

# Telecom Reform in Guatemala: A Case Study in Spectrum Liberalization

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The opinions expressed here are those of the author and reflect the results of the research he performed while on a leave-of-absence from the Federal Communications Commission during the period July 2004 – July 2005 to teach and conduct research at Francisco Marroquín University in Guatemala City, Guatemala.

# Spectrum Liberalization: Latin American Countries Lead the Way

Comments on a report by Ronald Coase and other economists at the Rand Corporation, circa 1960:

“This is a remarkable document... Time somehow has left the authors behind. They ignore the social, cultural, and political values which have come to inhere in mass communications, in particular, broadcasting, as well as fifty years of administrative law developments... I know of no country on the face of the globe – except for a few corrupt Latin American dictatorships – where the ‘sale’ of spectrum could even be seriously proposed.” (Coase, *J. L. & Econ.* Oct. 1998)

# **The Guatemalan Experiment:** **Why It's Important**

1. Offers real-world test of Coase (1959)
2. Reform by legislation, not regulation
3. Offers understanding of property rights regimes – how to define the rights and how they work or don't work

# Guatemala's Reforms: The Short Story

- Private property rights defined simply
- Dispute resolution is mostly a minor factor; incentives exist to overcome interference
- The mobile telephony market shows that Guatemala has been relatively successful

# The Guatemalan Experience

- Guatemala: In 1996, the Ley General de Telecomunicaciones allocated spectrum in three categories:
  1. reserved for government use
  2. reserved for amateurs
  3. 'regulated' (liberalized) bands

## The Reserved Bands

- For government use: 1,335 MHz in total  
[1000 MHz reserved from 3 MHz to 3000 MHz]
- For amateur use: 4,761 MHz in total  
[about 12 MHz reserved from 3 MHz to 3000 MHz]

These parties receive an AUF - autorización de uso de frecuencia - which cannot be sold or transferred

## **The 'Regulated' or Liberalized Bands**

Parties receive a TUF – título de usufructo de frecuencia – which can be traded and has flexibility under technical constraints

TUFs describe: schedule of operation, area of operation, max transmission power, and max interference at border of coverage area



