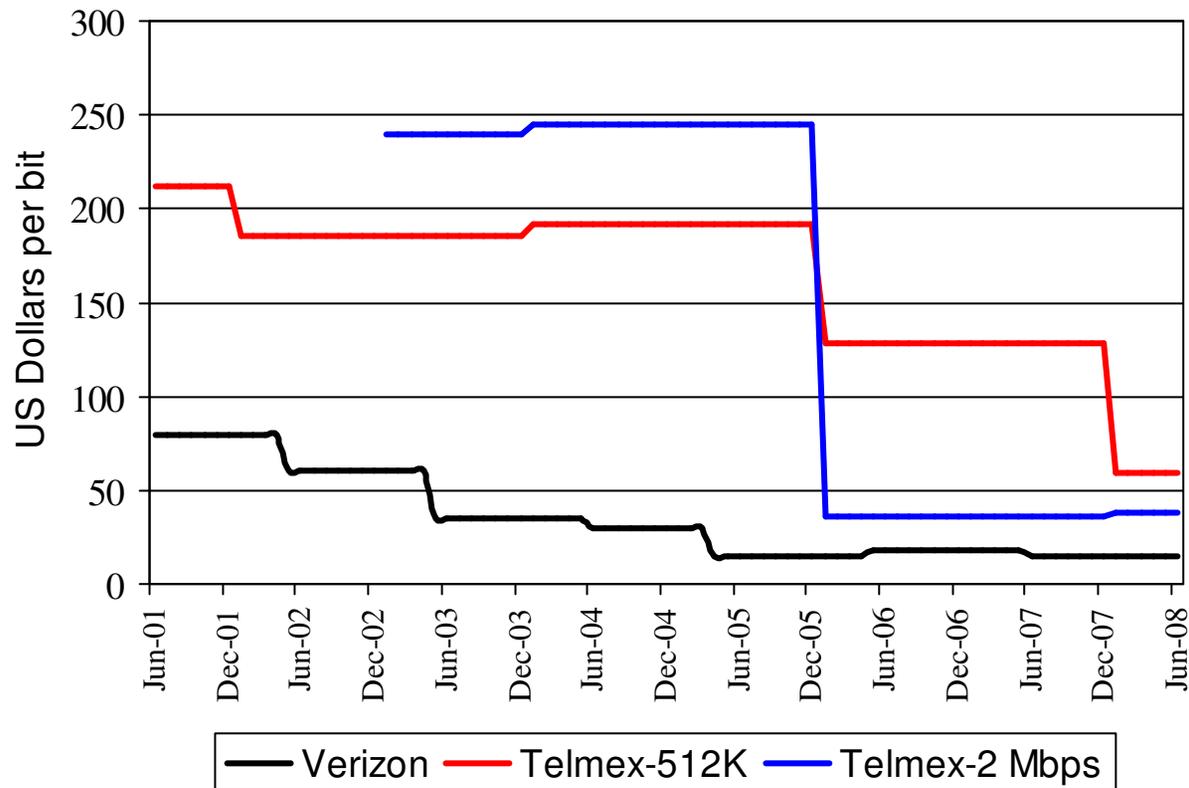
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Breakdown de velocidades de banda ancha para Mexico

Raul Katz, 12/7/2008

Broadband pricing has been declining as a result of cable TV competition but is still remains high

COMPARATIVE BROADBAND PRICING



Source: Information from operators; analysis by the author

The 49% foreign ownership limit for fixed telephony is at the core of the lack of infrastructure-based competition

