Regulatory environment for fixed-mobile interconnection

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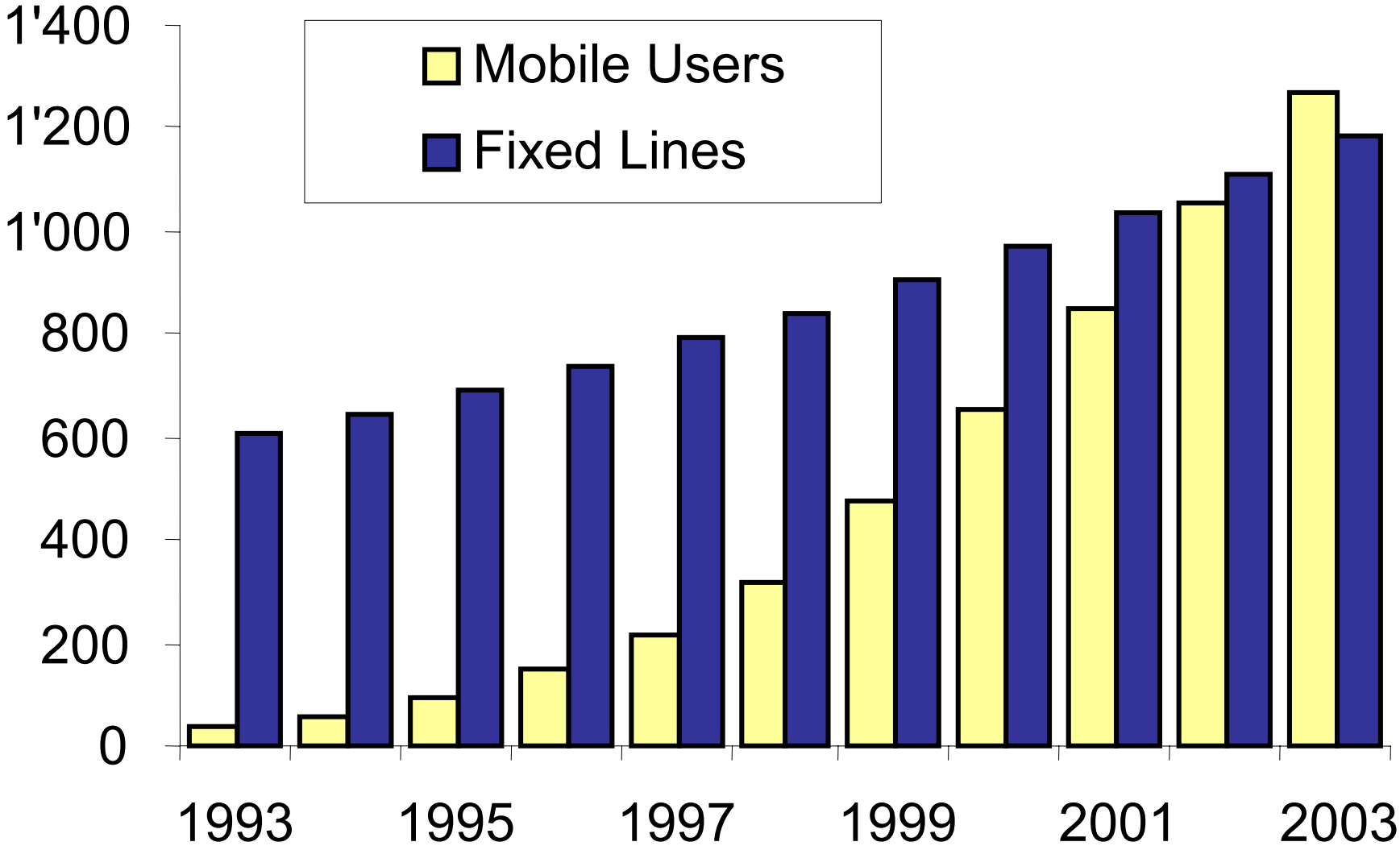
The views expressed in this paper are those of the authors and do not necessarily reflect the opinions of the ITU or its Membership. The authors can contacted by e-mail at Tim.Kelly@itu.int and Lara.Srivastava@itu.int. The research presented is based on the input documents and outputs of a workshop on fixed-mobile interconnection, held at the OECD, September 2000. That meeting was chaired by Prof. Rohan Samarajiva.

Agenda

- A mobile revolution
  - Worldwide
  - Europe
- Fixed-mobile interconnection
  - Calling Party Pays vs. Receiving Party Pays
  - The problem of the “market of one”
  - Interconnection rate comparisons
- Country case studies
  - India, Uganda
- Implications for public policy
  - Is this an example of market failure?

