Columbia Business School

Competition and crisis in the Latin American telecommunications industry

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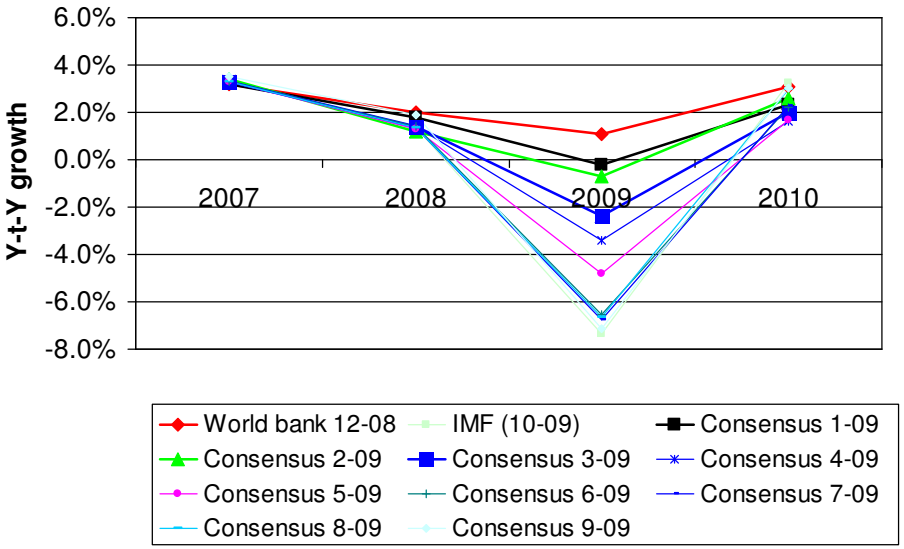
Agenda

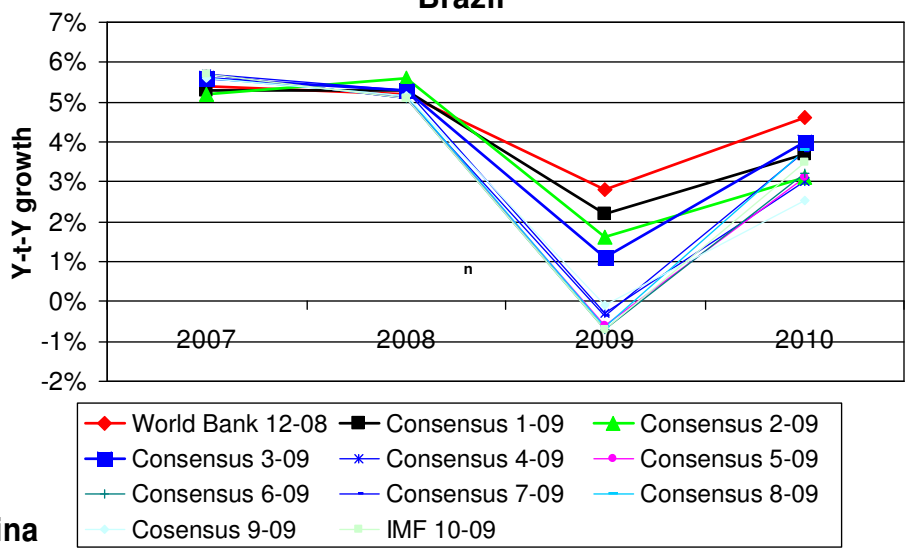
- Impact of the economic crisis on the Latin American ICT sector
- The ICT sector as counter-cyclical tool
- Implications for Latin America

The world recession has had an impact on the Latin American economies

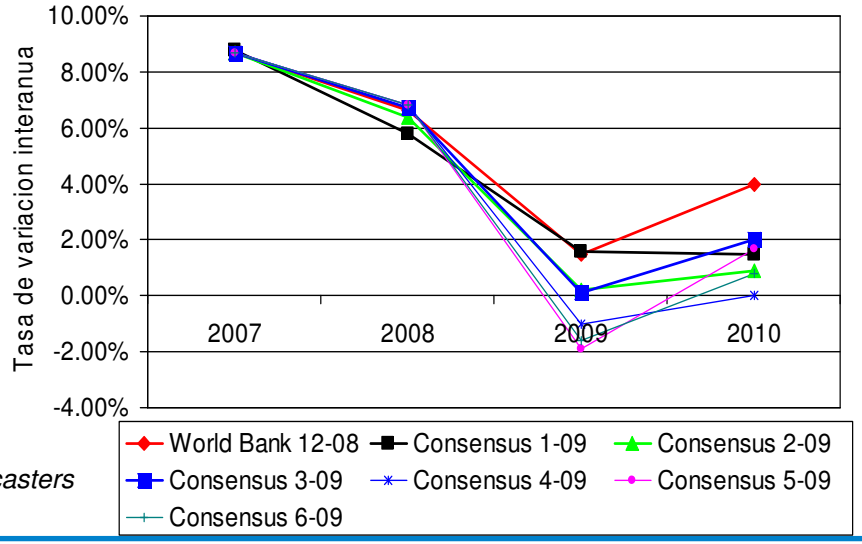
Mexico



Brazil



Argentina



Sources: World Bank; IMF; economic forecasters

The impact of the crisis in Latin America is smaller than in other developing regions and not uniform across it

GDP DECELERATION

	2007	2008	2009	CUMULATIVE DECELERATION
Advanced economies	2.7	0.8	-3.8	-6.5
C.I.S.	8.6	5.5	-5.8	-14.4
Central/Eastern Europe	5.4	3.0	-5.0	-10.4
Latin America	5.8	4.2	-1.9	-7.7
Mexico	3.3	1.3	-7.0	-10.3
Argentina	8.7	7.0	1.5	-7.2
Venezuela	8.4	4.8	0.3	-8.1
Guatemala	5.7	4.0	-1.0	-6.7
Brazil	5.4	5.1	-0.8	-6.2
Chile	5.1	3.2	-1.0	-6.1

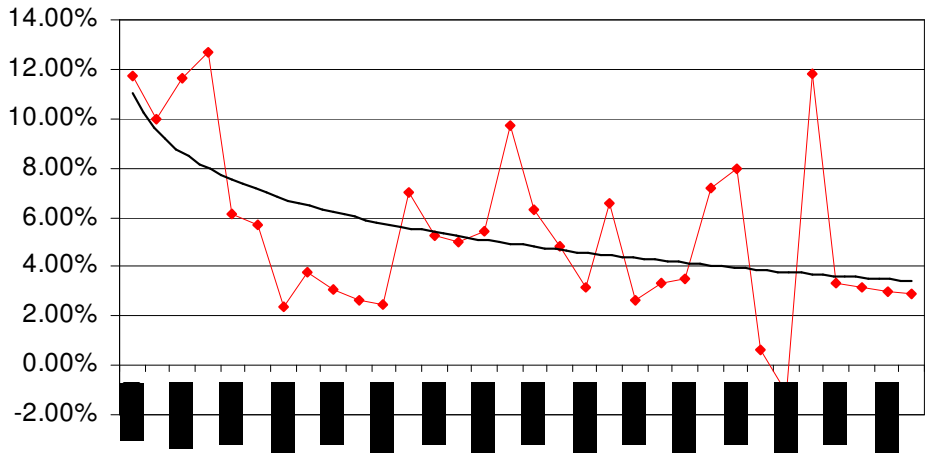
Source: Porzecanski (2009)

What type of hypothetical impact would the crisis have on telecommunications consumption in the region?

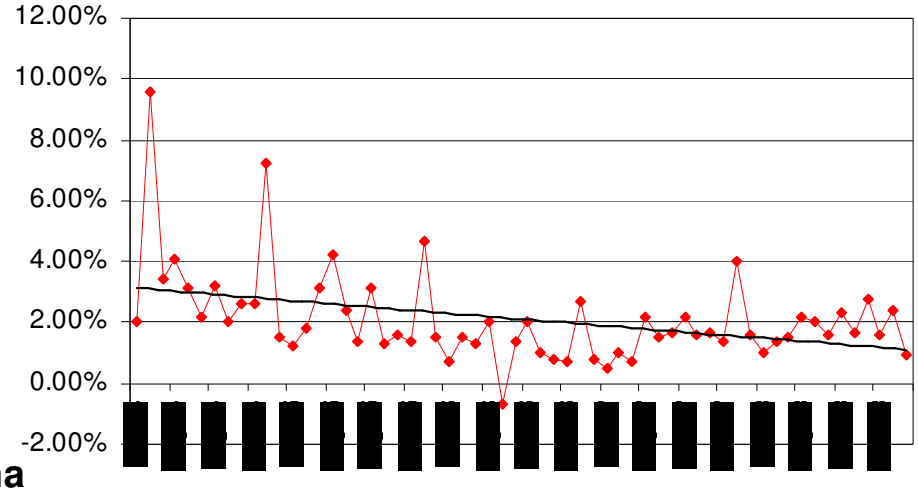
- The consumption of telecommunications goods and services is determined by two factors: income elasticity and penetration rate
  - Income elasticity determines the amount of reduction or increase in consumer spending as a result of changes household revenues: the higher the elasticity, the higher sensitivity of telecom consumption to income changes
  - Elasticity is a function of service penetration: when service adoption is low, it is considered a superfluous consumption by a large portion of adopters, and therefore the elasticity to deterioration of income will be high; conversely, if penetration is high, the service is perceived as a necessary good (a utility) and therefore inelastic to household income
- What does this mean for future consumption of telecommunications services in Latin America?
  - Wireless telephony has reached high penetration levels and, therefore, is perceived as a necessary service, which would mean that it would remain isolated from consumption effects; furthermore, the high proportion of pre-paid subscribers allows users to control spending by reducing usage rather than disconnecting or postponing purchases
  - Wireline would be affected insofar that, with the acceleration of fixed-mobile substitution, disconnection rates of fixed lines could increase
  - Broadband could be affected by the consumption trends, although the situation of unmet demand could still neutralize a negative trend