- Due to the 49% rule, there appears to be difficulty in mounting a competitive challenge to Telmex
- Most foreign participants in the Mexican market that entered the fixed line market have withdrawn
 - Korea Telecom sold its 49% share of Miditel to Mexican co-owner (1999)
 - Bell Canada Internatioanl sold its 9% share of Axtel to Nortel (2003)
 - BBVA sold its 49% of Onexa to Alfa Group (2006)
 - MCI sold its 49% share (jointly with Banamex' 51%) to Axtel (2007)
 - Global Light sold its 49% share (jointly with Mexican co-owner's 51%) to Televisa (2007)
- The only remaining player is Alestra, who controls a marginal share (9%) of the ever-commoditizing long distance market
- Foreign investment is active in mobile services (Telefonica, Nextel) because FDI restrictions do not apply
- This explains why prices have dropped faster in that segment compared to fixed telephony services
- The cable industry is not consolidated enough to mount an infrastructure-based attack on Telmex, such as is the case in countries like the US or Netherlands
- Therefore, if an infrastructure-based competition model has to be implanted, the only viable approach is to remove the FDI restrictions and allow for either current or prospective market players to build a viable alternative to Telmex

A bill is now being considered by the full Congress to remove this restriction

- The Mexican regulatory system has in the past been proven unable to impose any limits to Telmex dominance
 - In 1997, the Competition Commission, in a preliminary decision, declared Telmex to exercise SMP in fixed telephony
 - Through a number of injunctions, Telmex finally was able to declare the decision non valid
- In the past year, the government has been progressively moving to restrict dominance of Telmex/America Movil
 - In 8/08, the anti-trust agency, federal Competition Commission, ruled that Telmex dominates the local fixed telephoone market in four types of services (originating, carying and completing local calls, as well as the wholesale leasing of dedicated connections; Telmex is seeking a legal injunction to delay the finding
 - In 11/08, the Anti-Monopolies Commission declared in a preliminary ruling that America Movil, operating under the Telcel brand has “substantial market power” in the domestic mobile market; the company can appeal the ruling
- In the past month, the economic committee of Mexico's lower house has approved proposals that would loosen or remove a 49% foreign ownership limit for the fixed line telephone sector
 - . The ruling seeks to "reform legislation on foreign investment, to establish adequate conditions for promoting investment in the telephony sector and related services, with the aim of having users benefit from the increased competition."
 - The economic committee's secretary and member of the PRD party criticized the ruling saying that it would favor companies like Spain's Telefónica without obliging such companies to invest in rural or underserved areas not seen as profitable. Incumbent Telmex has always used this argument to defend the foreign investment cap law. Furthermore, it was added that the reform proposal also failed to add a reciprocity clause entitling Mexican companies to invest in the basic telephony business in those countries of origin of the potential new foreign investors in Mexico.
 - The bill will now be considered by the full Congress, although it has not been confirmed whether the legislation will consider investment of 100% by foreign companies; no date has been announced for a final decision

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Beyond explicit FDI restrictions, governments may implicitly limit FDI by promoting a “national champion”