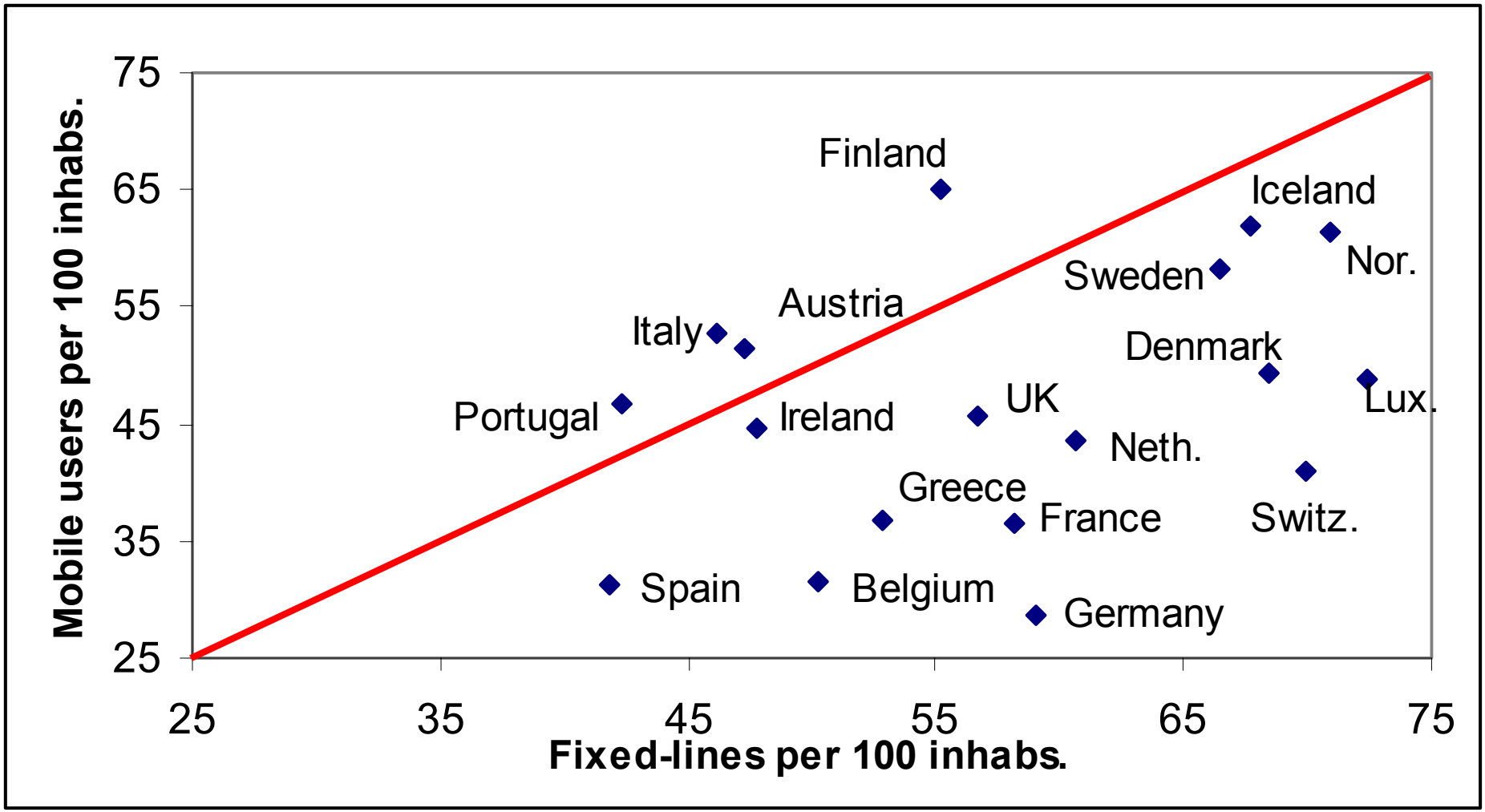
A Mobile Revolution

Fixed Lines vs. Mobile Users, worldwide, Million



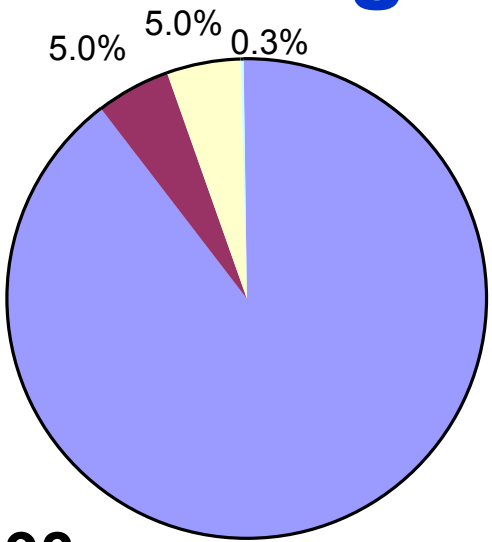
Source: ITU World Telecommunication Indicators Database.

Relationship between teledensity and mobile density, Europe, 1/1/00

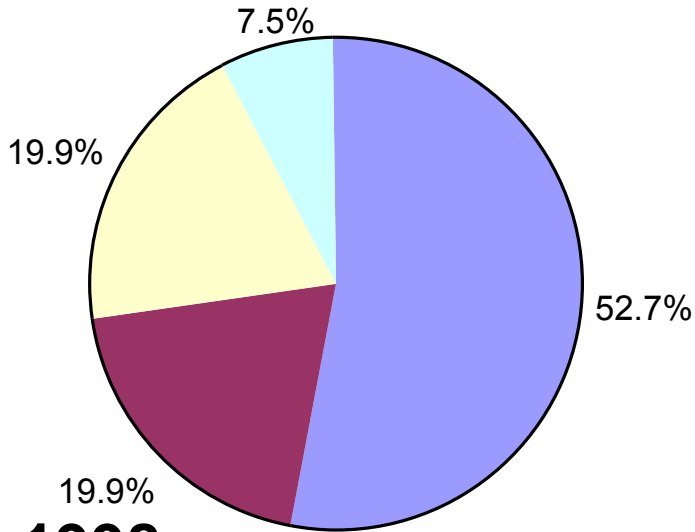


Source: ITU World Telecommunication Indicators Database.

