Competitive Telecom Sector, a critical input for development

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Economic Growth and ICT

Information and Communication Technologies

- Information and Communication Technologies (ICTs) are General Purposes Technologies with a huge impact in the economic structure and development of societies.
- ICTs main characteristics:
  - ✓ they are pervasive, as they have a **wide use** in society and in different process, activities and sectors, and
  - ✓ they are enabling and complementary (mobile and broadband allow all sorts of interactions).
  - ✓ Telecom presents "network externalities": the more users the larger the benefits to all users.
- **Their beneficial impact depends on adoption.**

Information and Communication Technologies

- As the wide adoption of ICTs has a significant impact over the performance of all the economy, it is in the public interest to deploy as fast as possible the required basic infrastructure as it was the case of electricity, roads, etc.

- Government participation to promote network infrastructure deployment is necessary:

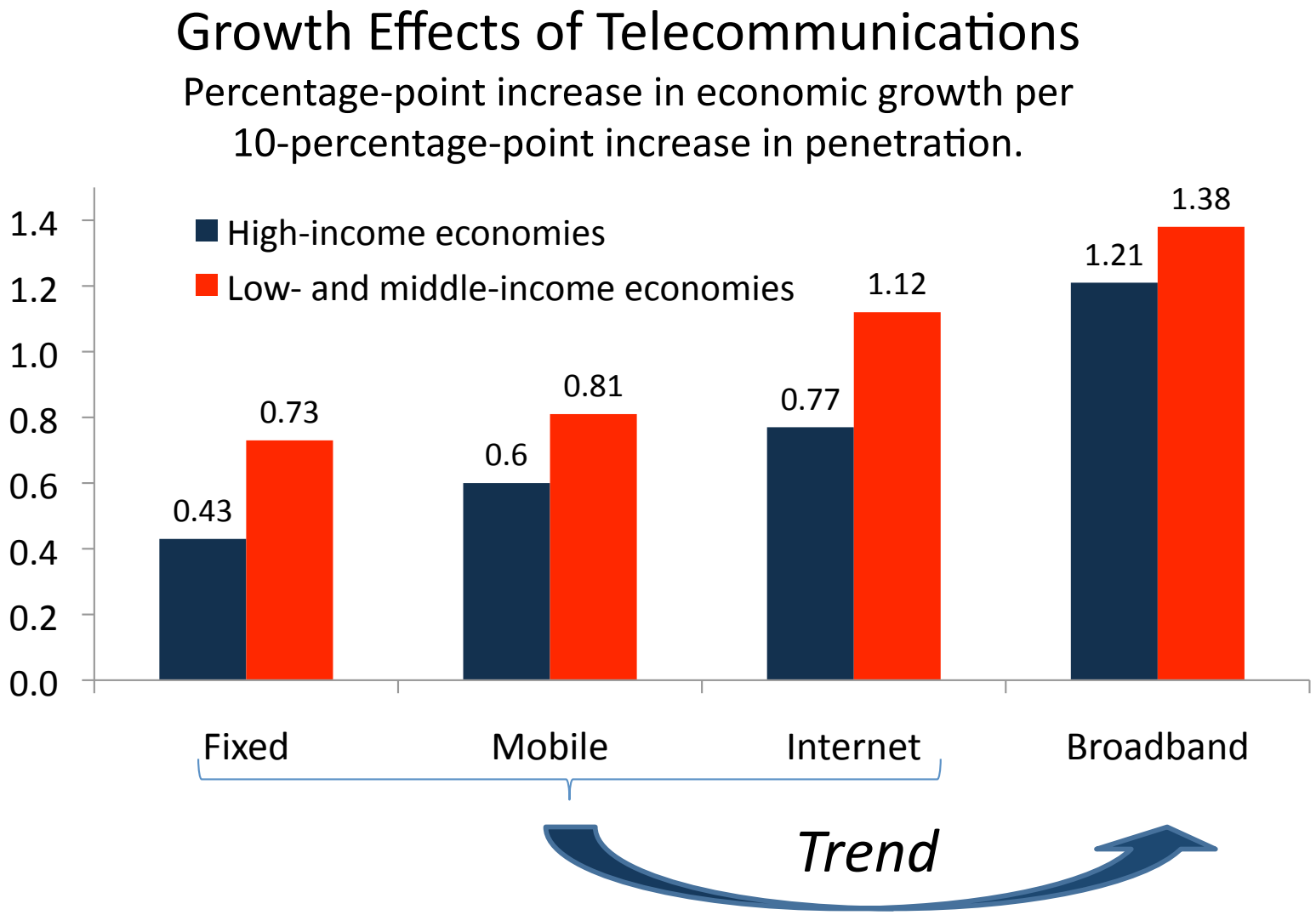
  ✓ facilitating access to inputs (spectrum, rights of way),

  ✓ creating a level playing field and

  ✓ mitigating the risk of investments under some public-private scheme or under indirect schemes.