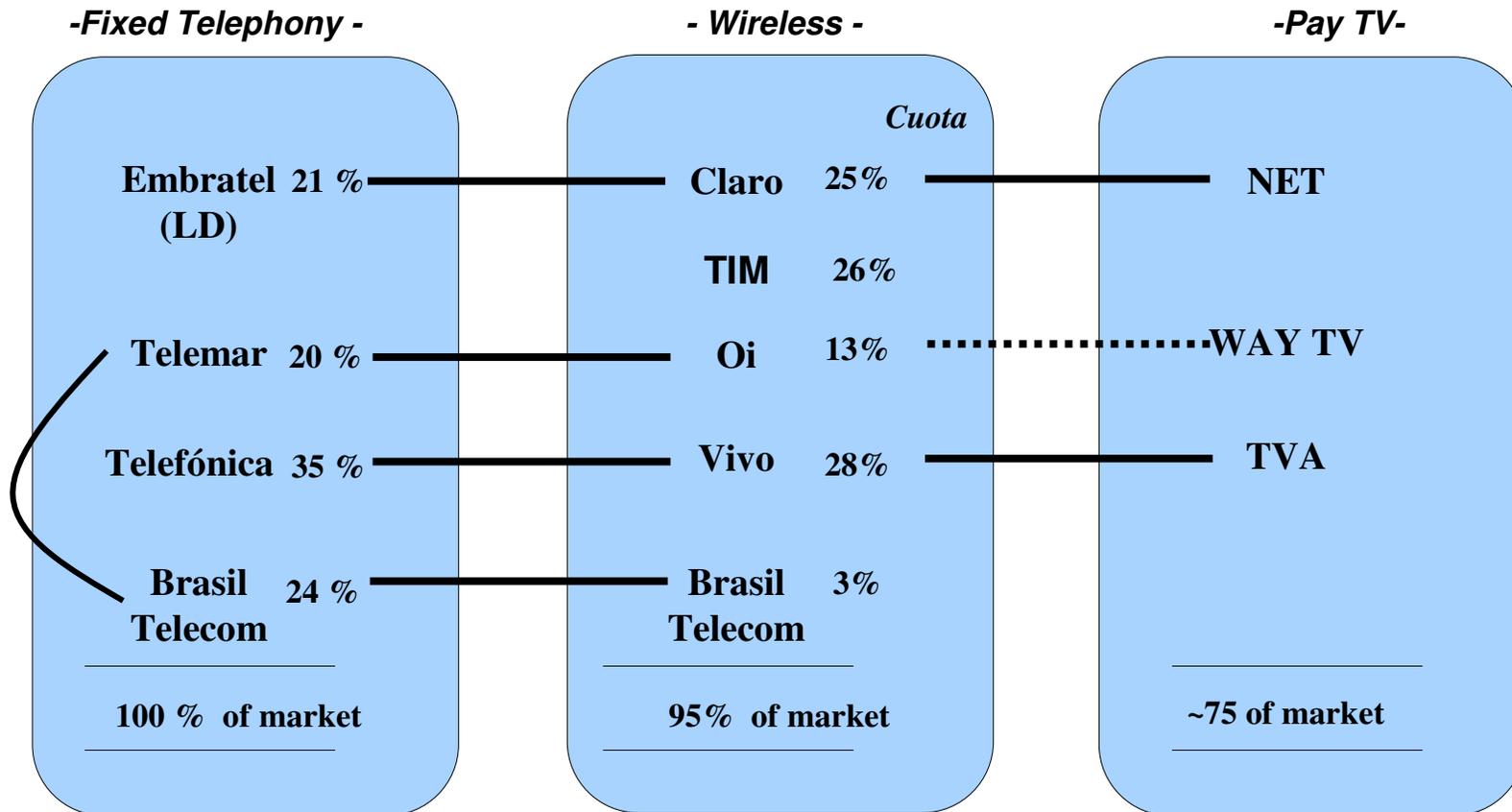
- In the context of opening the telecommunications industry to FDI, governments have been hesitating about relinquishing the option of creating a national champion
 - In the case of Canada’s BCE auction, a case was originally made by a Telus acquisition leading to a de facto emergence of a national player out of the fragmented telecommunications industry
 - In the case of Brazil, the government engineered the merger of two local players (Brasil Telecom and Oi) leading to the creation of a national champion
- In the context of building a case for a national broadband network, governments argue the need of assigning a monopoly role and handling that role to a national player
 - In Singapore, the government assigned, through an auction, the right to operate a national network to a consortium, led by Singtel
 - In Australia, Telstra might be the likely winner of a bid to construct and operate a National Broadband Network
 - The rationale for this choice is based on the premise that monopoly rights represent the only possible incentive for investment; this is combined with structural/functional separation conditions
- Is it possible, at this stage of liberalization of the telecommunications industry to assemble a “national champion” without undermining the viability of competition

The Brazilian government engineered the creation of a national champion

- The Brazilian Telecommunications Law provided regional concessions to telecommunications carriers preventing them to acquiring each other
- Concerned about carriers falling in the hands of foreign owners, the government promoted the merger of two of the three major regional carriers: Brasil Telecom and Oi, which required the modification of the original law
- In October 2008, the Brazilian regulator Anatel agreed to approve changes to regulations that end a prohibition on the controlling shareholders of Brazilian telephone companies from owning a phone carrier in another region of the country. Telemar will now be able to create a telephone company that will serve two-thirds of Brazil's fixed lines and almost a fifth of its mobile phones
- Under the proposed acquisition, Brazil's state-owned development bank BNDES, and three pension funds of state-controlled companies will own 49.8% of the new carrier
- The new rules were approved by the Communications Ministry and President Lula, who has said he supports the transaction, before final approval is granted.