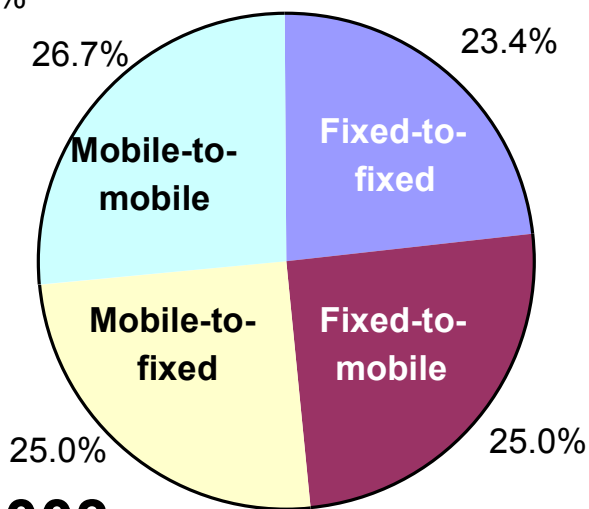
Calling opportunities worldwide



1993



1998



2003

Source: ITU Fixed-Mobile Interconnect website: http://www.itu.int/interconnect

Fixed-Mobile Interconnection

- Interconnect prices are a major determinant of retail prices
- Evidence of "market failure"
  - Interconnect prices are variable but generally very high, especially in Europe
  - In Calling Party-Pays environments, caller may not be aware of the charge they will be paying
  - Calling party does not have a choice of operator to terminate the call
- Fixed-to-mobile and mobile-to-fixed interconnect rates are highly asymmetric
- By 2003, 75% of all calls worldwide will involve a mobile

Elements of a Fixed to Mobile call

Calling Party *(FIXED)*

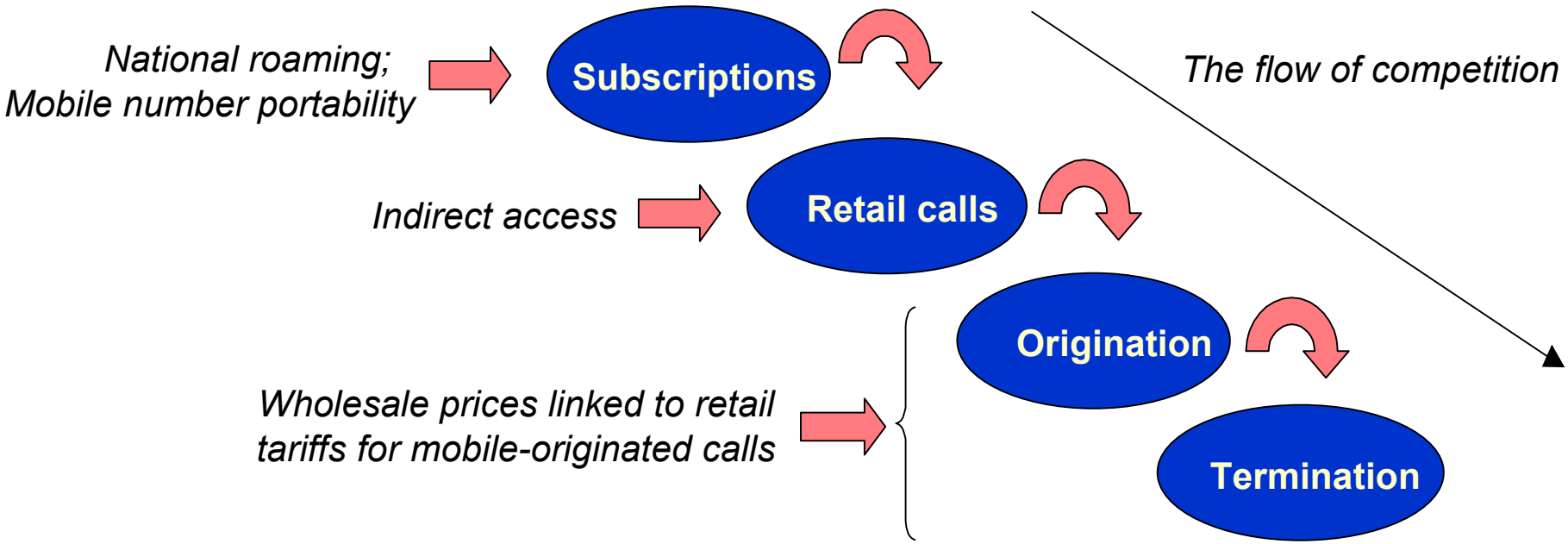
Call Origination → Transit service → Call Termination

Called Party *(MOBILE)*

Call Origination	Transit service	Call Termination
Orig. Access Switching Authentication	Core Network Switching	Locating the Customer Switching Term. Access

Source: Adapted from ECTA.

The competitive cascade



Source: Ovum.

RPP vs. CPP: What's the difference?