Economic Growth and ICTs

- Broadband penetration has the greatest growth effect.



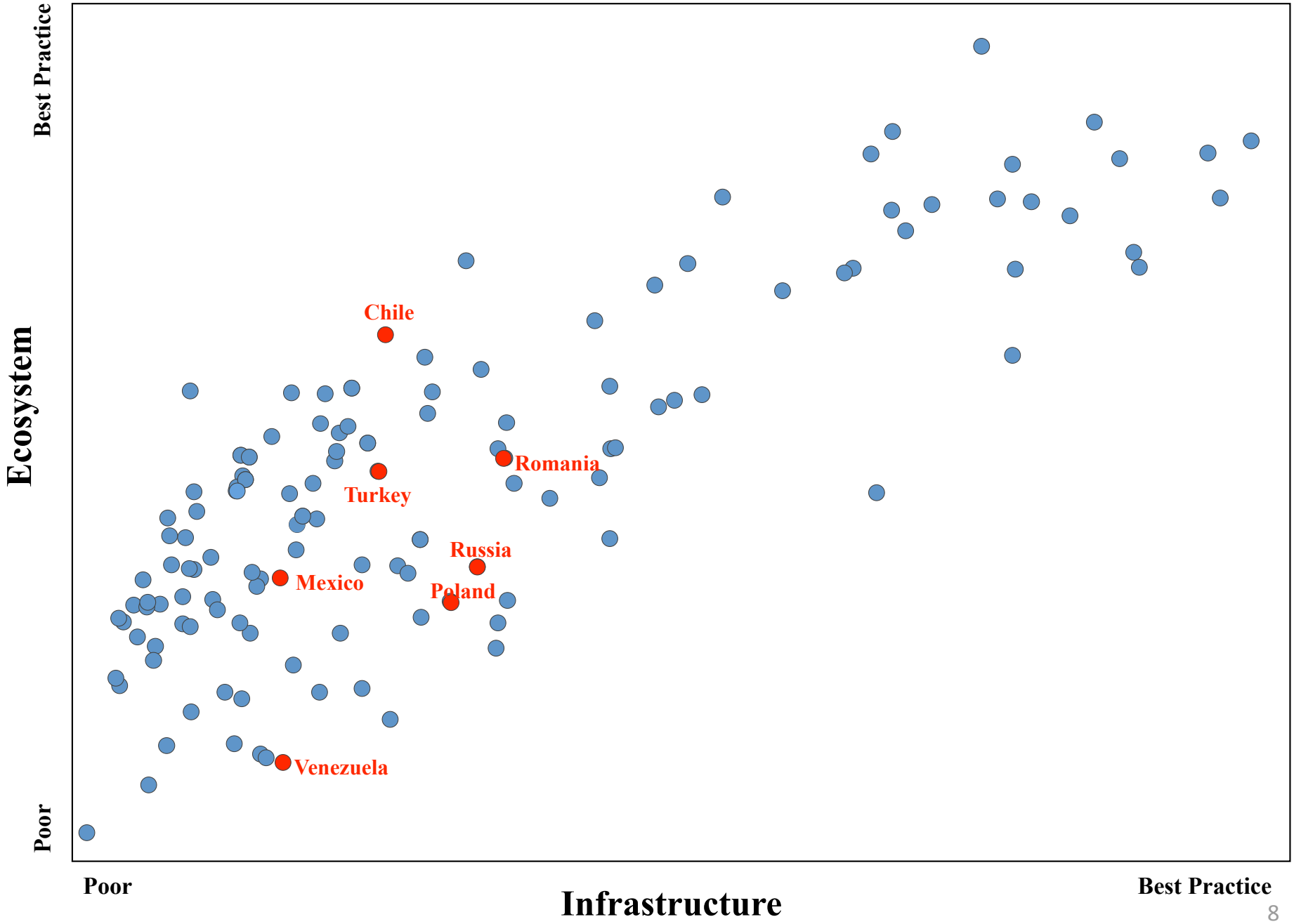
Source: Qiang ,2009, reported in World Bank, Information and Communications for Development 2009.

WEF ICT Ecosystem and Infrastructure Scores

- WEF ICT ecosystem factors:
  - ✓ General Business climate
  - ✓ ICT Policy regulation,
  - ✓ ICT Market and Competition.