First effect: the reduction in wireless growth rate is, for the time being, linked mainly to saturation rather than the crisis

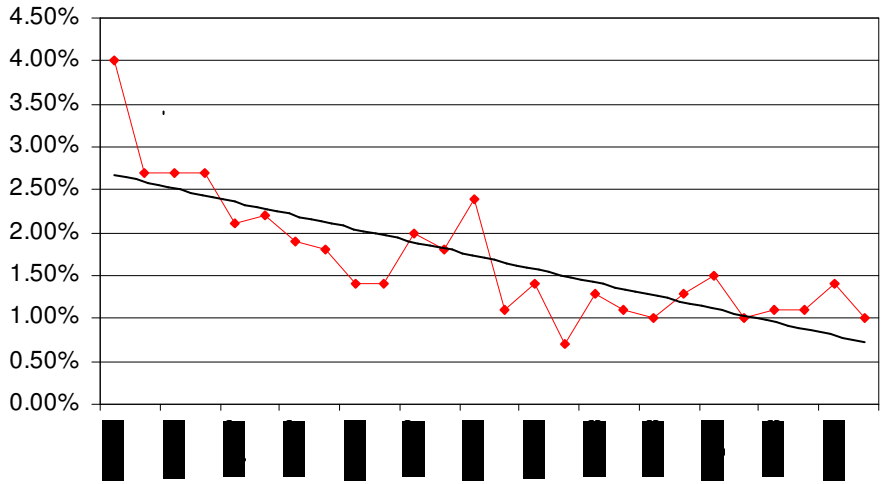
Mexico



Brasil



Argentina

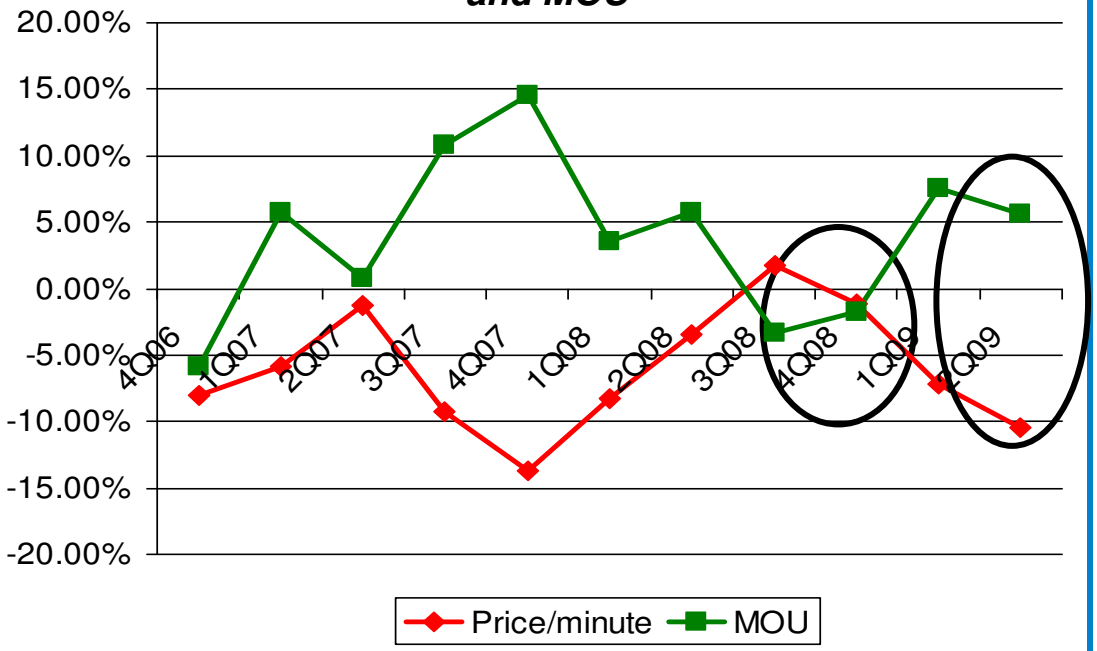


Sources: COFETEL; Teleco; CNC; analysis by the author

Second effect: however, an impact has been detected in usage and handset replacement patterns

Preliminary indications show an impact on wireless usage driven by a decrease in price elasticity

America Móvil in México: Q-t-Q change rate in pricing and MOU



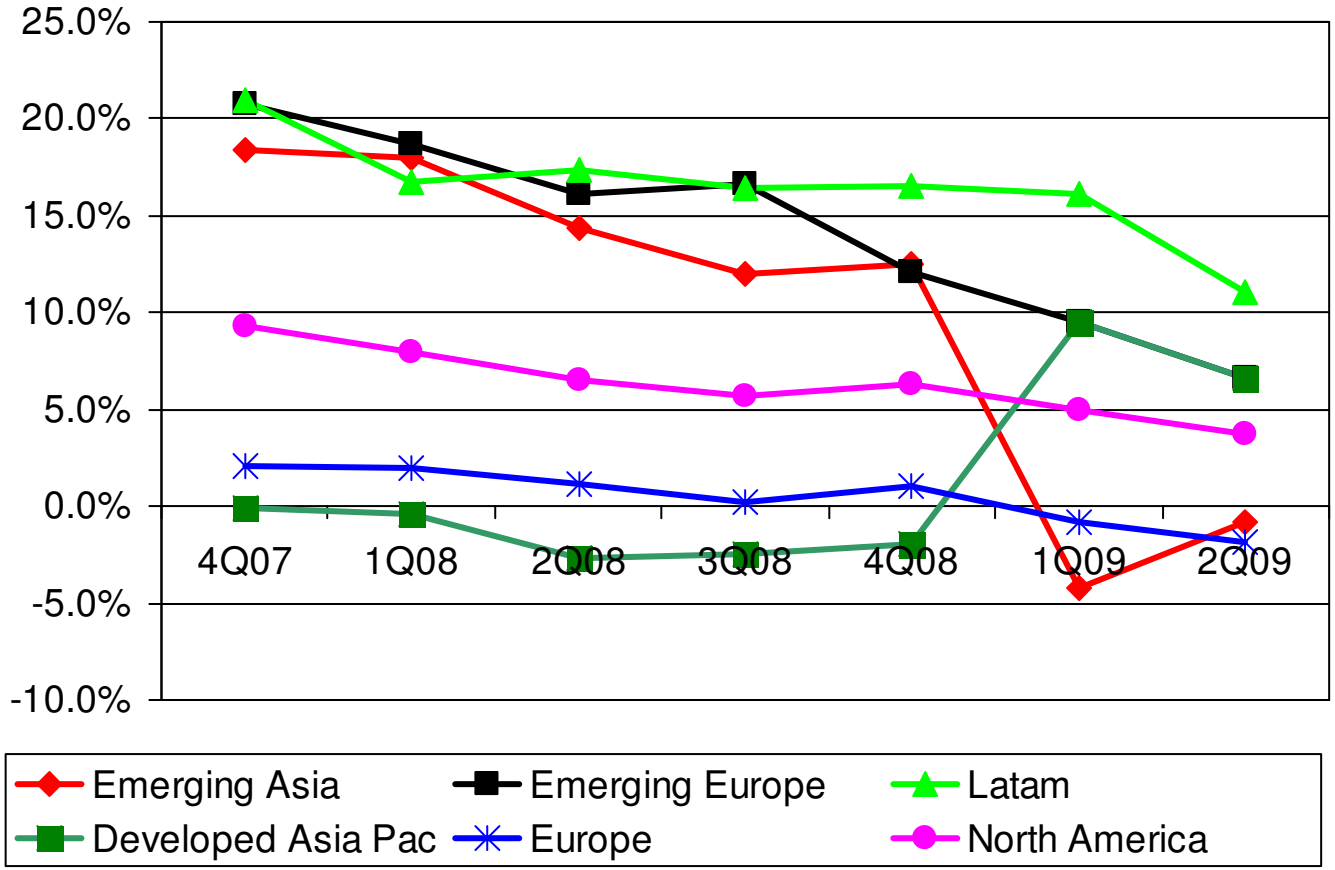
Source: Deutsche Bank Securities

Additionally, an extension of device replacement cycles can be detected

- Historically, device replacement cycles in Latin America has ranged from 1.5 to 2 years (consistent with worldwide data)
- However, in parallel with the economic deterioration, replacement cycles have been extended, reaching 2.5 to 3 years (still faster than PCs which is 3.5 years)
- This trend has resulted in significant slowdown of handset sales in 4Q08

Second effect: Because Latin America has been less impacted by the crisis, demand growth remains higher than other regions