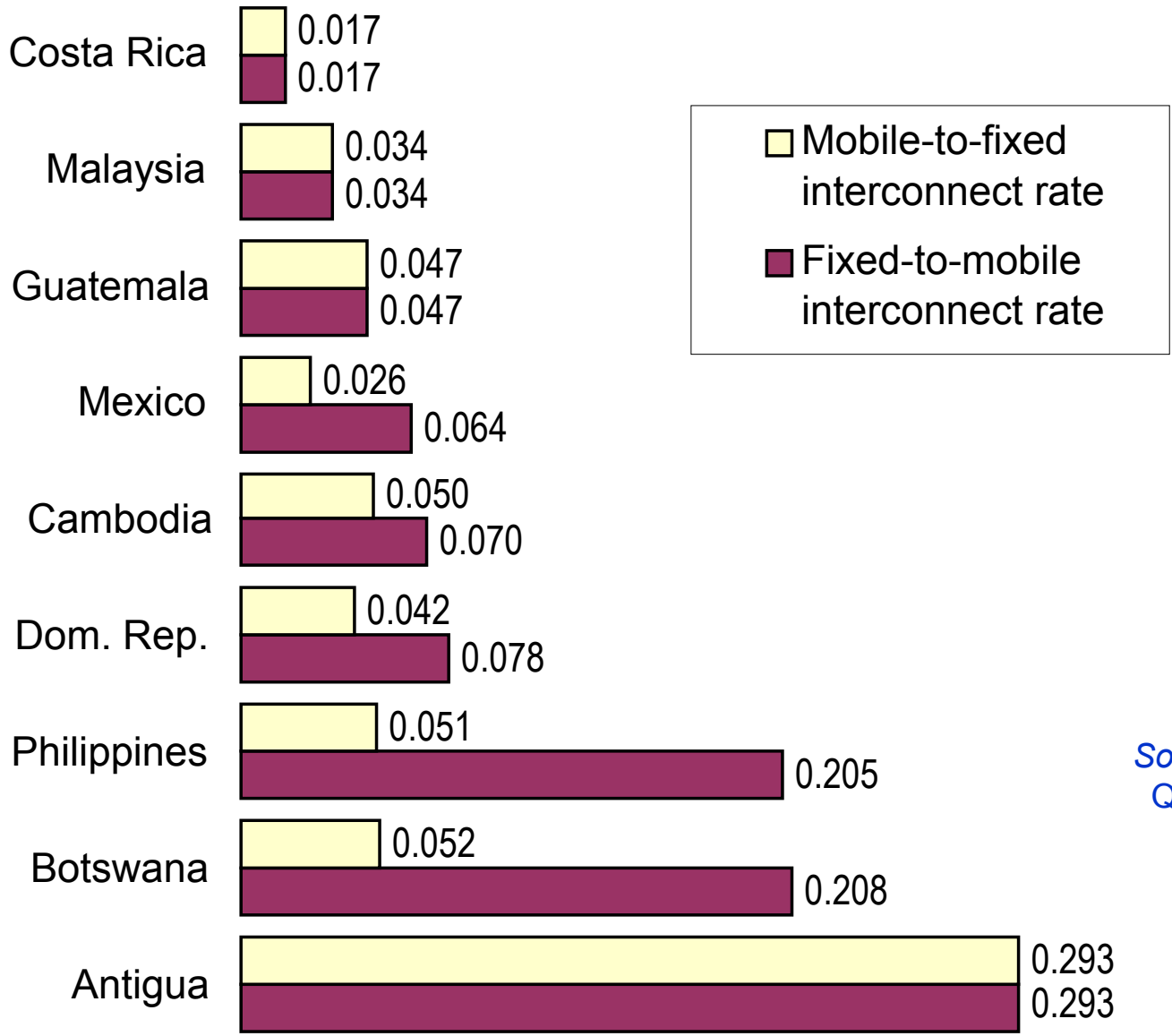
Receiving Party Pays

- Mobile party pays for incoming calls and fixed party pays only local tariff
- Often, no interconnect arrangement is negotiated with the fixed operator for F-M calls. Mobile operators bill mobile consumer directly for "airtime".

Calling Party Pays

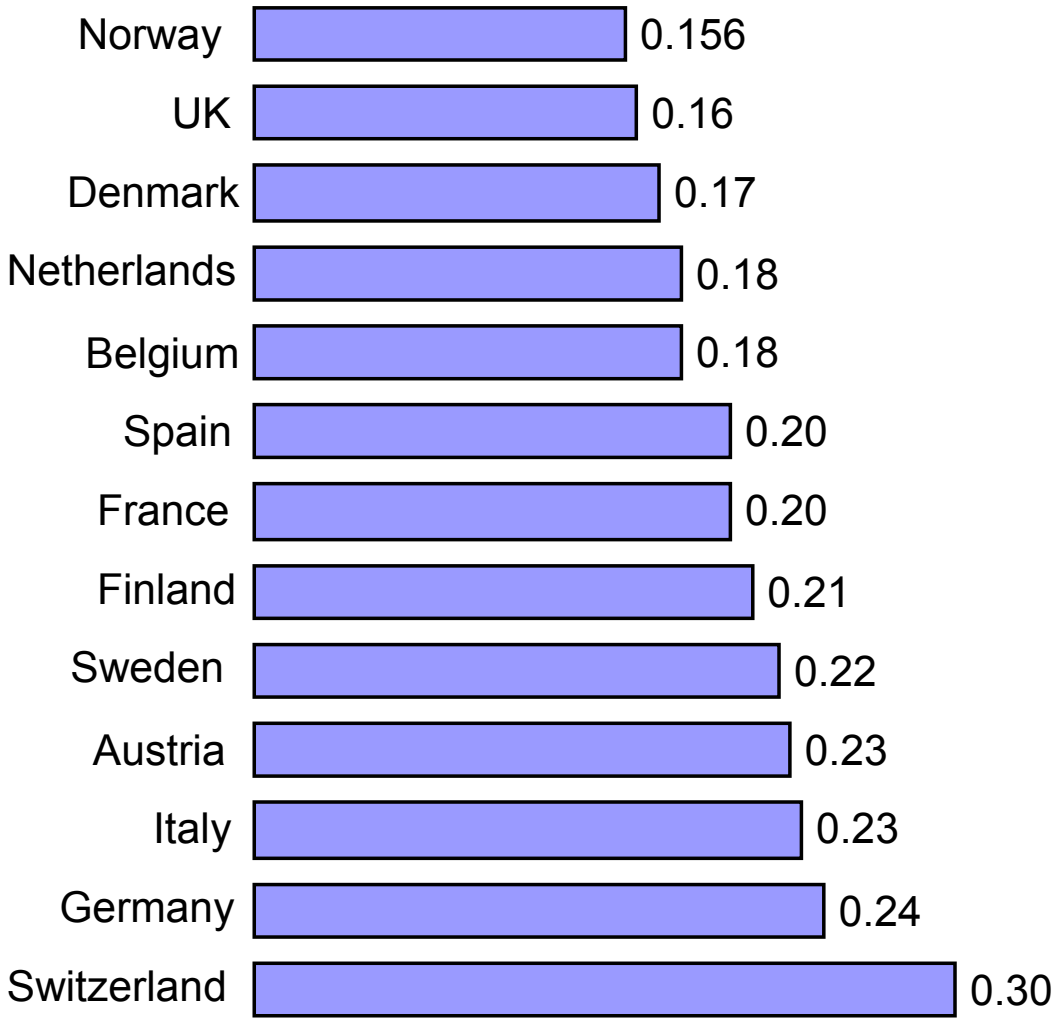
- Mobile party does not pay for incoming calls and fixed party pays a premium to call the mobile party
- Call termination paid by fixed operators is a significant part of mobile operator revenues