## TUFs v. Licenses

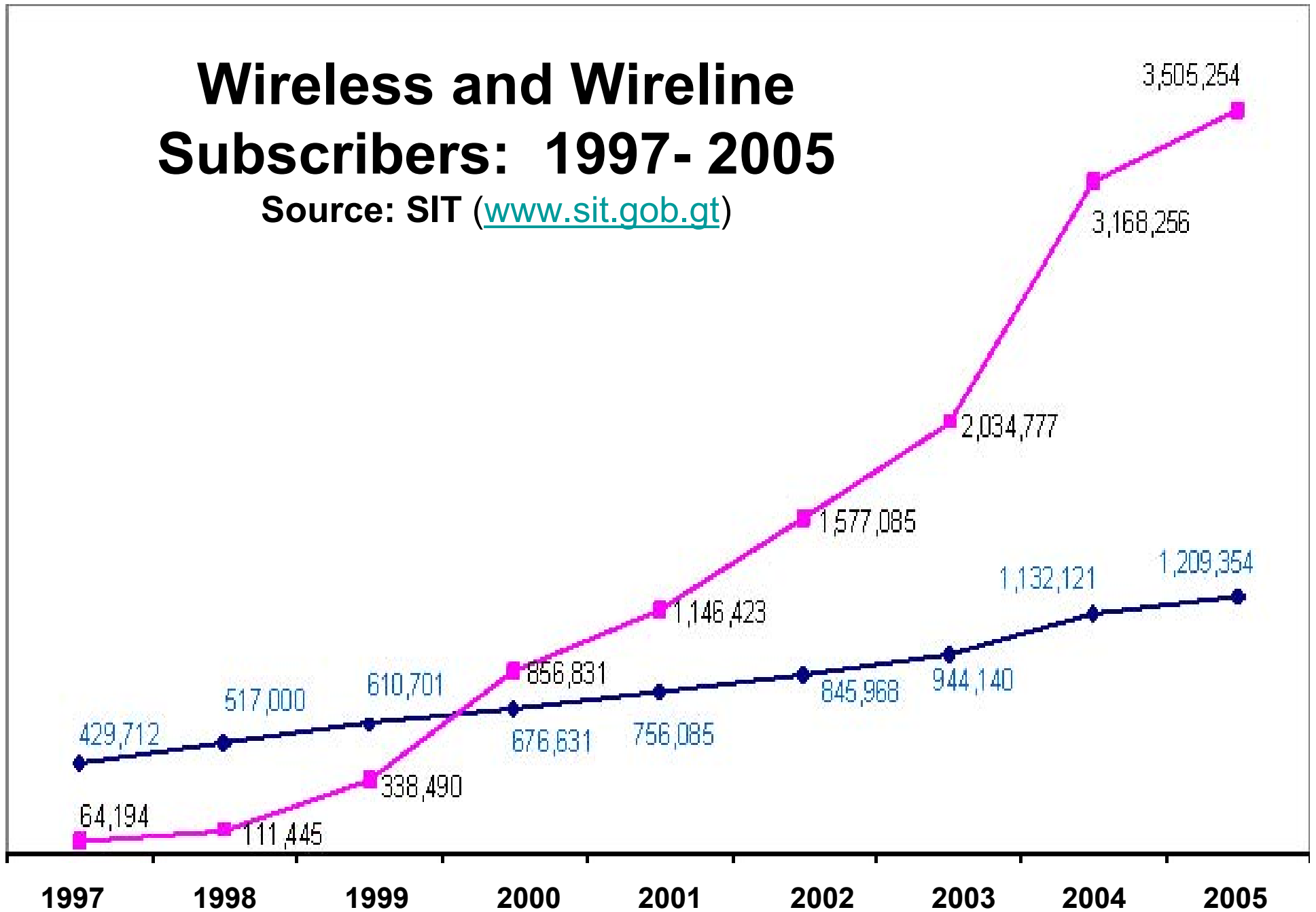
- In general, a spectrum license is a right to a well-defined, specific use (or few uses).
- A TUF is much closer to a property right, with the freedom to use the spectrum as one sees fit, subject to technical limits.

# **Results: The Mobile Telephony Market**

- Lower prices
- Increased subscribership

# Wireless and Wireline Subscribers: 1997- 2005

Source: SIT ([www.sit.gob.gt](http://www.sit.gob.gt))



# Guatemala's Prices: Lowest in Latin America\*

Pre-Paid Mobile Telephone Prices, Cents per Minute (2004)  
(Source: TMG Inc.)

Argentina	8.26	<u>Regional Average = 11.96</u>
Bolivia	6.27	
Brazil	18.92	
Chile	17.03	
Colombia	9.13	
Ecuador	10.55	
El Salvador	13.53	
<u>Guatemala</u>	<u>4.30</u>	
Honduras	6.90	
Mexico	11.44	
Nicaragua	15.95	
Panama	18.05	
Peru	21.89	
Paraguay	7.29	
Uruguay	7.40	
Venezuela	14.49	

\* Costa Rica is excluded from this analysis because it has a state-run monopoly on mobile telephony, which makes price measures problematic for this country.