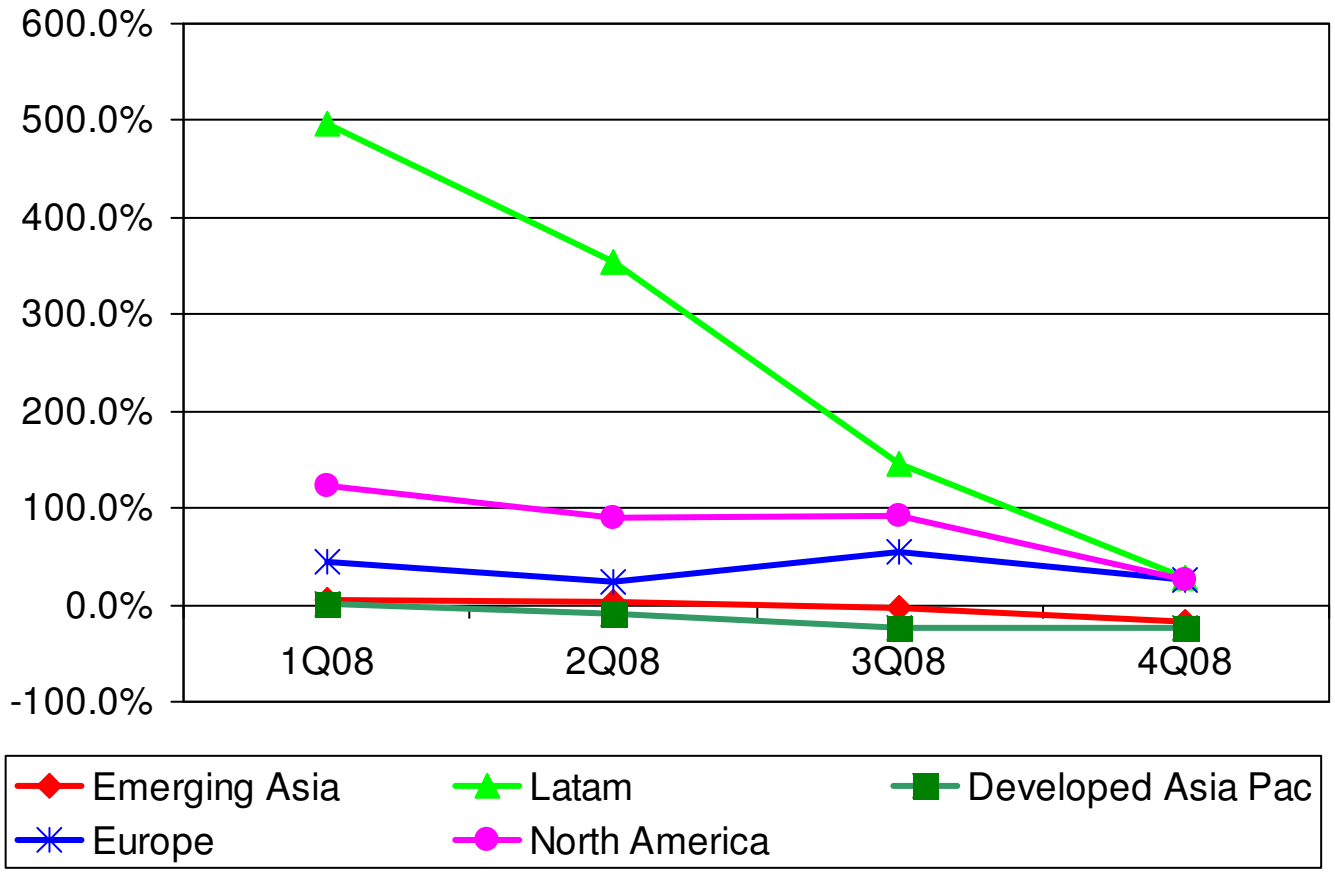
SERVICE REVENUE YoY GROWTH BY REGION (2007-2009)



Source: Merrill Lynch

Second effect: But smartphones sales have declined aligning themselves with the rest of the world

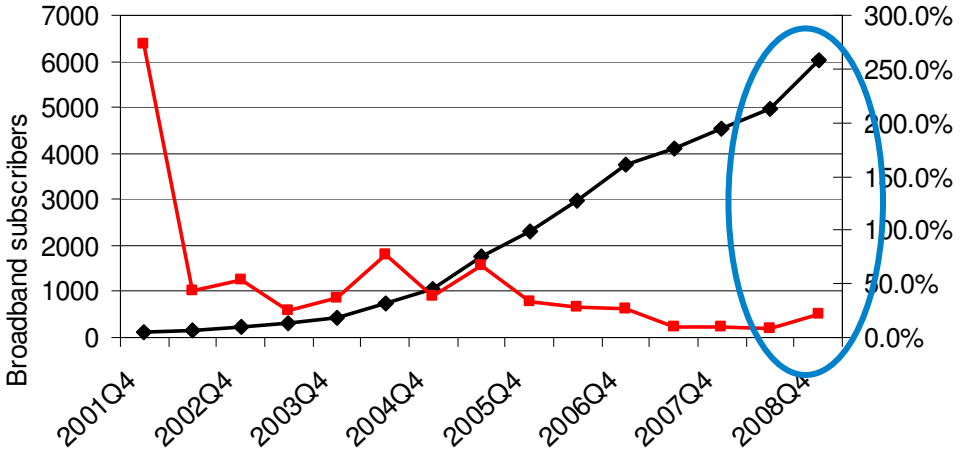
CONVERGED DEVICES SALES YoY GROWTH BY REGION



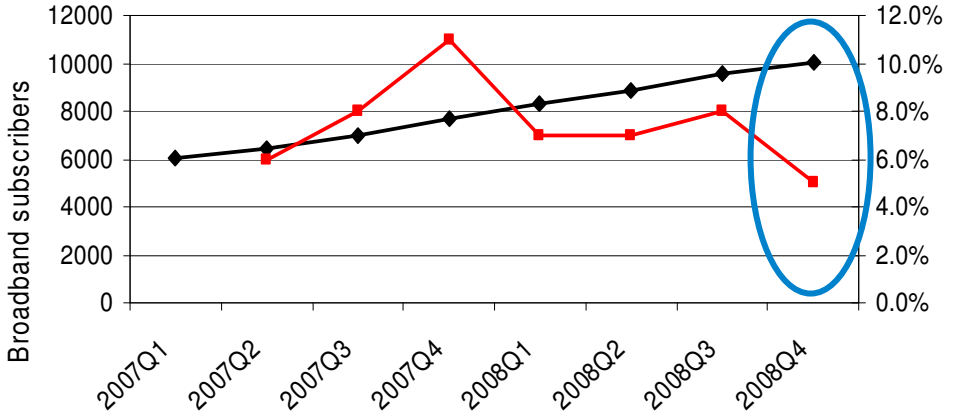
Source: Merrill Lynch

Third effect: the broadband trend indicates a deceleration of growth in some countries