Fixed/Mobile interconnect rates in selected calling-party-pays countries, US$ per minute



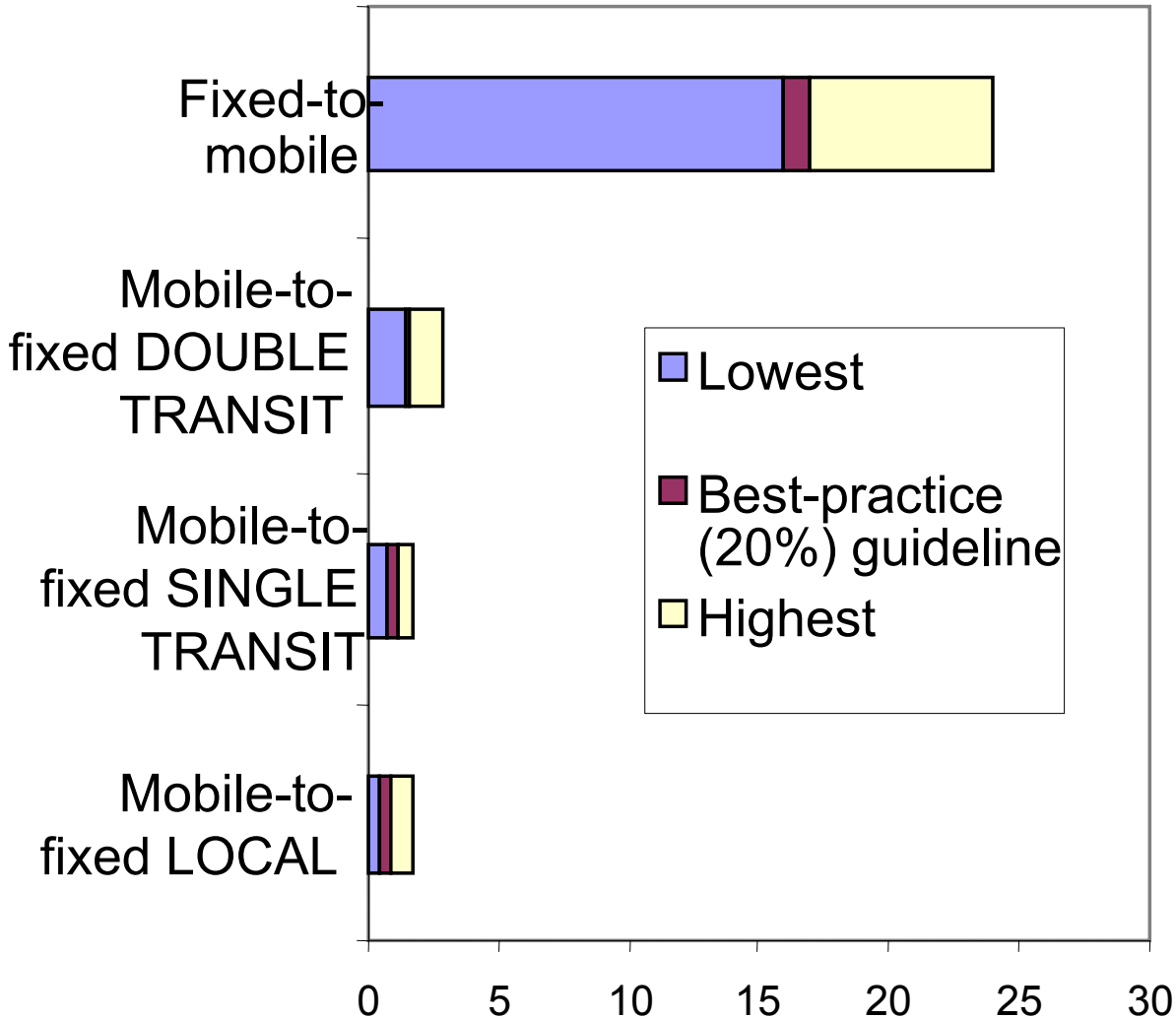
Source: ITU Regulatory Questionnaire Survey.

Fixed-to-mobile interconnection rates, Europe, US$ per minute



Source: ITU, compiled from ECTA/Analysys, EU Interconnection Tariffs in Member States, ITU Regulatory Survey 2000