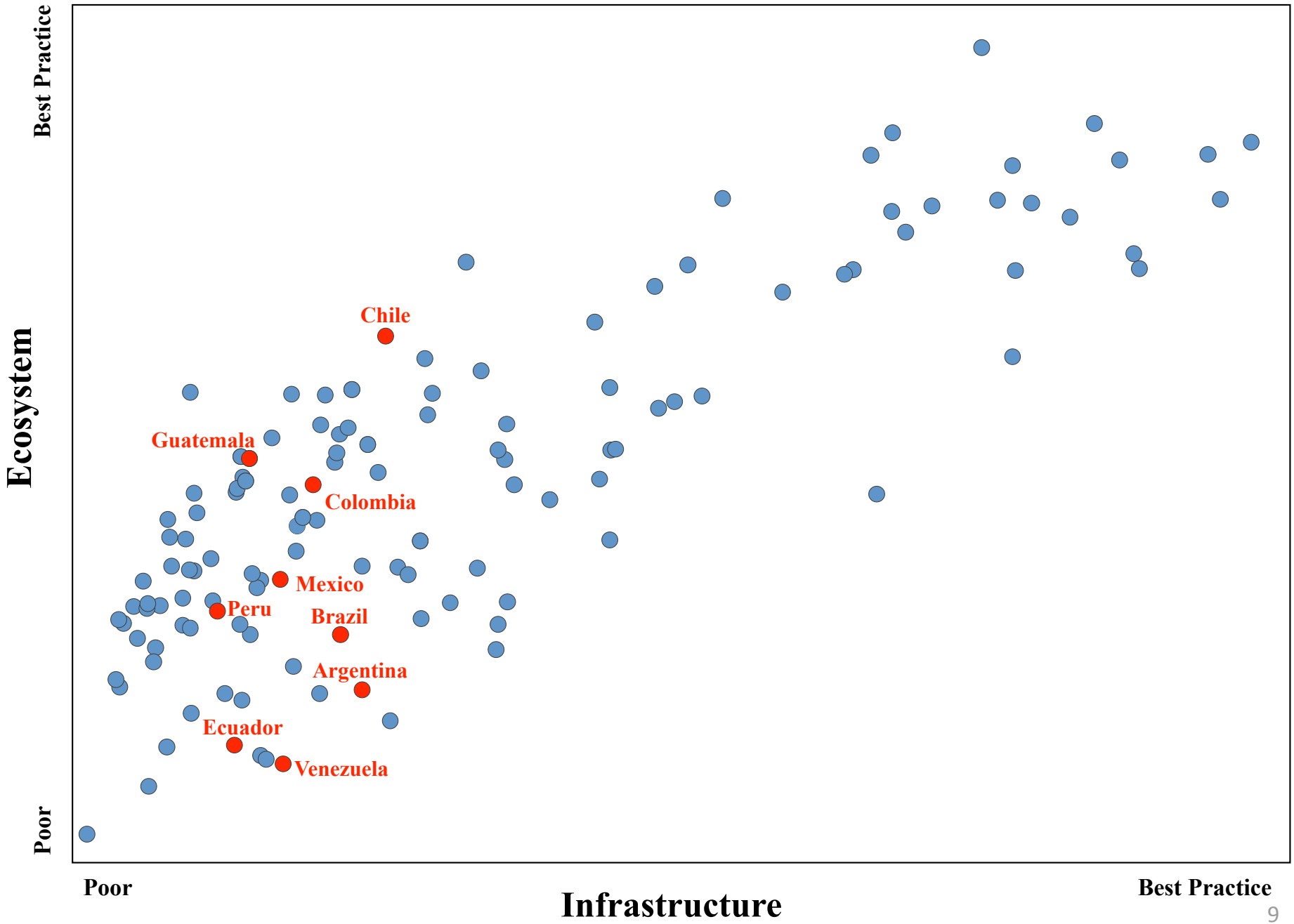
- WEF ICT infrastructure factors:
  - ✓ Skills for ICT
  - ✓ Domestic Networks
  - ✓ Internet Bandwidth