As a result of the combination, the “national champion” would become the largest Brazilian player

BRAZIL: COMMUNICATIONS MARKET STRUCTURE



Sources: Operators; analysis by the author

The promotion of a national champion gains further relevance in the content of FDI restrictions for convergence services

- In Brazil, carriers holding a concession in a certain region are excluded from distributing audiovisual content in their concession area
- Furthermore, a constitutional reform (currently blocked in Brazil) is aimed at extending the 30% foreign ownership limit currently in force for media companies to include ISPs and other content distribution companies
- Finally, there are other draft laws that would limit the stake in the TV and content markets for companies that have operating licenses or for those in which a foreign entity owns a share

To foster the development of a Gbit fiber network, the Singaporean government issued an RFP

- Build and operate a next generation national network (Next Gen NBN)
- Offer competitively priced ultra-high speed broadband (100 Mbps, 50 Mbps downstream) services
- Government will provide a grant of s\$ 750 million to support rollout
- Structure would be as follows:

Layer 1	Passive infrastructure	Netco is responsible for designing, building and operating
Layers 2 and 3	Active infrastructure	OpCo is responsible for designing, building and operating
Retail services		Retail service providers purchase connectivity from OpCo and provide services to end-users

The RFP requested that the NetCo had to be separated from both the Opco(s) and the Retail Service Providers

- Netco is expected to be a monopoly
- OpCo operates as a standalone entity
 - Located in separate premises
 - Makes its own decisions on assets and commercial policies
 - Directors must not have any responsibility in a an affiliated operator or have their compensation linked to an affiliated company's performance
- NetCo and Retail Service Providers have to be structurally separated, meaning “no effective control”

Two consortia competed and OpenNet won the bid with the following proposal

OPENNET

- Singapore Telecom (30%)
- AXIA Netmedia (Canadian group) (30%)
- Singapore Press Holdings (Southeast Asia's largest newspaper publisher) (25%)
- Singapore Power Telemedia (electric utility telecom unit) (15%)