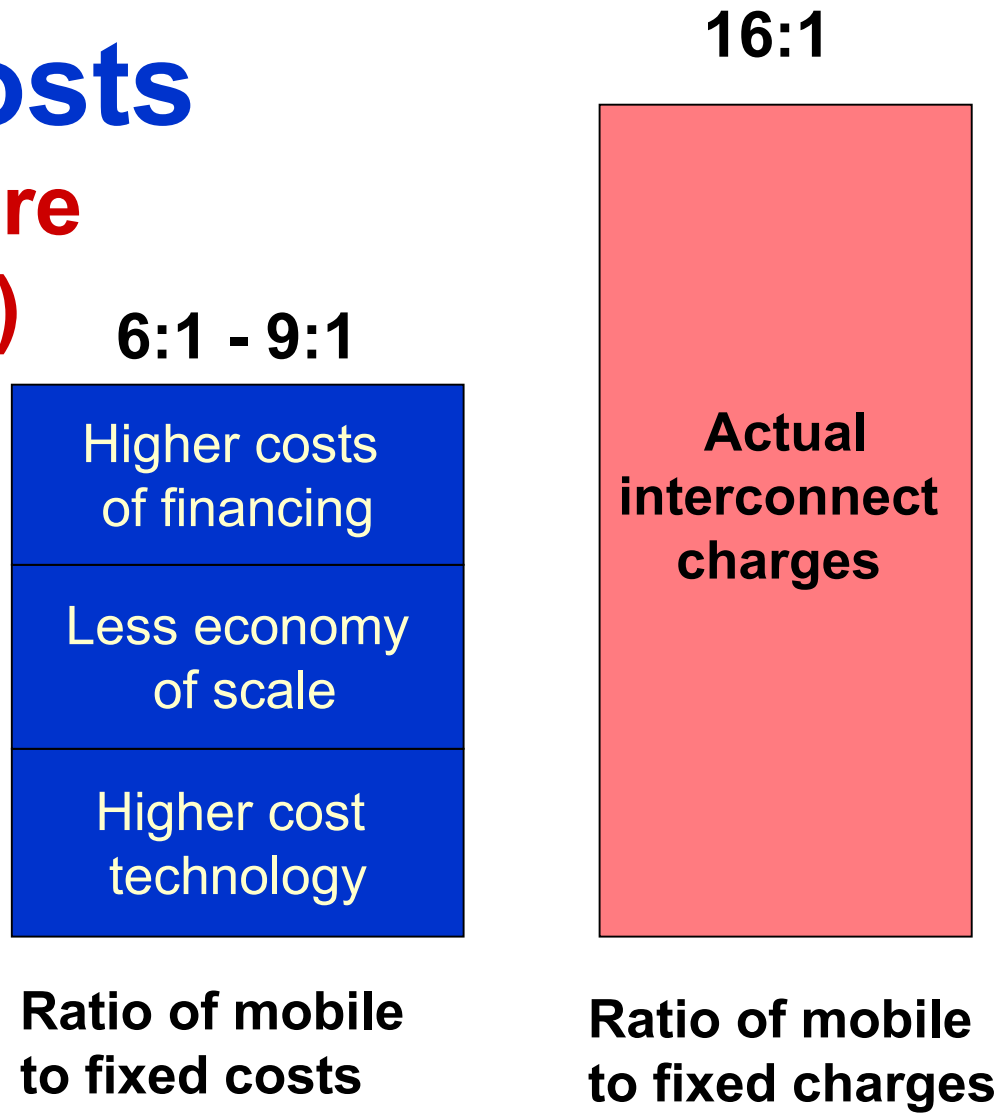
Asymmetries: Range of Interconnection rates in EU, US$ per minute



Source: ITU, compiled from ECTA/Analysys, EU Interconnection Tariffs in Member States, ITU Regulatory Survey 2000.

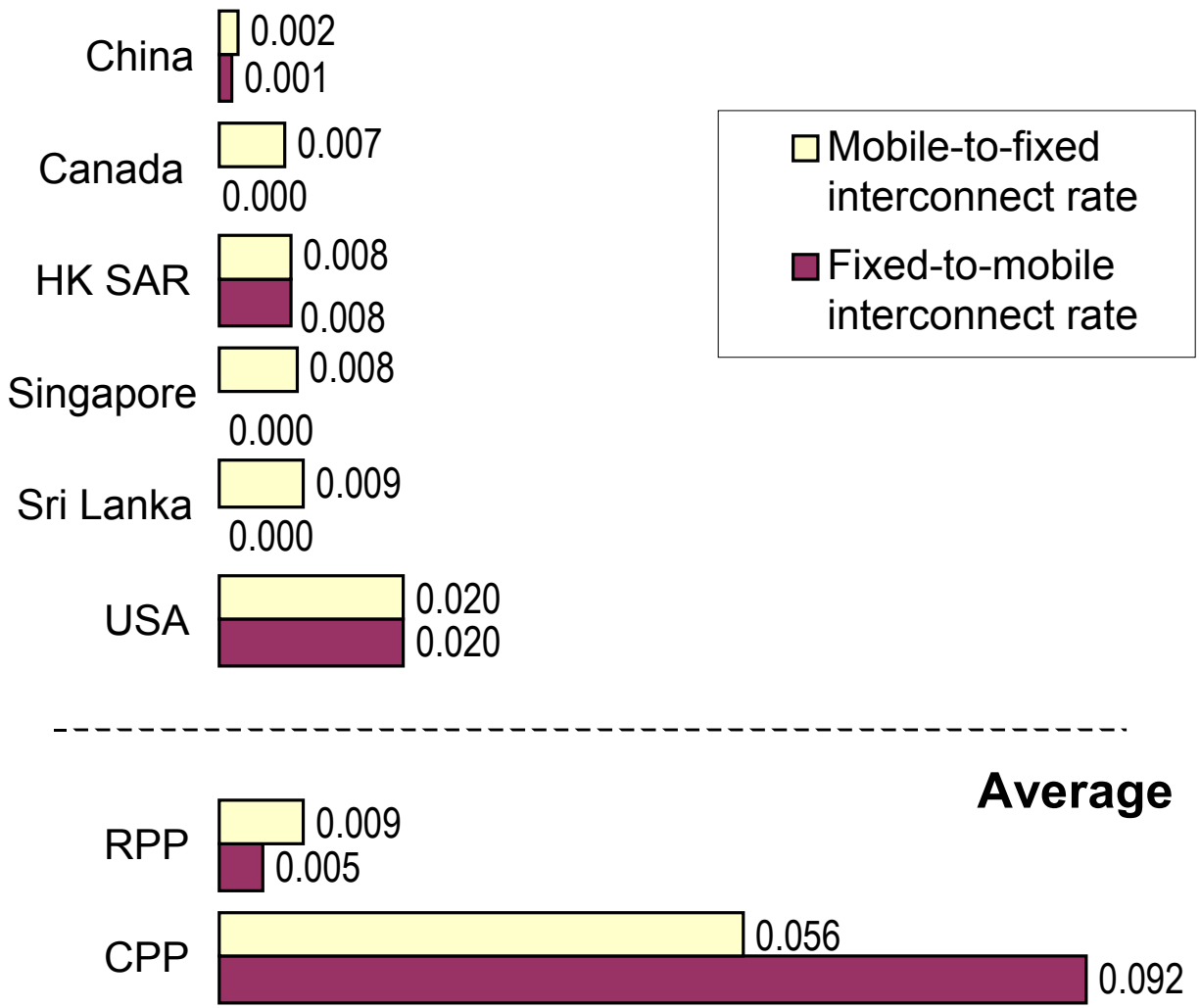
Mobile termination is out of line with costs

(even if costs are overestimated!)