Mexico and Countries with Similar Per-capita Income



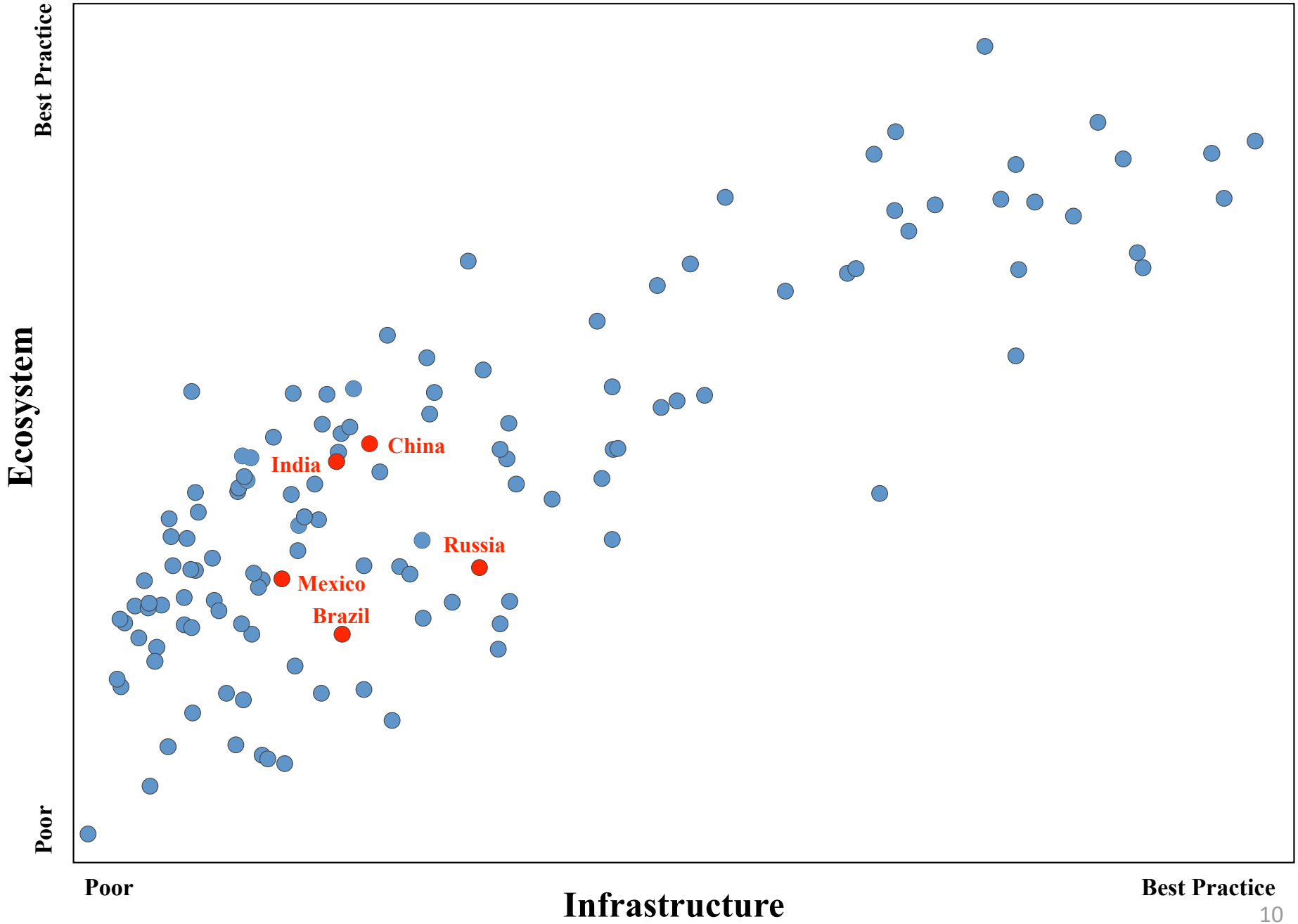
Source: WEF.

Selected Countries of LatAm



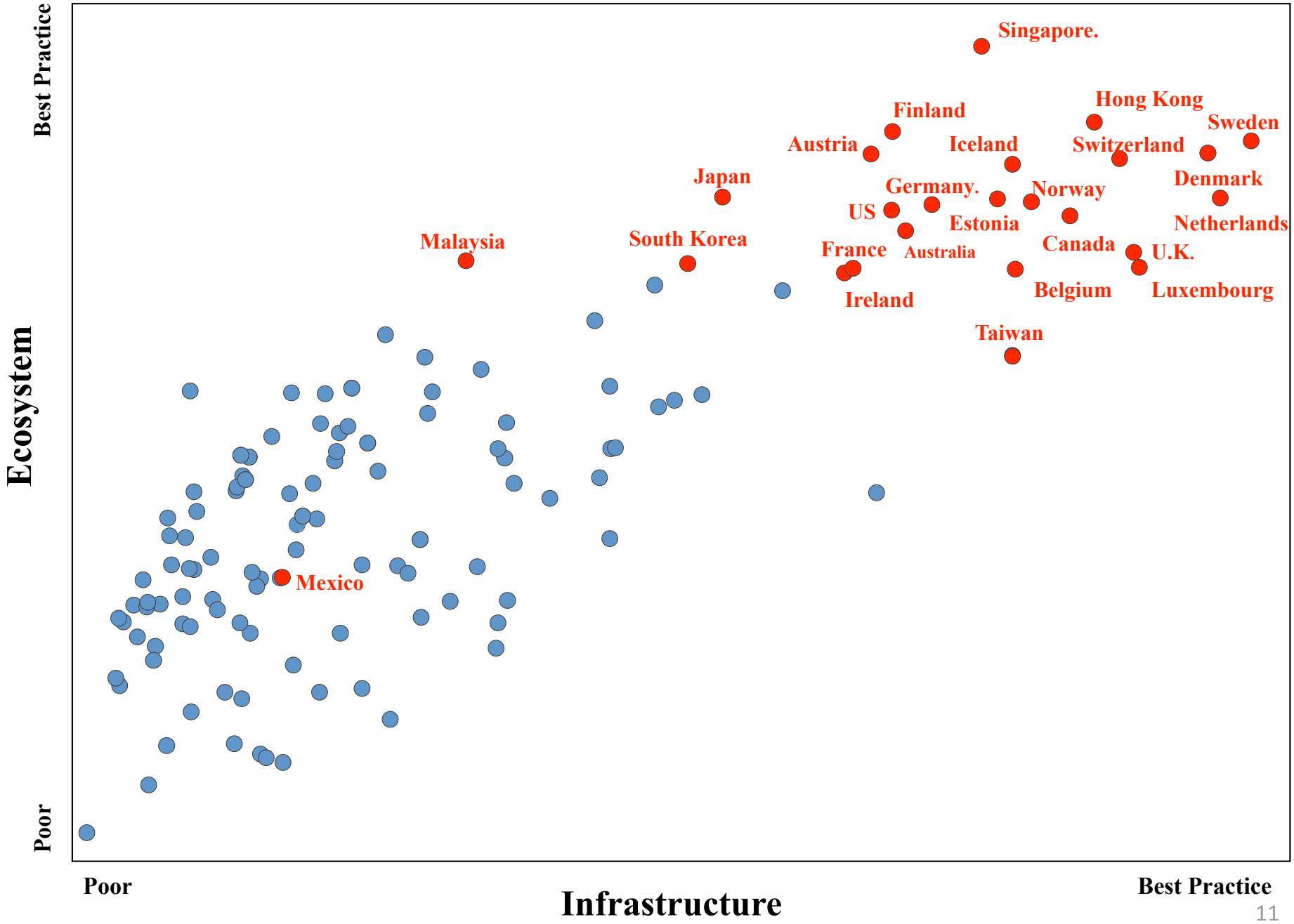
Source: WEF.

