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.
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Calling opportunities worldwide

1993
89.7%
5.0%
0.3%

1998
52.7%
19.9%
19.9%
7.5%

2003
23.4%
26.7%
25.0%
25.0%

Mobile-to-mobile
Mobile-to-fixed
Fixed-to-fixed
Fixed-to-mobile

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

Call Origination
- Orig. Access Switching
- Authentication

Transit service
- Core Network Switching

Call Termination
- Locating the Customer
- Switching
- Term. Access

Source: Adapted from ECTA.
The competitive cascade

- Subscriptions
  - National roaming; Mobile number portability
  - Indirect access
- Retail calls
- Origination
- Termination

Wholesale prices linked to retail tariffs for mobile-originated calls

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
Regulatory environment for Fixed-Mobile Interconnect

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

Mobile termination is out of line with costs (even if costs are overestimated!)

- Higher costs of financing
- Less economy of scale
- Higher cost technology

Ratio of mobile to fixed costs: 6:1 - 9:1

Ratio of mobile to fixed charges: 16:1

Source: Ovum/EU.
Sample prices in RPP environments, in US$ per minute

Source: ITU Regulatory Questionnaire Survey.
Case Study India: The context

- Teledensity 2.2%
- Local market liberalized first
- Mobile Sector opened up in 1994
- The Dept. of Telecoms was both licensor and incumbent operator until late 1999
- Regulator TRAI created in 1995
Case Study India: The Mobile Sector

- 34 mobile operators in circles (provinces) and 8 in metros
- Nearly 2 million subscribers in April 2000
  - Growth of > 50% a year since March 1997
  - 7.25% of total connections (F+M)
- In the circles, mobile network development is patchy
  - Mobile operators rely on the incumbent (DoT/DTS) to carry much of their traffic
  - …and incumbents planned to launch their own mobile services in Metros & Circles in 2000
Case Study India: Attempt at CPP

- Interconnection - main stumbling block for development of mobile
- 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 Pols)
- TRAI attempted to introduce CPP Interconnect or “revenue-sharing” scheme, but failed
  - Delhi High Court found that TRAI lacked jurisdiction
  - January 2000: Authority was disbanded & the TRAI Act amended
Case Study Uganda: Mobile rapidly overtaking fixed

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
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 is 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 to we complain?
Case studies
- Finland
- India
- Mexico
- China/HK