Source: Ovum/EU.

Sample prices in RPP environments, in US$ per minute



Source: ITU Regulatory Questionnaire Survey.

Case Study India: The context

- Teledensity 2.4%
- Local market liberalized first, then long distance
- Mobile Sector opened up in 1994
- The Dept. of Telecoms was both licensor and incumbent operator until late 1999
- Regulator TRAI created in 1995

2.4% World's Surface

1 billion people or 16.7% of World

34% Poverty

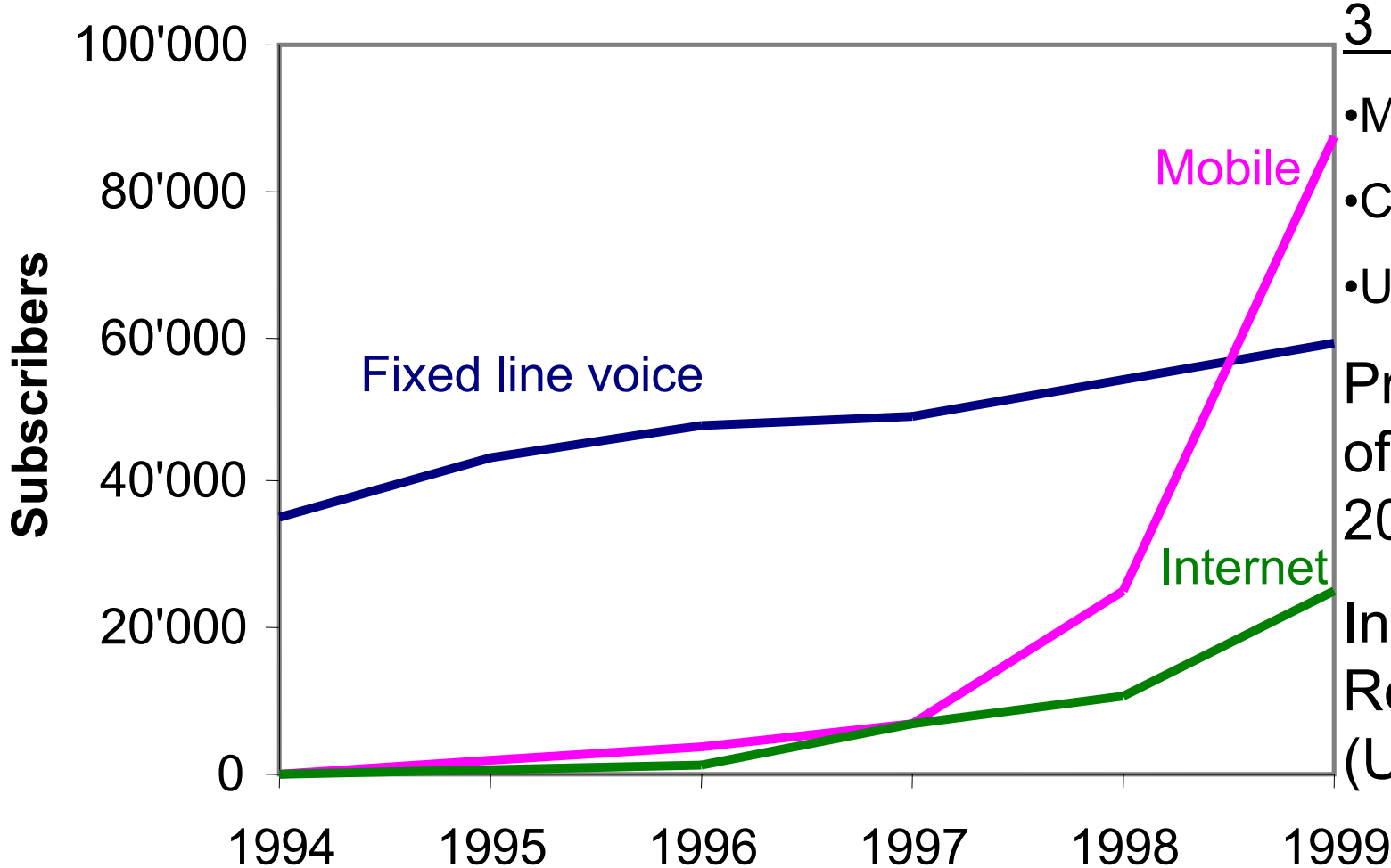
Case Study India: The Mobile Sector

- 34 mobile operators in circles (provinces) and 8 in metros
- More than 3 million subscribers in Dec 2000
  - ⇨ Growth of > 50% a year since March 1997
  - ⇨ Mobile density around 0.3%
- In the circles, mobile network development is patchy
  - ⇨ Mobile operators rely on the incumbent (DoT/DTS) to carry much of their traffic
  - ⇨ …and incumbents launched their own mobile services in Metros & Circles in 2000

Case Study India: Attempt at CPP

- Interconnection - main stumbling block for development of mobile in India
- Only mobile operators pay to interconnect
  - DoT/DTS pays no access charges for F-M calls
  - Mobile operators obliged to use DoT/DTS network, but have only limited access to it (via PoIs)
  - Compromise proposed over WLL access
- TRAI attempted to introduce CPP "revenue-sharing" scheme, but failed. Now trying again
  - Delhi High Court found that TRAI lacked jurisdiction
  - January 2000: TRAI Act amended

Case Study Uganda: Mobile rapidly overtaking fixed



3 operators:

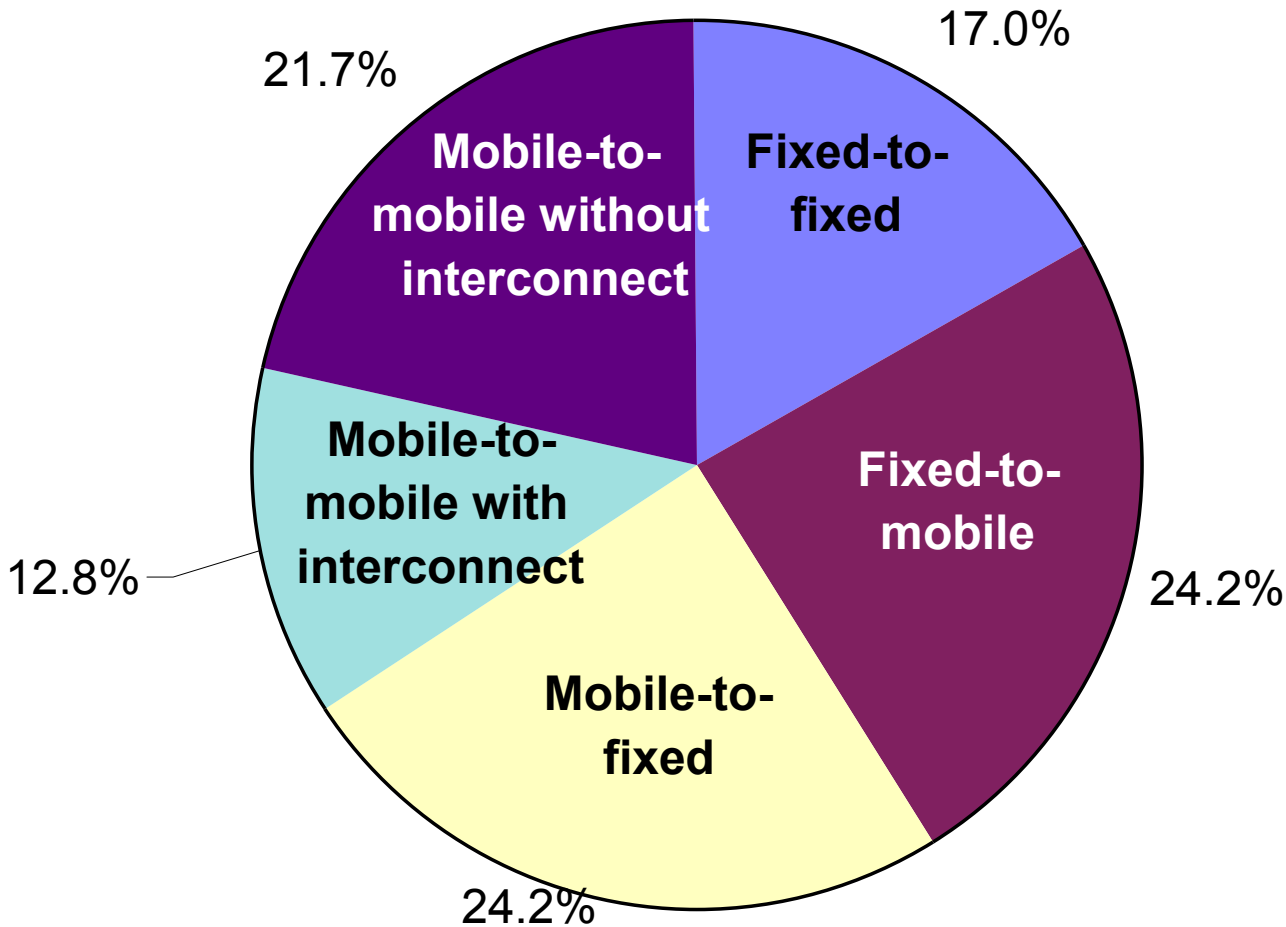
- MTN Uganda
- Celtel
- UPTL

Privatisation of UPTL in 2000

Independent Regulator (UCC)

Source: ITU Internet diffusion case study of Uganda, www.itu.int/ti/casestudies

Uganda: Changing balance of power in calling opportunities, Dec. 1999



Source: ITU Internet diffusion case study of Uganda, www.itu.int/ti/casestudies

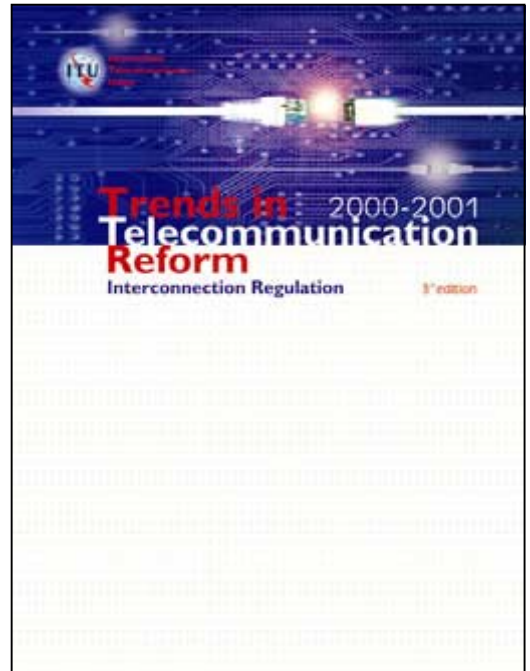
Implications for public policy

- **Operators can always blame high prices on someone else:**
  - Mobile service providers blame other operators for high roaming charges
  - Fixed-line service providers blame mobile operators for high termination charges
- **Regulators are cautious to act:**
  - Mobile service <u>is</u> competitive, isn't it?
  - Don't rock the boat when mobile operators are recycling profits in high prices for 3G spectrum
- **Users are confused:**
  - Telephone prices are falling but not telephone bills
  - To whom do we complain?

For more information ... ITU Website at www.itu.int/interconnect

Case studies

- Finland
- India
- Mexico
- China/HK



Trends in Telecom Reform, 2001 edition: Interconnection