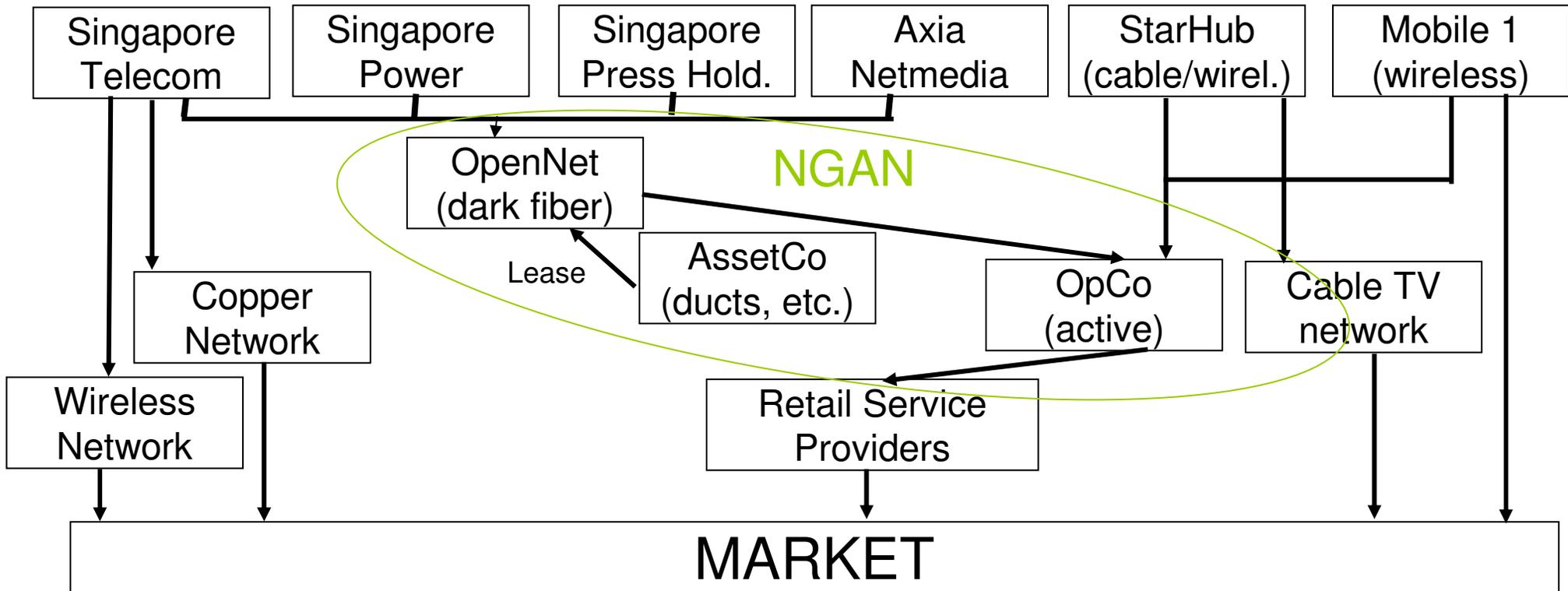
INFINITY

- StarHub (cable TV operator and wireless)
- MobileOne (3rd wireless player)
- Qatar Investment Authority (sovereign fund)

- Offer fiber access to the Opco(s) at wholesale prices of S\$15/month (\$ 10) for residences and S\$50/month (\$ 34) for business
- Committed to cover 95% of the population by 2012
- Will make use of passive assets of SingTel to facilitate fiber deployment
- SingTel will distance itself from NetCo in two stages
 - Transfer certain underlying Singtel passive assets to a neutral party (Asset Company) within 24 months
 - Reduce its stake in Asset Company within five years

The winning bid comprised a “layered” approach to build distance between Singtel and the transport entity

POTENTIAL INDUSTRY STRUCTURE



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Main features of platform-based competition under low FDI restrictions

- More than one operator (two or three) supplying the same market
- Each operator is vertically integrated
- Multi-dimensional competitive dynamics (prices, services, user service quality)
- Stable end-consumer prices but intense competition in product differentiation
- Competitive encouragement for each operator to increase its level of investment in its own network
- Operating benefits as a result of each operator controlling its own infrastructure and supply chain
- Absence of tacit collusion between operators due to high rate of innovation and competition in service bundles
- Reduction of regulatory intervention to solve market failures
- Emergence of co-regulation mechanisms characterized by shared responsibilities between the regulator and operators

Examples of OECD and non-OECD countries

INDUSTRIAL ORGANIZATION BY MARKET (*) (2007)

	USA	Netherlands	Chile
Wireline	<ul style="list-style-type: none"> •Telco 1 (34%) •Telco 2 (24%) •Cable (9%) 	<ul style="list-style-type: none"> •Telco 1 (55%) •Cable (27%) 	<ul style="list-style-type: none"> •Telco 1 (66%) •Cable (16%) •Telco 2 (3%)
Wireless	<ul style="list-style-type: none"> •Telco 1 (27%) •Telco 2 (26%) •Telco 3 (11%) •Telco 4 (18%) 	<ul style="list-style-type: none"> •Telco 1 (48%) •Telco 2 (21%) •Telco 3 (26%) 	<ul style="list-style-type: none"> •Telco 1 (42%) •Telco 2 (40%) •Telco 3 (18%)
Broadband	<ul style="list-style-type: none"> •Telco 1 (20%) •Telco 2 (12%) •Cable (54%) 	<ul style="list-style-type: none"> •Telco 1 (44%) •Cable (39%) 	<ul style="list-style-type: none"> •Telco 1 (50%) •Cable (40%) •Telco 2 (4%)
Content distribution	<ul style="list-style-type: none"> •Cable (97%) •Telco 1 (1%) •Telco 2 (2%) 	<ul style="list-style-type: none"> •Cable (81%) •Telco 1 (6%) 	<ul style="list-style-type: none"> •Cable (68%) •Telco 1 (17%) •Telco 3 (4%)
Companies	<ul style="list-style-type: none"> •Telco 1: ATT •Telco 2: Verizon •Telco 3: T-Mobile •Telco 4: Sprint Nextel •Cable: Comcast, Cablevision 	<ul style="list-style-type: none"> •Telco 1: KPN •Telco 2: Vodafone •Telco 3: T-Mobile •Cable: UPC, Zesko 	<ul style="list-style-type: none"> •Telco 1: Telefonica •Telco 2: ENTEL •Telco 3: Telmex/Claro •Cable: VTR