Mexico and BRICs (Brazil, Russia, India and China)



Source: WEF.

Mexico and Countries with the Best Practices



Source: WEF.

Trends in Regulation

A bit of History: Key Landline Network Regulations

- Innovation and development of the ICT sector and, in particular, of the Internet is closely related to the possibility of:

  1) using any kind of terminal device that does not damage the network (first adopted in the late 60´s in the United States), and

  2) accessing any kind of service, content and application through existing landline networks (first adopted in the early 80´s in the United States).

A bit of History: Key Landline Network Regulations

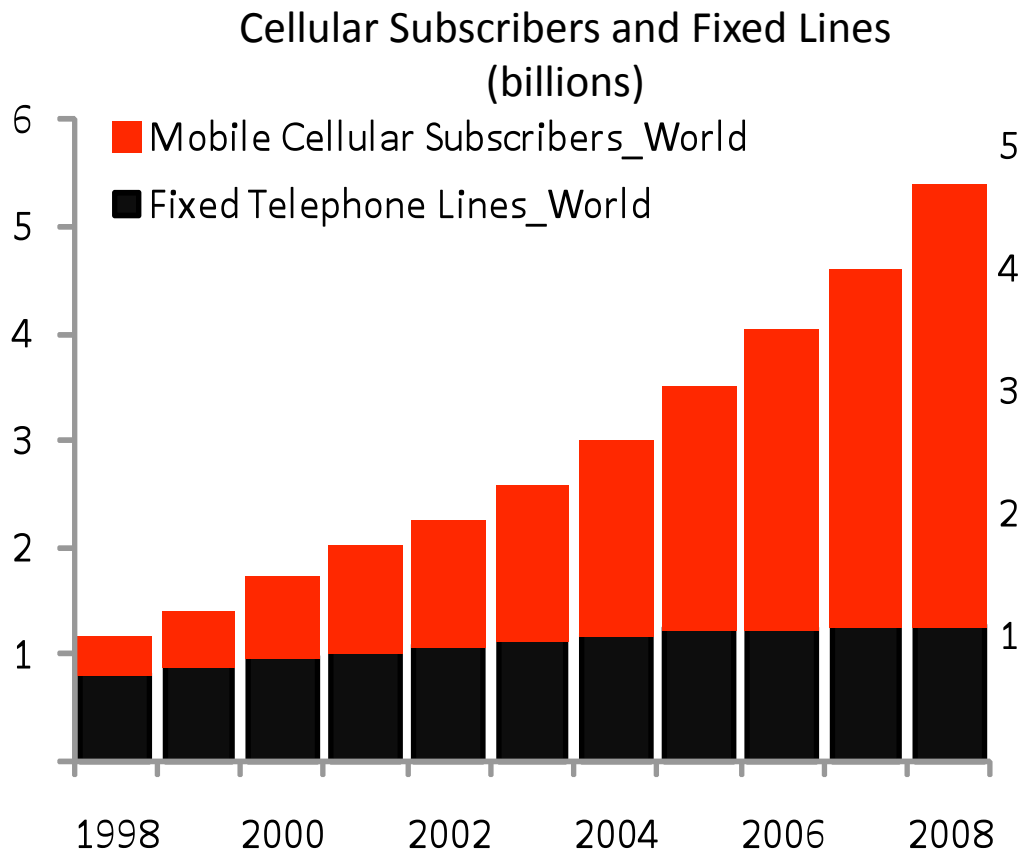
- The policy that allowed costumers to connect any terminal equipment that complied with technical requirements to the landline telephone network encouraged the development of answering machines, faxes and eventually of modems for Internet.

