

# Economic Aspects of Net Neutrality

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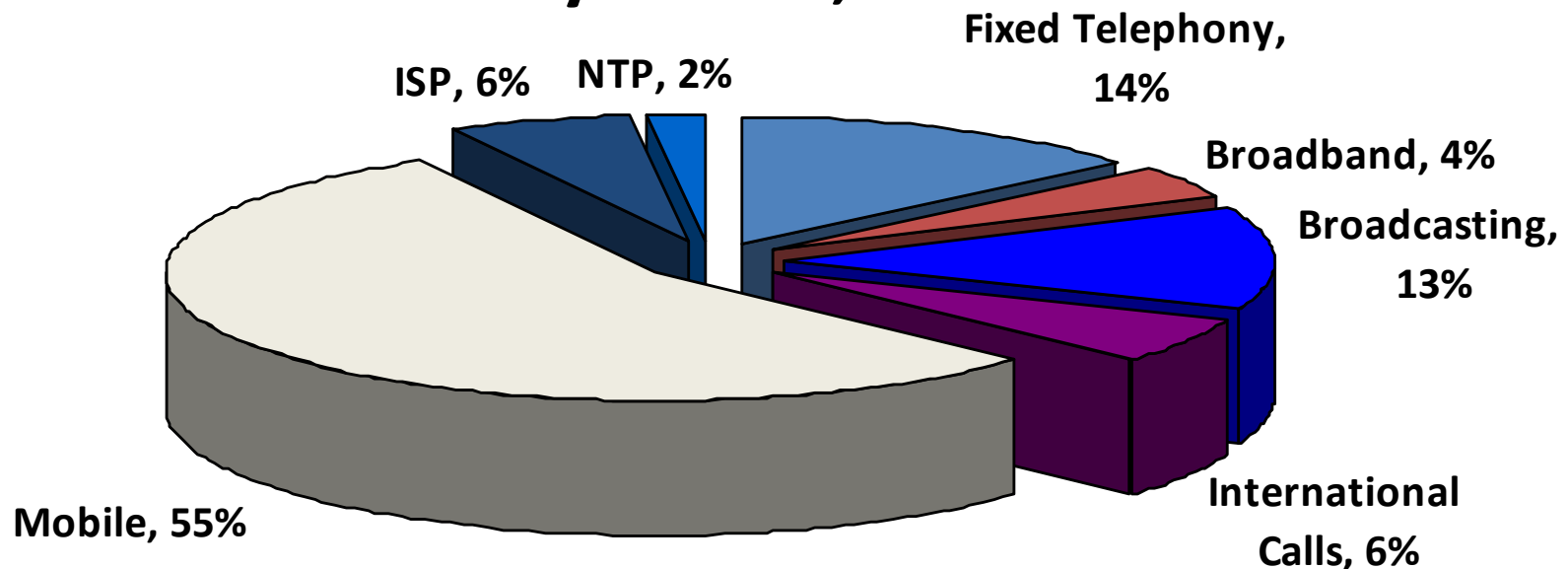


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# Telecoms Market Overview

## Telecommunications Market Revenues By Sector, 2008



# Regulatory Liberalization: Fostering Competition

|  | 1994  | 2000  | 2009   |
|--|---|---|--|
| Mobile services  |  Telephone (Bezeq) |  Telephone<br> Cellcom<br> Partner         |  Telephone<br> Cellcom<br> Partner<br> MIRS  |
| Fixed services<br>(infrastructure,<br>transmission, telephony) |  Bezeq            |  Bezeq  |  Bezeq<br> Bezeq-Int'l<br> HOT (cable)<br> 012 Smile<br> Cellcom<br> Partner<br> Globcall |
| International Long<br>Distance, Internet                       |  Bezeq           |  Bezeq-Int'l<br> Barak<br> 012 Smile |  Bezeq-Int'l<br> Barak (+Netvision)<br> 012 Smile (+Internet Gold)<br> X-fone  |



# The Internet in Israel

- Available since 1994
- Broadband available on ADSL since 2001 and on cable modems since 2004.
- Average download speed: 2.75 Mbps.
- 2 major undersea cables (LEV, Nautilus).
- Mobile broadband gaining in importance.
- Significant local content (sites, applications, etc.)
- Massive E-government initiatives (recent example: tax withholding for businesses can *only* be filed online).
- A flourishing start-up culture (“silicon wadi”) and local development arms of multinational companies.