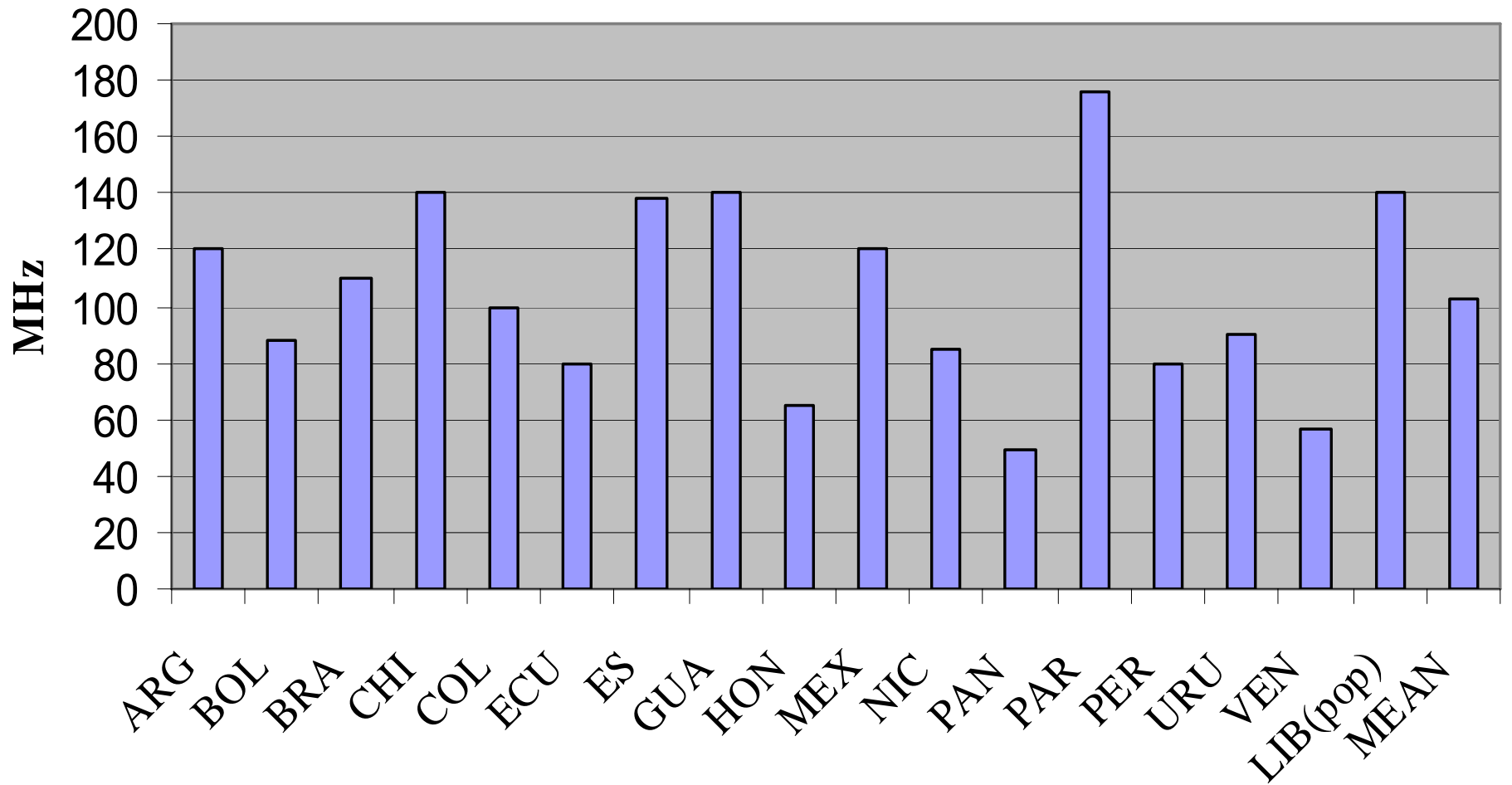
**What does liberalization  
have to do with lower prices?**