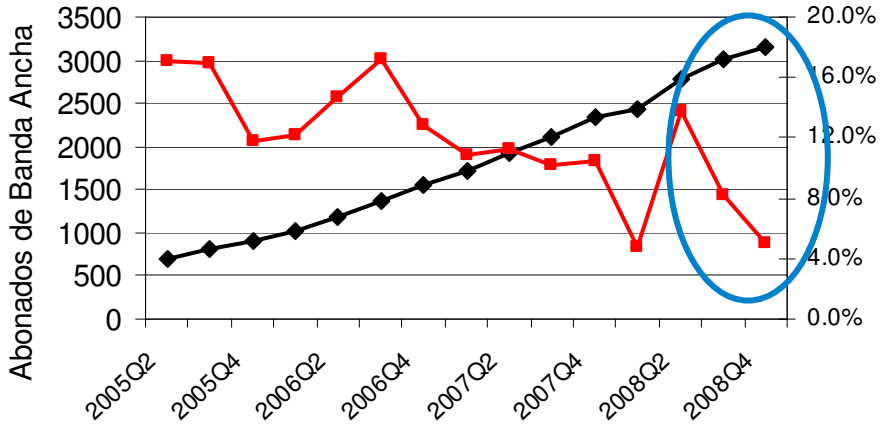
MEXICO



BRAZIL



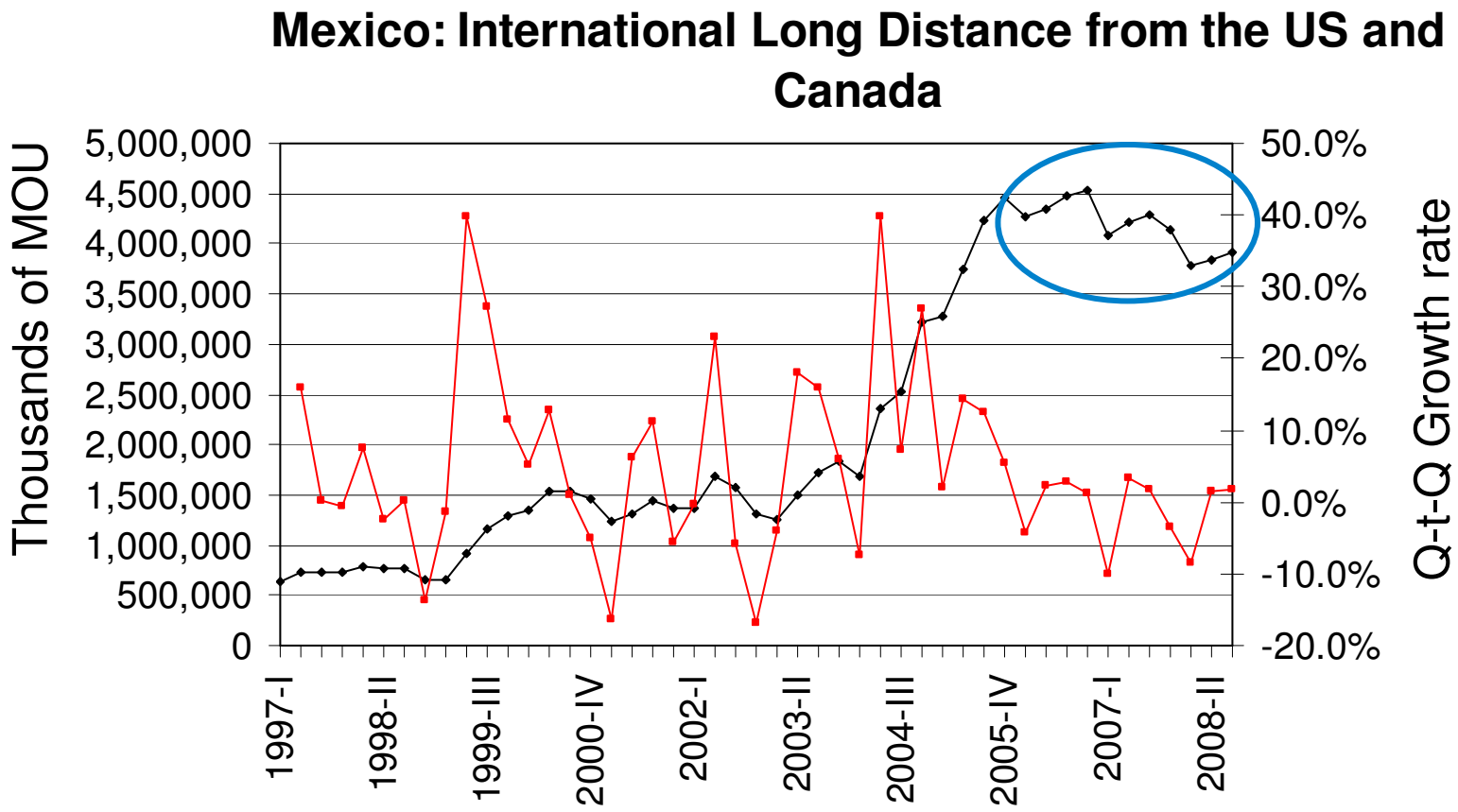
ARGENTINA



Third effect: a number of trends could be subsumed in the broadband situation

- First sub-effect: under situation of unmet demand (see below), there could be still room for growth under economic crisis
  - Mexico: 4.3% (2007) -> 7.1% (2008)
  - Brazil: 4.1% (2007) -> 5.3 % (2008)
  - Argentina: 6.6 % -> 7.9% (2008)
- Second effect: Current users in certain market segments, particularly in lower socio-demographic categories, could be undergoing fixed broadband disconnection, replacing occasional internet access with mobile broadband and relying on workplace broadband to download heavy content (effect already seen in Europe)
- Third effect: Prospective adopters could be postponing purchasing of service consistent with deterioration of consumer confidence

Fourth effect: the US economy is having a spill-over effect in Long Distance usage



Source: Cofetel; analysis by the author

Fifth effect: The macroeconomic climate also affected the levels of capital investment in the telecommunications industry

VARIABLES THAT IMPACT THE CAPEX RATE

Key Variables	•Expected return rate •Risk associated with the rate of return		
Secondary Variables	**Macro-economy**	**ICT industry**	**Firm level**
	○Acceleration effect (Roller y Waverman, 2001) ○Demographic and geographic characteristics ○Economic cycle (Katz, 2003) ○Generic regulatory framework l	○Industry regulation ○Competitive intensity ○Technological progress ○Evolution of demand	○Cost of capital ○Debt leverage ○Firm profitability

A reduction of the GDP growth rate of 1% leads to a decline of 0.7% in the investment rate

Fifth effect: Data indicates so far a capital investment negative trend

CAPITAL INVESTMENT IN LATIN AMERICAN TELECOMMUNICATIONS

COMPANY	INVESTMENT 1996-2006 (in $ billions)	INVESTMENT 2007-8 (in $ billions)	2009 ANOUNCEMENTS (in $ billions)
Telefonica	24.785	10.547	•Telefónica expects total capex this year to be below 7.5 bn euros compared to 8.40 bn euros in 2008
Telecom Italia	12.189	3.176	1.411
America Movil	10.282	9.283	3.224
Telmex International	7.925	2.914	•Reduced 2009 capex from 1.630 million to 1.100 million
Telmex (Mexico)			•Reduced capex by 57% reaching 550million from 1.1 billion in 2008
Portugal Telecom	6.650	2.511	1.235

Sources: Unctad; Dow Jones; Deutsche Bank

In sum, the Latam ICT sector is facing the crisis relatively well, although growth targets and under investment are negative factors

POSITIVES

- Strong cash generation
- Flexibility to reduce capex to reduce impact of downturn
- Moderate to low leverage levels
- Generally good/long debt maturity profiles, which results in lower refinancing risk in the short term
- Low exposure to foreign exchange volatility due to hedges acquired in 2008 (exception: Argentine operators)
- Decline in wireline revenues compensated with broadband
- Lack of access to capital markets could be compensated by access to vendor financing
- Crisis could create outsourcing opportunities for carriers as corporations look for ways to save money (e.g. Banco do Brasil and Unibanco have outsourced all their data services to Telmex)

NEGATIVES

- Economic slowdown
- Extension of handset replacement cycles
- Slow down in wireless usage
- Heightened competition
- Reduced capital expenditures

Agenda

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- The ICT sector as counter-cyclical tool
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In response to the economic crisis, governments have begun to deploy incremental public infrastructure programs with some ICT focus

LATIN AMERICAN INFRASTRUCTURE STIMULUS PROGRAMS

COUNTRY	INFRASTRUCTURE PROGRAM (in US$ billion)	ICT FOCUS (in US$ billion)
Colombia	$ 10.0	**$ 0.29 b** ($0.16 b in universal telephony, $0.05 b in ICT education, $0.03 b in Broadcasting, $0.03 b in computing education and $0.02 b in e-government)
Chile	$ 2.5	**$ 0.06** b (rural broadband)
Mexico	$ 6.9	No ICT specific plans
Bolivia	$ 0.870 ($0.690 to roads)	No ICT specific plans
Brazil	$ 2.5	National Broadband plan

Sources: ECLAC; Colombia Departamento Nacional de Planeamiento; Servicio de Estudios Economicos BBVA

We have a growing understanding of the counter-cyclical impact of broadband

WHAT WE KNOW	WHAT WE ARE STARTING TO UNDERSTAND	WHAT WE KNOW WE DON'T KNOW YET
•The construction of broadband network has important direct and indirect employment effects •The induced effects of network construction magnify the total impact of network deployment •Revenue "leakage" varies by country •Once broadband is deployed positive externalities have also significant economic impact	•How many jobs can be lost as a result of broadband induced capital-labor substitution? •What is the economic impact in advanced industrialized vs. rural regions?	•What is the relationship between faster broadband speeds and economic output and employment? •Is there a broadband saturation point beyond which network externalities tend to substantially diminish?

What we know: Three types of network construction effects exist

EFFECT	DESCRIPTION	EMPLOYMENT EXAMPLES
Direct jobs and output	• Employment and economic production generated in the short term in the course of deployment of network facilities	• Telecommunications technicians • Construction workers • Civil and RF engineers
Indirect jobs and output	• Employment and production generated by indirect spending (or businesses buying and selling to each other in support of direct spending)	• Metal products workers • Electrical equipment workers • Professional Services
Induced jobs and output	• Employment and production generated by household spending based on the income earned from the direct and indirect effects	• Consumer durables • Retail trade • Consumer services

What we know: Network construction effects and multipliers are significant

NETWORK CONSTRUCTION EFFECTS OF BROADBAND

COUNTRY	STIMULUS INVESTMENT (USD billion)	NETWORK DEPLOYMENT JOBS ESTIMATE				MULTIPLIERS	
		DIRECT	INDIRECT	INDUCED	TOTAL	TYPE I (*)	TYPE II (**)
UNITED STATES	$ 6,390	37,000	31,000	60,000	128,000	1.83	3.42
SWITZERLAND	~$ 10,000	~80,000	~30,000	N.A.	~110,000	1.38	N.A.
GERMANY	$ 47,660	281,000	126,000	135,000	542,000	1.45	1.94
UNITED KINGDOM	$ 7,463	76,500	134,500		211,000		2.76
AUSTRALIA	$ 31,340				~200,000		

Sources: Katz, R. and Suter, S. (2009). *Estimating the economic impact of the US broadband stimulus plan, Columbia Institute for Tele-Information working paper;* Katz, R., P. Zenhäusern, S. Suter, P. Mahler and S. Vaterlaus (2008). *Economic Modeling of the Investment in FTTH* in Switzerland, unpublished report; *Libenau, J., Atkinson, R. (2009) The UK's digital road to recovery. LSE and ITIF; Australian government.* Katz, R., S. Vaterlaus, P. Zenhäusern, S. Suter and P. Mahler (2009). *The Impact of Broadband on Jobs and the German Economy*; Columbia Institute for tele-Information working paper

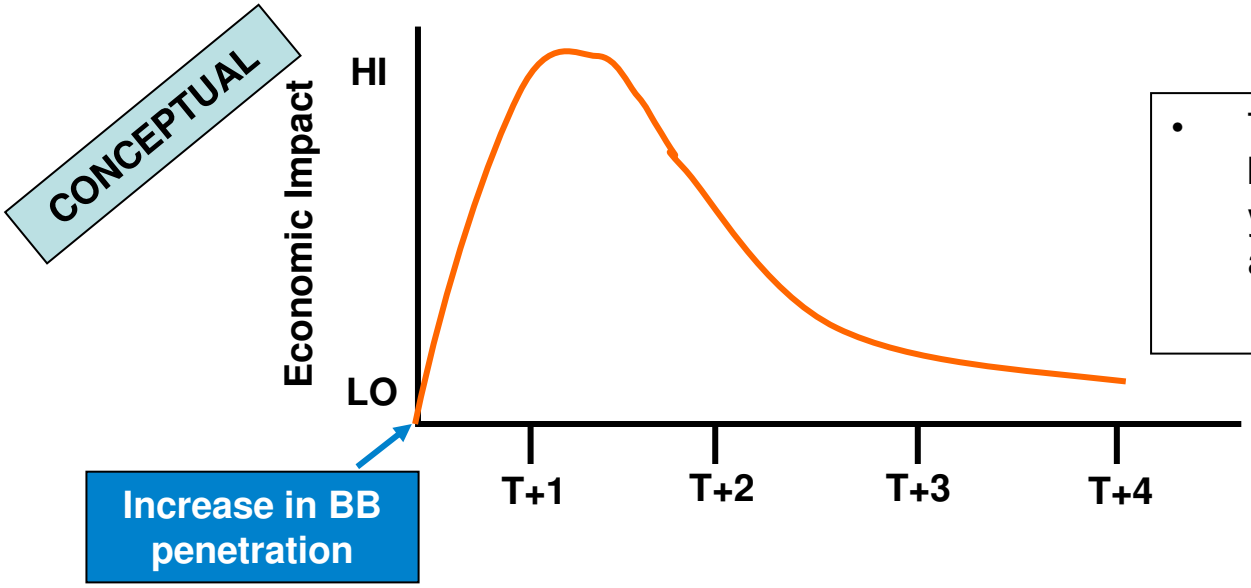
(*) (Direct + indirect)/direct
(**) (Direct + indirect + induced)/direct