# ISPs in Israel

- There are traditionally 3 ways to do things:
  - The right way.
  - The wrong way.
  - The Israeli way.
- In a dialup world, there is a flourishing competitive market in internet services (low barrier to entry).
- Broadband introduces a new bottleneck.
- The solution:
  - Just deal with it (USA)
  - Wholesale markets (EU)
  - Separate the product into infrastructure and Internet (Israel)

## ISPs in Israel (2)

- Residential customers purchase “ISP” and “broadband access” separately.
- ISP service requires only a “special license”.
- Connections to both universal broadband providers (Bezeq, HOT) required.
- 4 large ISPs and more than 50 small ones.
- For businesses, the ISP purchases local loop from a wireline operator and provides end-to-end service.

# Regulatory Economics 101

- “That Government is best, which governs least” –Thomas Paine
- Industry regulators exist in industries with continuing, endemic market failure due to natural monopoly (such as telecoms, energy, banking), information asymmetry (finance, insurance), etc.
- In such cases, the regulator strives to mimic the conditions of a (perfectly) competitive market.
- However, in a perfectly competitive market investment cannot be recovered (only marginal cost) – this situation is not necessarily in the public interest.

# Regulatory Economics (continued)

- An example: termination rates.
  - In Europe: Calling Party Pays (CPP): the originating operator pays the terminating operator to deliver the call to the destination.
  - In the USA: Receiving Party Pays: the subscriber receiving the call pays for the delivery.
- Where's the market failure?
- A classic example of differing approaches to regulatory intervention.

# The “Google Paradox”



Source: Yahoo finance



# The “Google Paradox”



Source: Yahoo finance



# The “Google Paradox”

- Google can't reach most customers on the East Coast of the USA without using Verizon's services (91 million customers)
- Verizon is part of a capital-intensive industry (infrastructure) and makes about 2.5% profit on 110 billion dollars in revenues.
- Google, on the other hand, makes **28%(!)** profit on only 25 billion dollars in revenue.
- Is Google getting a “free ride”?



# A working definition

- What is net neutrality?
- For the purposes of discussion, let us assume that net neutrality means that:
  - **Consumers can use whatever applications they want without constraints (port blocking, slowdowns, etc.)**
  - **Content (in the wide sense of the word) providers are not charged “tiering” charges to move their packets.**
  - **All subject to reasonable network management assumptions.**

# Why is net neutrality important? (economically, that is)

- Internet services are **supply based**. You don't know what you need until you have it. ("256 kilobytes of RAM is more than anyone will ever need...")
- Innovation.
- Consumer choice.
- In a small, open economy like Israel – the ability to receive services from web services that do not have local presence.

# Possible downsides to net neutrality

- Possible negative incentive to investment.
- Cross-subsidy: some examples – voice-over-IP on cellular, “naked ADSL”.
- Special market segments: ultra-orthodox, etc.
- Grey areas of network management/ traffic shaping.

# Is regulatory intervention necessary?

- In the absence of competition (monopolistic markets): widely discussed:
  - Carterfone
  - Pulver Order
  - Common Carrier requirements
- But what if the solution is more competition?
- What about industry codes of conduct?
- Is “full disclosure” acceptable?

# Different Approaches: USA vs. EU

- USA approach:
  - It is almost effectively impossible today to provide broadband without a wireline network (witness AOL's demise).
  - Since cable companies are dominant, some historical precedent for taking a “light touch” approach vs. telcos.
  - Universal service is a real problem.
  - Regulatory holiday on NGA networks (FIOS, others).

# Different Approaches: USA vs. EU

- EU approach:
  - “Ladder of investment”
  - Wholesale access to *all* elements required to bypass the local access bottleneck.
  - Lower barriers to entry; more competitors.
  - The EC/BEREC seems to believe this might make net neutrality rules less pressing.

# Future concerns

- It's the video, stupid: IPTV
  - Until today, it's been easy for the regulator: intervention has been in cases where the competitive challenge is clear and the effects on the network minimal (e.g. VOIP)
  - What happens in cases of network overload?
  - Is it reasonable to provide tiered content services?
    - Isn't this already happening today? (mirroring)



# An Aside: Hardware

- Quasi-open platforms (like the iPhone) are a new challenge to the regulator.
- What happens when a hardware vendor has incentives to constrain consumer choice on a platform (for example, because of agreements with operators)?
- Skype on the iPhone – an important test case. (who's in charge – FCC or FTC?)

# Next steps for Israel

- As a wholesale market is built, what safeguards need to be in place?
- Who is protected? Is some content more neutral and some less?
- Can a small, open economy afford to “go it alone”?
- Which network management techniques are acceptable and which aren't?



Thank You

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