- The policy that allowed the use of the landline telephone network by independent Internet Services Providers without a special charge opened existing landline networks to any kind of service, content and application provided through Internet.

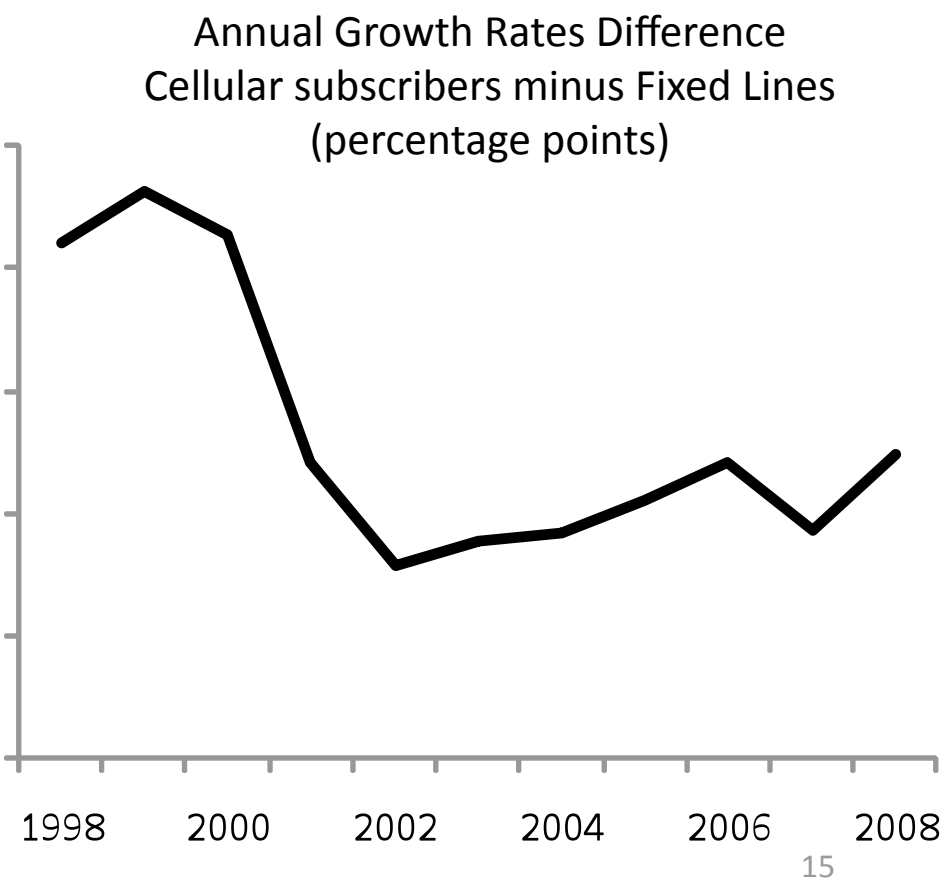
Today Networks providing Mobile Services have Surpassed Landline Networks

- In the last decade, wireless adoption has grown much faster than landline service. This trend is likely to continue in the future.

Growth of Cellular and Fixed Telephone Connections



Source: International Telecommunication Union.



Source: International Telecommunication Union.

Are Key Wireless Network Regulations Missing?

- Bundling of mobile services with cellular phones has been proven to increase customer demand as the mobile operator de facto finances the cost of the devices. **Still**,

  ✓ there is also widespread device exclusivity which gives larger mobile networks a clear advantage and,

  ✓ it is common the lockdown of cellular phones and personal digital assistants (PDAs) by mobile operators.

Are these commercial practices conducive to innovation in terminal devices and services?

Are Key Wireless Network Regulations Missing?

- In contrast to landline networks, cellular customers have limited access to Internet services, applications and contents (Skype, video-streaming, etc.).

- Nonetheless, demand is increasing so fast that data service revenue as percent of total revenue in mobile networks is growing fast.

- So, even though there are evident benefits from the adoption of cellular phones for agriculture, health and money transfer services particularly in Asia and Africa, the benefits could be more widespread without these limitations.