What we know: The positive externalities derived from broadband are also high

EFFECT	DESCRIPTION	EMPLOYMENT EXAMPLES
Productivity	• Improvement of productivity as a result of the adoption of more efficient business processes enabled by broadband	• Marketing of excess inventories • Optimization of supply chains
Innovation	• Acceleration of innovation resulting from the introduction of new broadband-enabled applications and services	• New applications and services (telemedicine, Internet search, e-commerce, online education, VOD and social networking) • New forms of commerce and financial intermediation
Value chain recomposition	• Attract employment from other regions as a result of the ability to process information and provide services remotely	• Outsourcing of services • Virtual call centers • Core economic development clusters

What we know: Aggregate economic impact of broadband in terms of network externalities have been found to be significant

- Our analysis for Germany estimated the impact of increase in broadband penetration on rate of economic growth
  - Due to the effect of high broadband penetration growth in 2001, time intervals were calculated for three stages: 2000-1, 2001-2, 2002-3
  - In addition, GDP and employment data was adjusted through an Hodrick-Prescott filter to time series in order to normalize for trends and business cycle effects
- Aggregate results for the whole territory indicate that broadband penetration has a significant short-term effect on economic growth



- The economic stimulus impact of broadband is highest in the first year after increase in penetration and tends to diminish over time

What we know: Estimates calculated over ten years indicate a sizable impact

NETWORK EXTERNALITIES OF BROADBAND

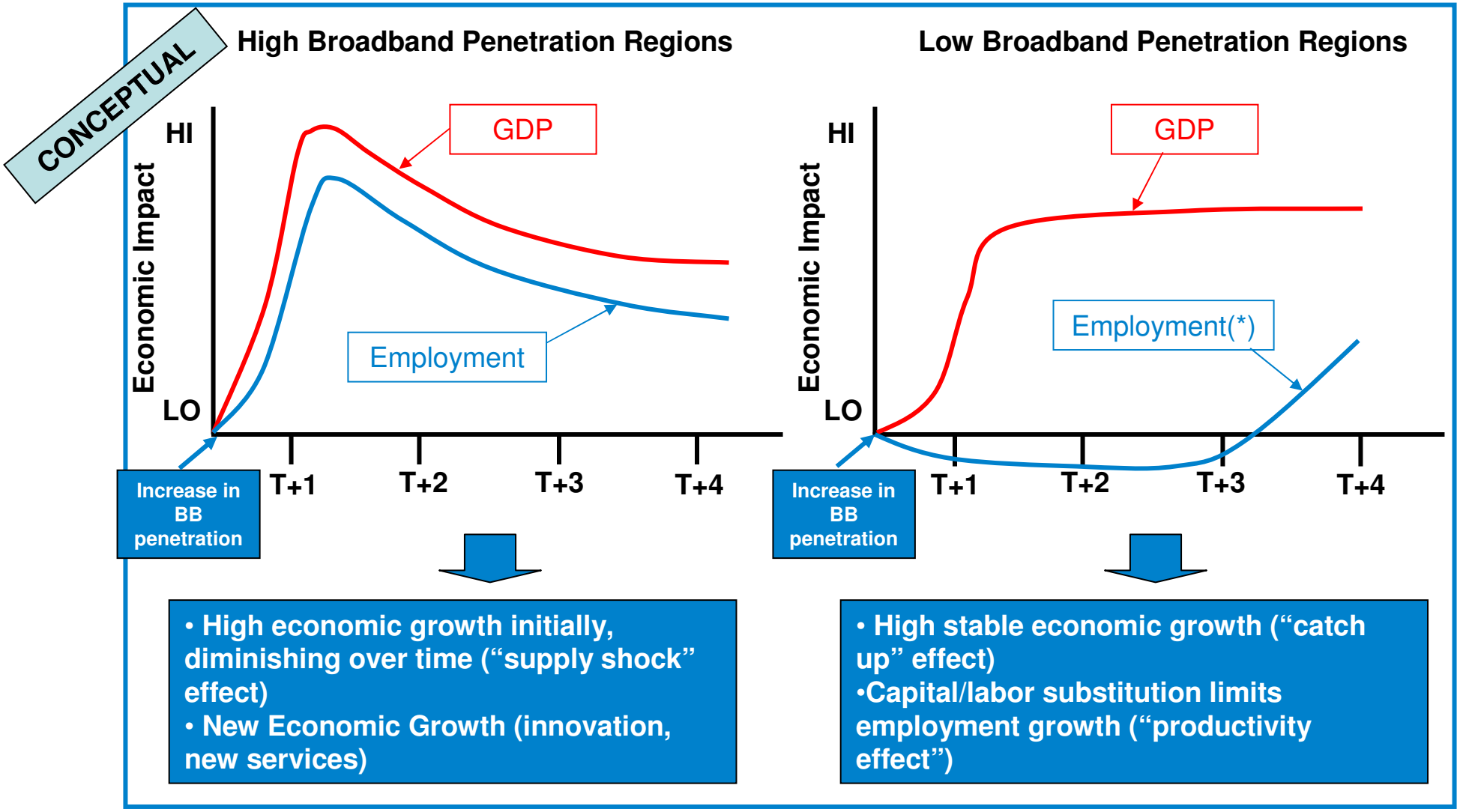
COUNTRY	STIMULUS INVESTMENT (USD billion)	TOTAL
UNITED STATES	$ 6,390	136,000
GERMANY	$ 47,660	427,000
UNITED KINGDOM	$ 7,463	69,500

Sources: Katz, R. and Suter, S. (2009). *Estimating the economic impact of the US broadband stimulus plan, Columbia Institute for Tele-Information working paper;*; *Libenau, J., Atkinson, R. (2009) The UK's digital road to recovery. LSE and ITIF;* Katz, R., S. Vaterlaus, P. Zenhäusern, S. Suter and P. Mahler (2009). *The Impact of Broadband on Jobs and the German Economy*; Columbia Institute for tele-Information working paper

What we know: A growing body of econometric research conducted at the regional, national and international level confirm these findings

COUNTRY	STUDY	DATA	EFFECT
Germany	•Katz et al. (2009)	2000-2006 for Landkreise	An incremental penetration of broadband of 1% yields 0.026% incremental GDP growth
United States	•Lehr et al. (2005)	1998-2002 for US postal codes	Availability of broadband at the community level added over 1% to employment growth and 0.5% growth of businesses
	•Crandall et al. (2007)	For 48 US states	For every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2 to 0.3 percent a year (…) assuming the economy is not already at "full employment"
	•Shideler et al. (2007)	Disaggregated county data for state of Kentucky for 2003-4	An increase in broadband penetration of 1% contributes to total employment growth ranging from 0.14% to 5.32% depending on the industry
	•Thompson et al. (2008)	2000-2006 for 48 US states	Positive employment generation effect varying by industry
OECD	•Koutroumpis (2009)	2002-2007 for 22 OECD countries	An increase in broadband penetration of 1% yields 0.025% increase in economic growth

What we are starting to understand: There is growing evidence that the economic impact of broadband deployment varies by region

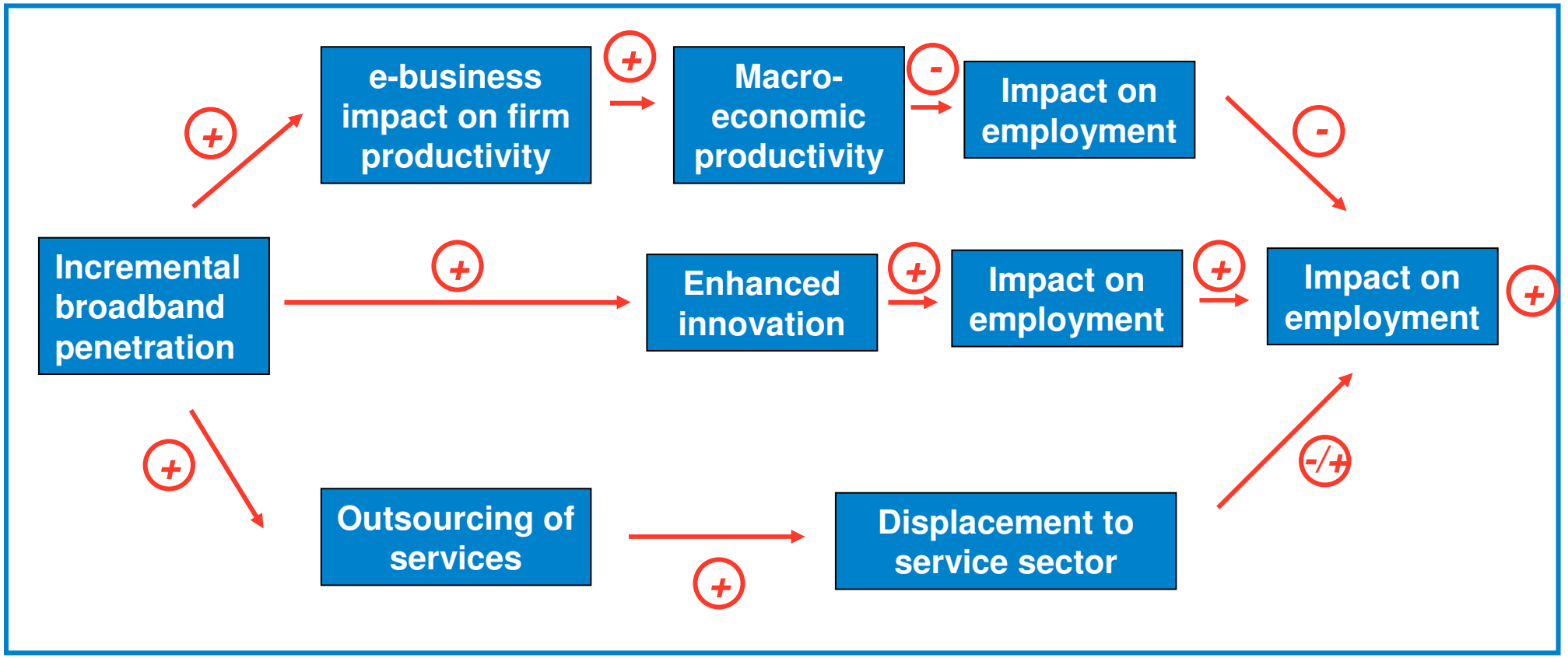


(*) Results are at a low significance level

What we are starting to understand: Emerging evidence of differential impact of broadband by region or industry