Liberalization → More Available Spectrum

More Spectrum → More Competition

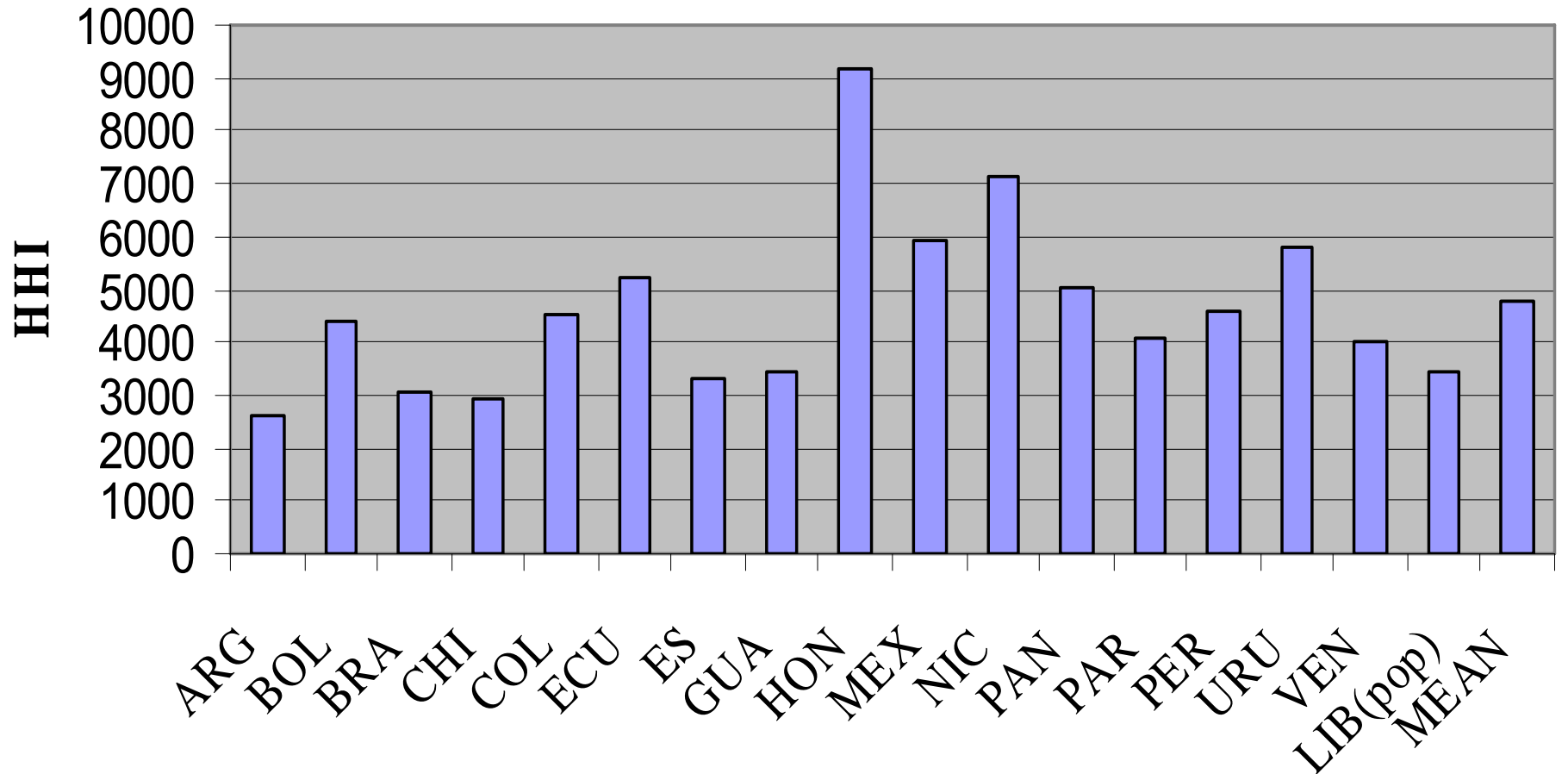
More Competition → Lower Prices

## Latin American Mobile Spectrum Deployment (2004)



# Latin American Mobile Sector HHIs

(2000-2004 Average)



**What Consumer Welfare Gains**  
**Really Mean**







## Resolving Interference Disputes

- Art. 53 allows TUF holders to issue formal complaint about interference
- Regulator notifies the accused party, who must respond within 10 days
- Regulator must decide the matter within 10 days, based on whether accused has violated terms described in its TUF

## Summary of Interference Issues

- No “chaos in the market” – especially in the highly valued mobile telephony uses but...
- Irregular enforcement, especially against pirate radio in broadcasting bands

## **The 2.4 GHZ Band: Not a Problem**

- TUFs were issued in this band
- Predominant use is fixed point-to-point
- Unlicensed operators common, including those with and without permission
- Guatemalan government is in process of negotiating with 2.4 GHz TUF holders to move to other bands, with compensation

## **Guatemala's Experience in Brief:**

- increasing the rights to spectrum increased use and efficiency ...**
- which created consumer benefits**
- but some rights imperfectly protected**