Interconnection

Interconnection

- International experience shows that incumbents (with the largest network) have incentives to:
  - ✓ *Deny, delay, degrade interconnection to other networks,*
  - ✓ *Even when interconnection is provided, this happens at high rates, discriminatory conditions, and limited quality and capacity.*

Interconnection Rates

- Effects of high interconnection rates:

    1) the cost to competitors increases,

    2) market power of larger networks is stronger,

    3) entry, investment, innovation and development of new services (such as broadband) is deterred,

    4) supply and coverage of services is reduced.

Interconnection Rates

High (inefficient) interconnection rates create cost advantages to larger networks

Firm	Market Share (%) (a)	Interconnection cost (I)	Interconnection Charge (rate) (II)	Average Cost $\frac{(I)(a)+(II)(100-a)}{100}$
A	75	1.00	2.00	1.25
B	20	1.00	2.00	1.80
C	5	1.00	2.00	1.95

Efficient interconnection rates do not disadvantage smaller networks or entrants

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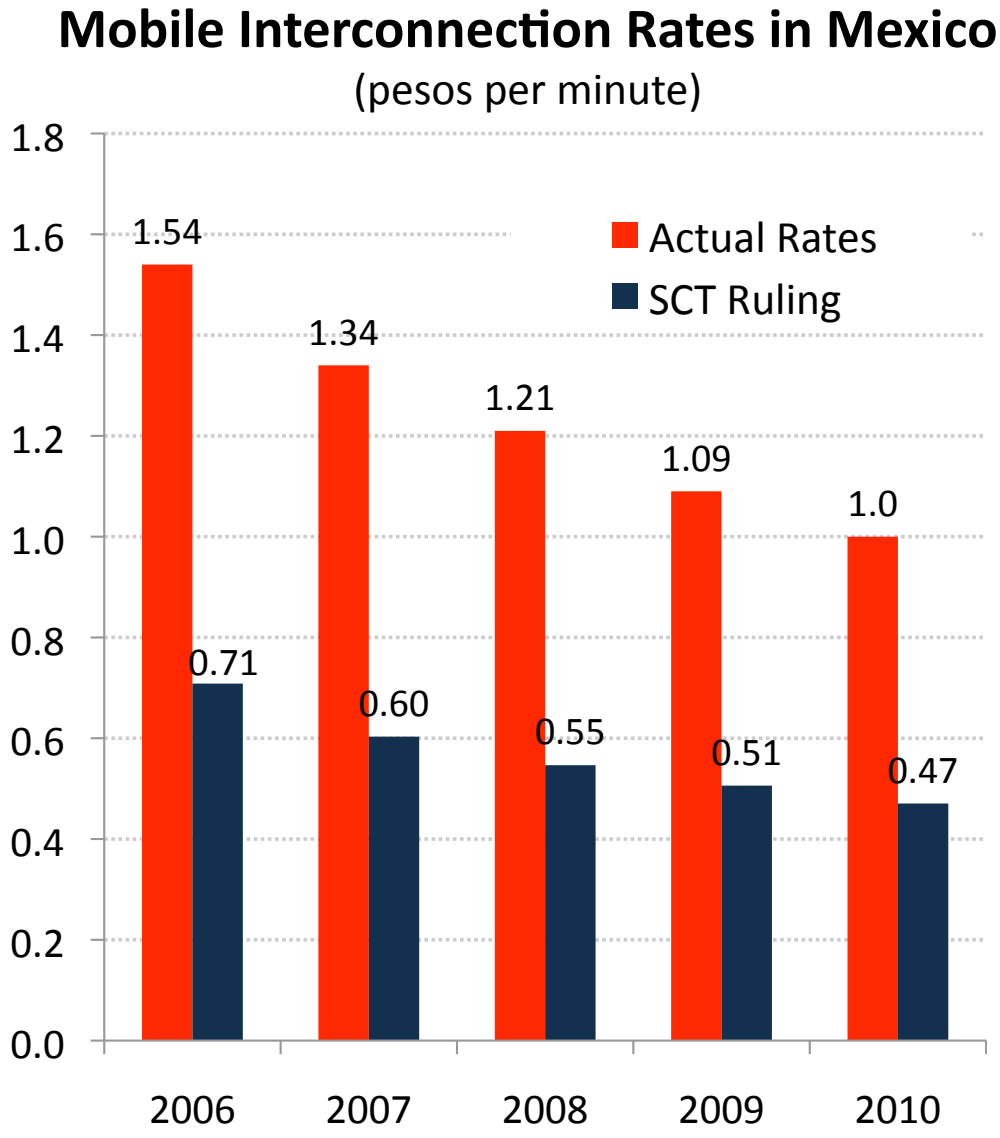
Mobile Interconnection Rates in Mexico

- In September 2008, Mexican authorities determined a significant reduction in mobile termination rates originated in the second largest fixed services network.
- If this ruling is upheld by the courts it will likely trigger a general reduction in mobile termination rates.
- Over the last ten years the transfer of resources from fixed to mobile operators has been in excess of 10bn dlls.
- **Such reduction will foster the development of mobile and landline broadband networks.**