COUNTRY	STUDY	DATA	EFFECT
Germany	•Katz et al. (2009)	2000-2006 for Landkreise	An increase of 1% in broadband penetration yields an incremental annual GDP growth rate of 0.61 percentage points for low penetrated Landkreise and 0.64 percentage points for high penetrated Landkreise
United States	•Lehr et al. (2005)	1998-2002 for US postal codes	The relation between broadband penetration and employment is not linear because the technology is adopted within a state first by those who get the greatest benefit (while) late adopters within a state will realize a lesser benefit
	•Thomson et al. (2008)	2000-2006 for 48 US states	Pointed out to the potential existence of a substitution effect between capital and labor that is stimulated by broadband deployment; which could materialize differentially by industry
	•Shideler et al. (2007)	Disaggregated county data for state of Kentucky for 2003-4	The broadband impact is negative and significant (0.34%) for Tourism, which suggests that broadband deployment enables firms to substitute technology for labor in this industry

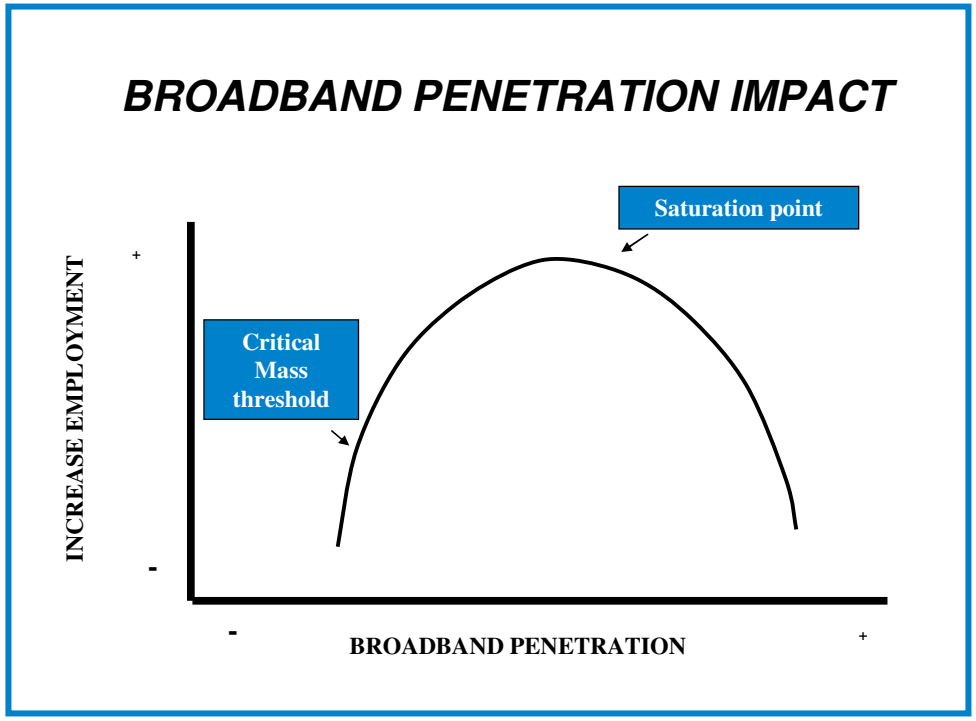
What we are starting to understand: This is consistent with the three simultaneous impacts of broadband on employment



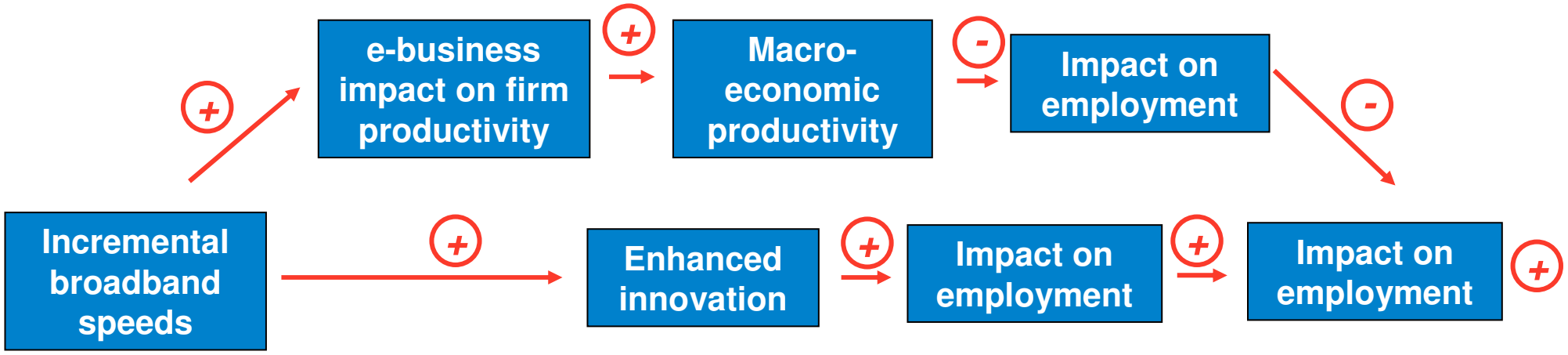
Note: This causality chain was adapted from a model originally developed by Fornefeld et al., 2008 in a report for the European Commission

What we know we don't know: Is there a saturation effect?

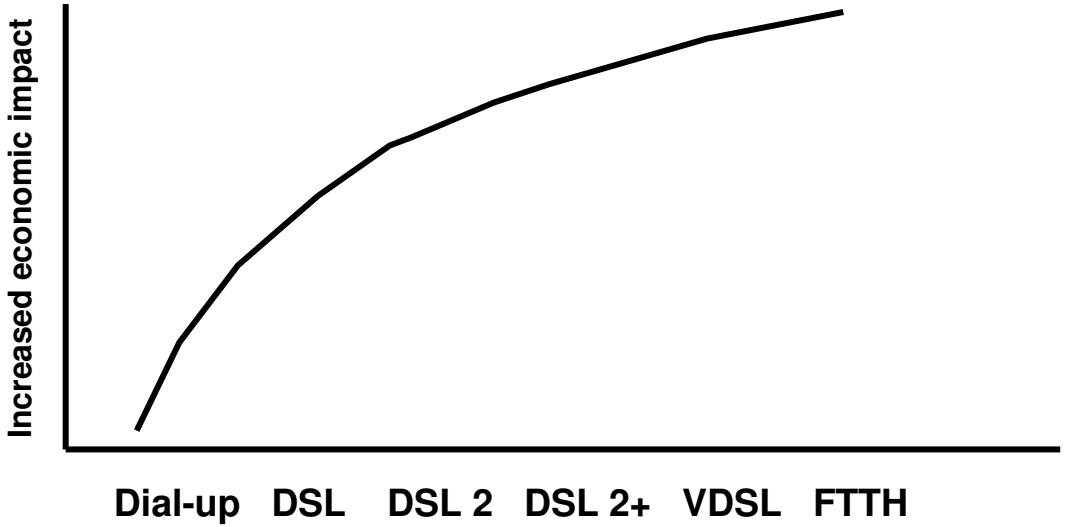
- Is there a linear relationship between broadband adoption and economic impact?
- Or are we in the presence of a more complex causality effect?
- Following the "critical mass", the impact of broadband on employment only becomes significant once the adoption of the platform achieves high penetration levels.
- At the other end of the diffusion process, a saturation point could exist beyond which we achieve decreasing returns
- Atkinson at al. (2009) also point out that network externalities do decline with the build out of networks and maturing technology over time.
- Hypothesis: the strength of the relationship is highest once the technology has achieved a certain critical mass but before it reaches saturation



What we know we don't know: What is the relationship between faster speeds and improved QOS and economic output?