(*) Number between brackets indicates market share
Sources: Katz (2008)

Foreign Direct Investment in Chilean telecommunications

Carrier	Primary Investor	Institutional investor	Private investor	
			Family	Percent ownership
Telefonica Chile	•Telefonica (45%)	• 12 Investors (55%)		
VTR	•Liberty Global (55%) •United Global (55%)			
Entel		•2,327 Investors (45%)	•Ortega Vicuna	55 %
Telmex	•Telmex (100%)			
Claro	•America Movil (100%)			
Telefonica Moviles	•Telefonica (100%)			
Telefonica del Sur		•756 Investors (25.72%)	•Luksic	74.28%
Telefonica de Coyhayque	•Telefonica del Sur (88.71%)	•305 investors (12.29%)		

Sources: Operator reports

 Foreign Investors

The Chilean model is generating the most static and dynamic efficiencies

- Balanced market shares

- Highest broadband penetration in Latam

Chile: Telecommunications Market Shares (2008)

Carrier	Fixed telephony	Mobile Telephony	Content Distribution	Broadband
Telefonica	66 %	42.3 %	17.5 %	50.0 %
VTR	16 %	-	68.4 %	40.3 %
Telmex/ Claro	-	18.1 %	4.1 %	-
Entel	3 %	39.6 %	-	4.2 %
Other	(1)		(2)	(3)

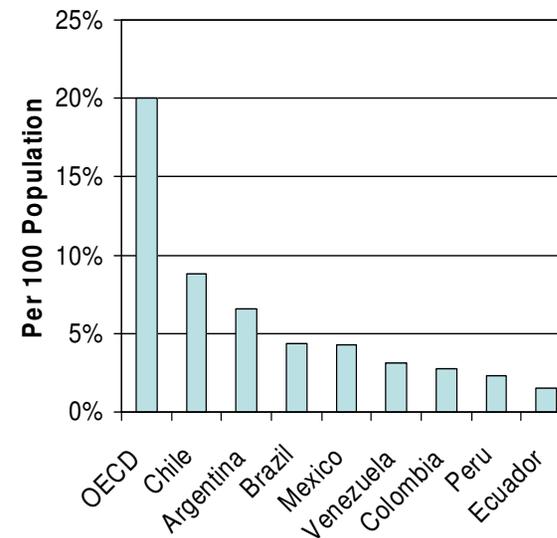
(1) Telsur, CMET, GTD-Manquehue, TIE and others