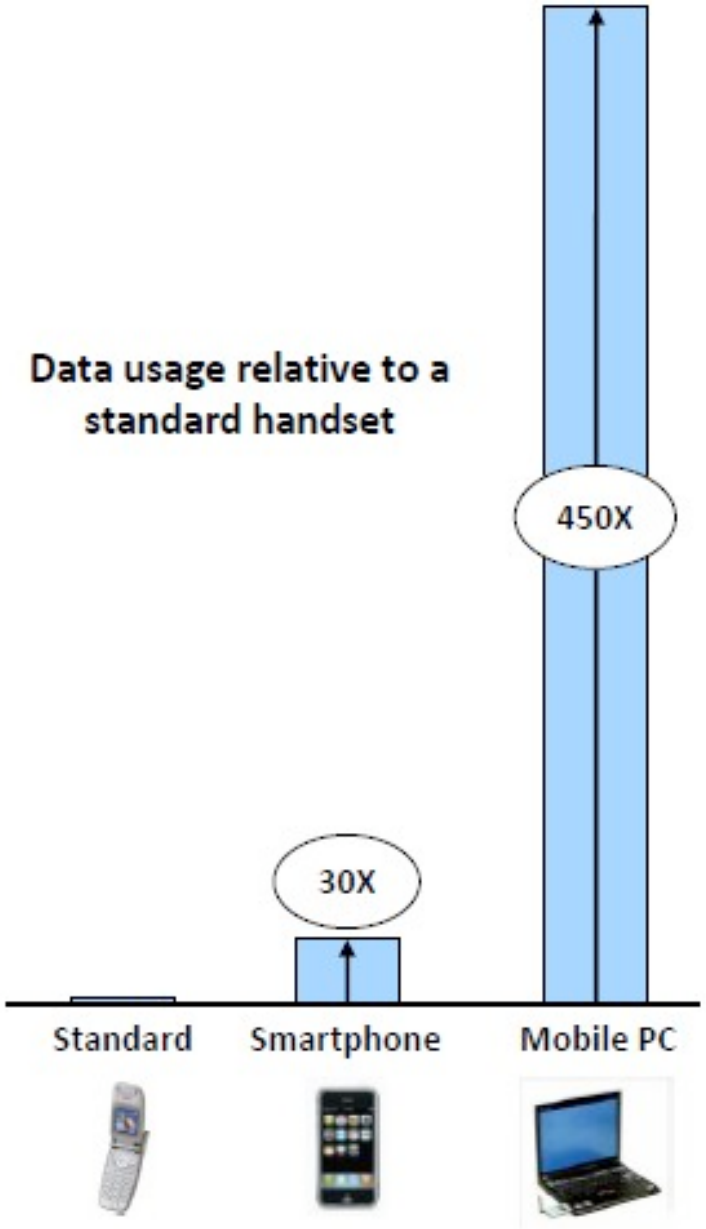
Interconnection Regulation

- In February 2009, Mexican regulator (COFETEL) issued general Interconnection regulation for the first time after 13 years of the passage of the Telecom Law.
- The main elements of the new regulation are:
  - ✓ *Cost based interconnection rates;*
  - ✓ *Broad definition of interconnection services;*
  - ✓ *Non-discriminatory treatment among operators;*
  - ✓ *Annual reference interconnection offerings from fixed and mobile network operators with the highest market share (transparency);*
  - ✓ *Unrestricted consumer access to services and applications using broadband connections, while allowing carriers for different prioritizations of voice, video and data traffic.*

The challenge: effective implementation of this regulation.

Access to Spectrum and Infrastructure

Access to Spectrum



- Data demand from smartphones and computers has started to limit service availability of existing mobile networks. More spectrum is needed!
- 760 MHz will be required to meet the demand of mobile broadband services in 2010 (ITU). In Mexico, there are only 170 MHz allocated today. This number will increase to 300 MHz if planned spectrum auctions are successful.
- Allocating spectrum also to entrants would advance several policy goals.
- It is necessary to avoid spectrum speculation or warehousing.

Main Barriers to Entry to Mobile Broadband

- Cost of Access to Internet (Internet + transport)
  - ✓ Accounts on average for 20-30% of total costs excluding spectrum.
  - ✓ In some areas (e.g. rural), internet connection costs are much higher and makes broadband provision unviable.
  - ✓ In the short run Internet connection cost is mainly driven by the high prices of the fiber optic backbone-backhaul infrastructure.
  - ✓ The Government could foster fiber deployments by making rights of way available and facilitating joint trenching.
- Site Development-Construction Costs
  - ✓ Account for 5-10% of total costs excluding spectrum.
  - ✓ Wireless operators could save significant costs by sharing sites (each site could be shared by 3 or 4 operators).
  - ✓ Federal and State Governments could be interested in making their buildings available for site sharing.