Application	Download speeds		
	500 Kbps	5 Mbps	50 Mbps
Google home page	0.3 sec	0.03 sec	0.003 sec
10 Mbs worksheet	150 sec	16 sec	1.6 sec
High quality videostreaming	Very low resolution	Medium resolution	High resolution



Source: SQW (2006)

In sum, broadband deployment should be stimulated because of its economic impact

- Generate jobs and output as a result of the construction of networks
  - Estimates for network construction jobs are fairly robust and consistent with prior research
  - Output multiplier: every Euro invested in infrastructure, generates 0.90 Euros in domestic value added
- Promote innovation, and creation of new businesses once the networks are deployed
  - Accelerate development of core regions
  - Attract new industries, with employment potential
- However, differential impact across regions prompts the question of where to focus
  - It would appear that, in the short term, investment in advanced industrialized regions yields stronger impact
  - This needs to be balanced against a social policy oriented toward fostering digital inclusion
- Beyond social targets (e.g. universal broadband access >2Mbps), it might dangerous to set up penetration objectives because we do not know yet what is optimal
- It is imperative to launch studies to assess incremental economic impact of ultra broadband in countries with advanced deployment

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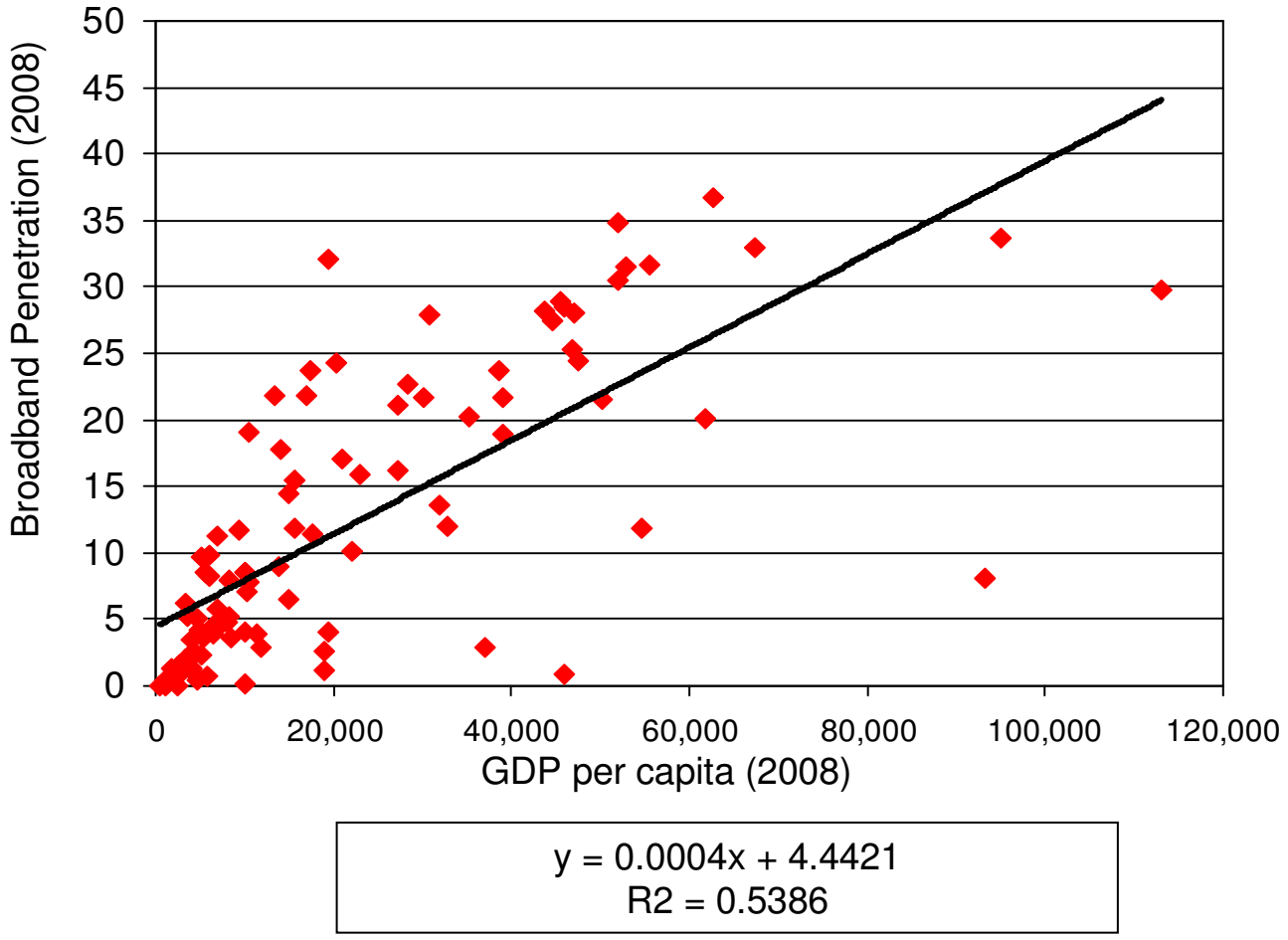
Our demand estimates are based on the relationship between level of economic development and broadband penetration

ECONOMIC DEVELOPMENT AND BROADBAND DEPLOYMENT



According to this relationship, penetration should be increased by 11 million lines to "catch up"

LATIN AMERICA: 2008 GAP BETWEEN SUPPLY AND DEMAND FOR BROADBAND

Country	Number of Lines (2008)	Demand estimation according to GDP 2008	2008 Gap
Argentina	3,185,300	3,101,435	No Gap
Brazil	10,098,000	14,800,734	4,702,000
Chile	1,426,400	1,439,173	13,000
Colombia	1,902,800	2,898,369	996,000
Ecuador	210,285	834,481	624,000
El Salvador	123,500	368,036	245,000
México	7,604,600	9,180,576	1,576,000
Nicaragua	45,044	278,656	233,000
Panama	157,500	247,158	90,000
Peru	725,600	1,812,972	1,087,000
Venezuela	1,096,500	2,556,853	1,460,000
Uruguay	287,700	284,841	No Gap
Total	26,864,129	37,803,283	11,026,000 (*)

Sources: World Bank; IDC/Cisco; analysis by the author (*): Sum of all country gaps

The gap in Brazil appears to be heavily concentrated in the Northeast and Southeast

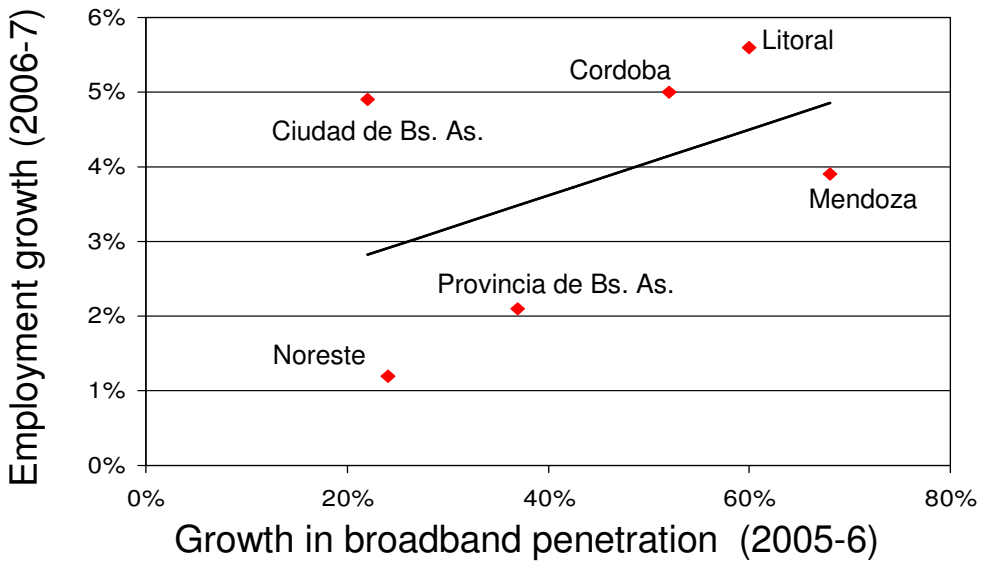
BRAZIL: 2008 GAP BETWEEN SUPPLY AND DEMAND FOR BROADBAND

Region	Number of Lines (Dec 2007)	Penetration (Dec 2007)	Penetration (Dec 2008)	Penetration Gap (2008)	Incremental lines (2008)
Norte	392,527	2.2 %	2.96 %	3.5 %	526,000
Nordeste	416,560	0.8 %	1.09 %	4.8 %	2,675,000
Sudeste	1,601,958	4.8 %	6.24 %	1.7 %	656,000
Sao Paulo	3,012,114	7.1 %	9.1 %	0.2 %	97,000
Sul	1,456,395	5.1 %	6.6 %	1.4 %	374,000
Centro-Oeste	613,737	4.1 %	5.49 %	2.7 %	375,000
Brazil	7,493,000	4.0 %	5.3 %	2.2 %	4,702,000

Sources: IBGE; IDC/Cisco; analysis by the author

Broadband has already had some impact in job creation in the region

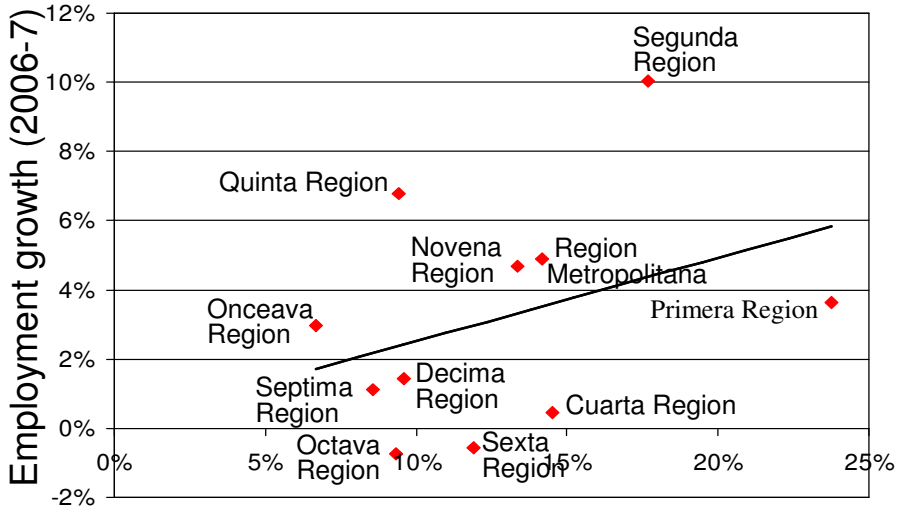
ARGENTINA



y = 0.044x + 0.0185
R2 = 0.2278

Fuentes: IDC; CEPAL; INDEC; analisis del autor

CHILE



y = 0.2408x + 0.0011
R2 = 0.1264

Fuentes: IDC; CEPAL; analisis del autor

Based on the Argentine coefficients, we have estimated the impact on job creation if the supply gap were to be addressed