(2) Direct TV, Cable Central

(3) Telsur, GTD-Manquehue, CMET and others

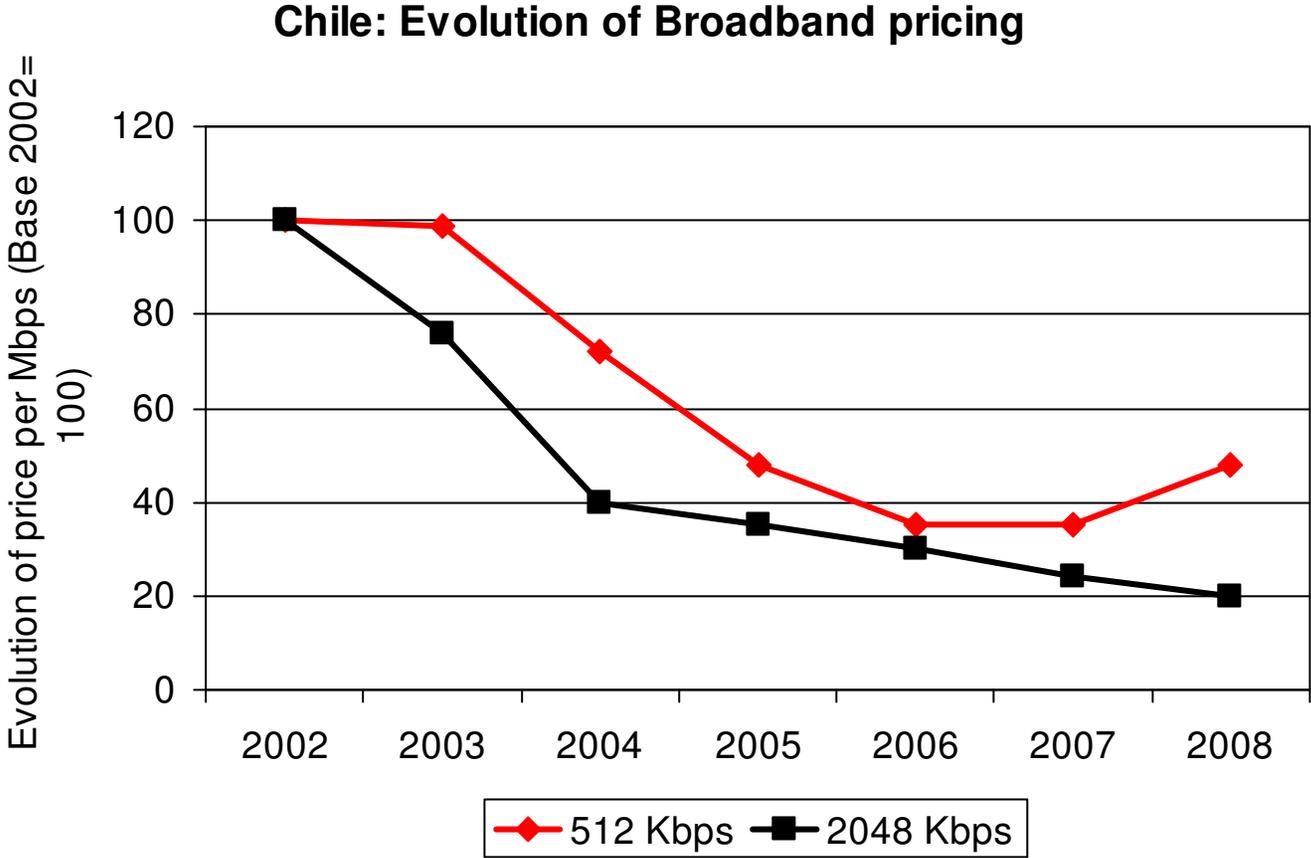
Sources; Operators, Subtel

Chile: Broadband Penetration (2008)



Sources: OECD; Katz (2008)

The Chilean model is generating the most static and dynamic efficiencies (cont'd)



Sources: Operators; analysis by the author

Agenda

1. **Market structure, static efficiencies and innovation**
2. **Infrastructure-based competition and FDI restrictions: the Canadian case**
3. **Consumer welfare and FDI restrictions: the Mexican case**
4. **Implicit FDI restrictions: the national champion imperative**
5. **Infrastructure-based competition and low FDI restrictions: prescriptive model**
6. **Conclusion**

Conclusion

- Trade restrictions are directly linked to the challenge and opportunity of building a viable industry model, predicated on infrastructure-based competition
- It is, therefore, imperative for governments and the OECD to consider the systemic impact of FDI restrictions on the development of a viable industry model
- Furthermore, national industrial policies should be considered in the context of their power to limit a viable competitive model
- Implicit trade restrictions could be as important as explicit ones
- As an example, in the promotion of national champions, regulatory independence, and anti-competitive safeguards might be violated
- Regulatory measures aimed at assessing trade restrictions in telecommunications need to consider industrial policies, broadband access models and content distribution among other metrics