Employment Growth in t+1 = 0.044 * (Broadband penetration growth in t) + 0.0185

Country	Number of access lines (2008)	Penetration (2008)	Estimation of Demand According to PBI 2008	Broadband Gap 2008	Incremental Penetration	Impact on employment growth
Argentina	3,185,300	7.9 %	3,101,435	No Gap	7.9 %	1.7 %
Brazil	10,098,000	5.3 %	14,800,734	4,702,734	7.7 %	3.9 %
Chile	1,426,400	8.4 %	1,439,173	12,773	8.5 %	1.9 %
Colombia	1,902,800	4.2 %	2,898,369	995,569	6.4 %	4.2 %
Ecuador	210,285	1.5 %	834,481	624,196	6.0 %	14.9 %
El Salvador	123,500	2.0 %	368,036	244,536	6.0 %	10.6 %
Mexico	7,604,600	7.1 %	9,180,576	1,575,976	8.5 %	2.8 %
Nicaragua	45,044	0.8 %	278,656	232,712	4.9 %	24.1 %
Panama	157,500	4.6 %	247,158	89,658	7.2 %	4.4 %
Peru	725,600	2.5 %	1,812,972	1,087,372	6.2 %	8.4 %
Venezuela	1,096,500	3.9 %	2,556,853	1,460,353	9.0 %	7.7 %
Uruguay	287,700	8.6 %	284,841	No Gap	8.6 %	1.8 %
Total	26,864,129	5.5 %	37,803,283	11,025,879	9.9 %	3.6 %

The increase in broadband lines estimated above could yield 370,000 additional jobs

$$\text{Incremental employment due to BB (2006)} = (((\text{Delta Actual employment 2005-06}) * (\text{Incremental impact of broadband penetration})) * \text{Employment 2005}) - \text{Employment 2006}$$

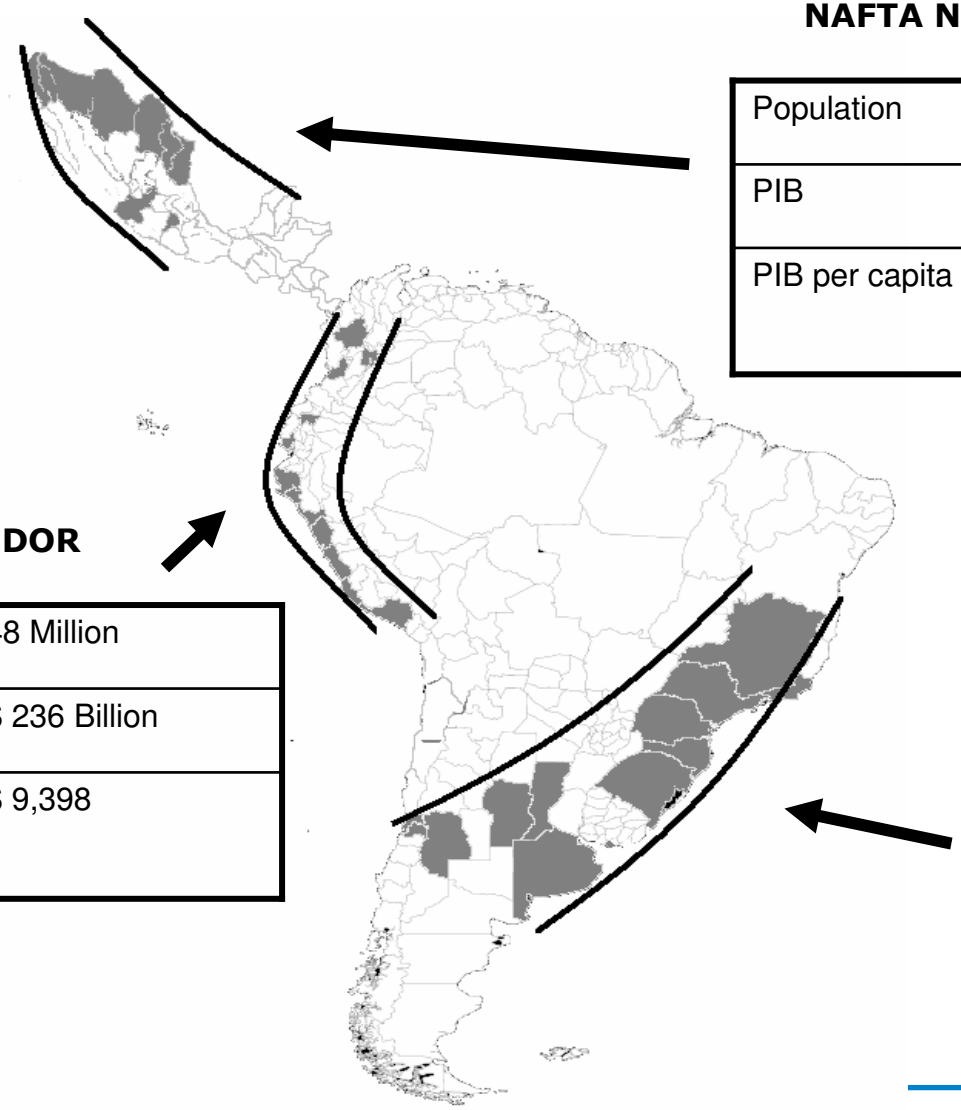
Country	Impact on employment growth rate	Total Employment (2006)	Total Employment (2005)	Delta Employment 2005-06	Impact of broadband on employment growth	Incremental employment estimate
Argentina	1.7 %	10,045,000	9,638,700	4.22 %	4.29 %	7,046
Brazil	3.9 %	84,596,300	80,163,500	5.53 %	5.75 %	172,840
Chile	1.9 %	6,411,000	5,905,000	8.57 %	8.73 %	9,560
Colombia	4.2 %	17,609,000	18,217,000	-3.34 %	-3.48 %	Not significant
Ecuador	14.9 %	4,031,600	3,891,900	3.59 %	4.12 %	20,830
El Salvador	10.6 %	2,685,900	2,591,100	3.66 %	4.05 %	10,013
Mexico	2.8 %	42,197,800	40,791,800	3.45 %	3.54 %	38,832
Nicaragua	24.1 %	1,631,700				
Panama	4.4 %	1,210,700	1,188,300	1.89 %	1.97 %	975
Peru (*)	8.4 %	3,656,700	3,400,300	7.54 %	8.18 %	21,650
Venezuela	7.7 %	11,224,800	10,035,700	11.85 %	12.76 %	91,680
Uruguay	1.8 %	1,413,500	1,114,500	26.83 %	27.31 %	5,401
Total	3.6 %	186,714,000	176,937,800	5.53 %	5.73 %	378,827

(*) Estimated population of Lima
Sources: ILO; analysis by the author

This estimate is at the lower bound of employment creation

- The estimate is based on impact of employment growth between 2005 and 2006
- The estimate underestimates construction effects in Argentina and Uruguay and uneven broadband distribution between capitals and the interior
- Due to the lack of national employment statistics for Peru, the job creation estimate for this country includes only Lima and Callao

An additional countercyclical strategy comprises modernizing the broadband infrastructure in the engines of economic growth



NAFTA NORTH CORRIDOR

Population	33 Million
PIB	$ 416 Billion
PIB per capita PPP	$ 19,908

ANDEAN CORRIDOR

Population	48 Million
PIB	$ 236 Billion
PIB per capita PPP	$ 9,398

MERCOSUR CORRIDOR

Population	133 million
PIB	$ 1,033 B
PIB per capita PPP	$ 12,795

Addressing the economic digital divide is critical for the region's development

The LATAM corridors are close to the range of mid-level European countries

	Population(million)	PIB PPP ($ billion)	PIB per capita PPP($)
Total Latam	558	3,016	8,534
Total Corridors	214	1,685	13,231
Percent of Latam	38%	56%	
Spain	40	1,362	33,631
Italy	58	1,800	30,956

Sources: Katz (2008)

As expected, their ICT penetration is higher than the rest of the continent, …

	Wireline	Wireless	Broadband
Latam (*)	16.5 %	60.0 %	3.3 %
Corridors	25.8 %	76.9%	5.7%

(*) Including Argentina, Brasil, Chile, Colombia, Ecuador, Mexico, Venezuela, Uruguay, and Peru

…but the unmet demand for broadband accesses is twice that of the current base

Corridor	Current Broadband	Broadband demand
Mercosur	8,727,930	12,209,700
Andino	946,935	3,771,555
Nafta	2,000,000 (e)	3,649,044
Total	11,674,865	19,630,299

The economic digital divide challenge is also focused on the small and medium enterprises of the region

SMEs are the economic engine of the sub-continent

Contribution to:

	Employment	PIB	Exports
Argentina	75 %	60 %	25 %
Brazil	67 %	28 %	23 %
Chile	80 %	17 %	8 %
Colombia	50 %	40 %	20 %
Mexico	75 %	52 %	26 %

They are still underserved when it comes to ICT

	PCs	Internet	Broadband
Argentina	43 %	97 %	75 %
Brazil	69 %	54 %	9 %
Chile	74 %	66 %	60 %
Colombia	37 %	88 %	17 %
Mexico	87 %	73 %	44.6 %

Sources: Katz (2009)

Relying on ICT to address the economic crisis requires leadership from Latin American governments

- Awareness from policy makers that broadband is an infrastructure with counter-cyclical potential as high as roads, bridges and ports
- Recognition that, beyond the current environment, broadband will build the basis of the future information society
- Need to develop a vision and a national comprehensive strategy that will propel the region to world class infrastructure with a consequent impact on competitiveness