

Competition and the U.S. Broadband Market

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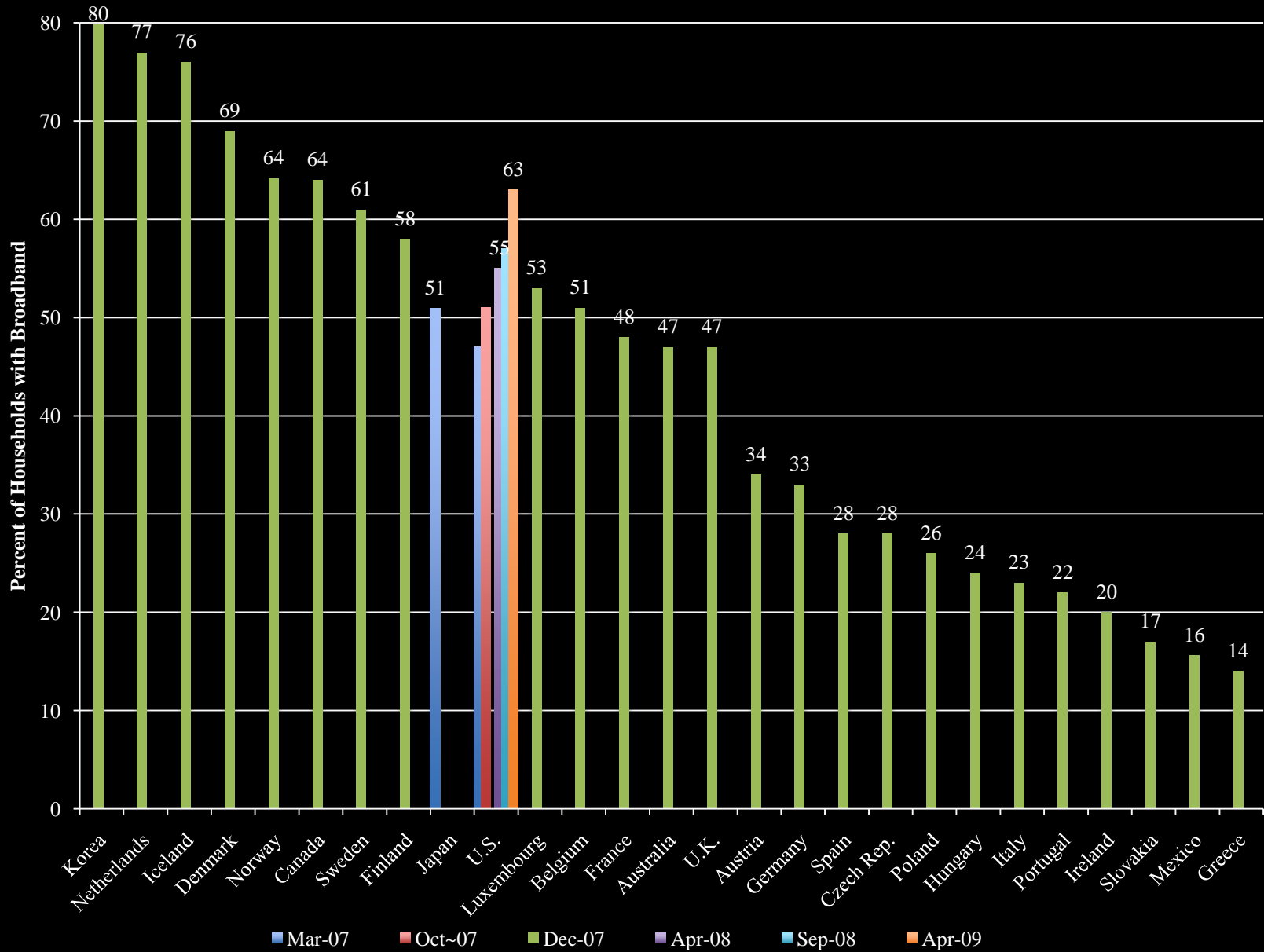
- International comparisons / state of U.S. broadband market.
- Intra- vs Inter-platform competition.
- Policy recommendations.

Wireline Broadband Penetration

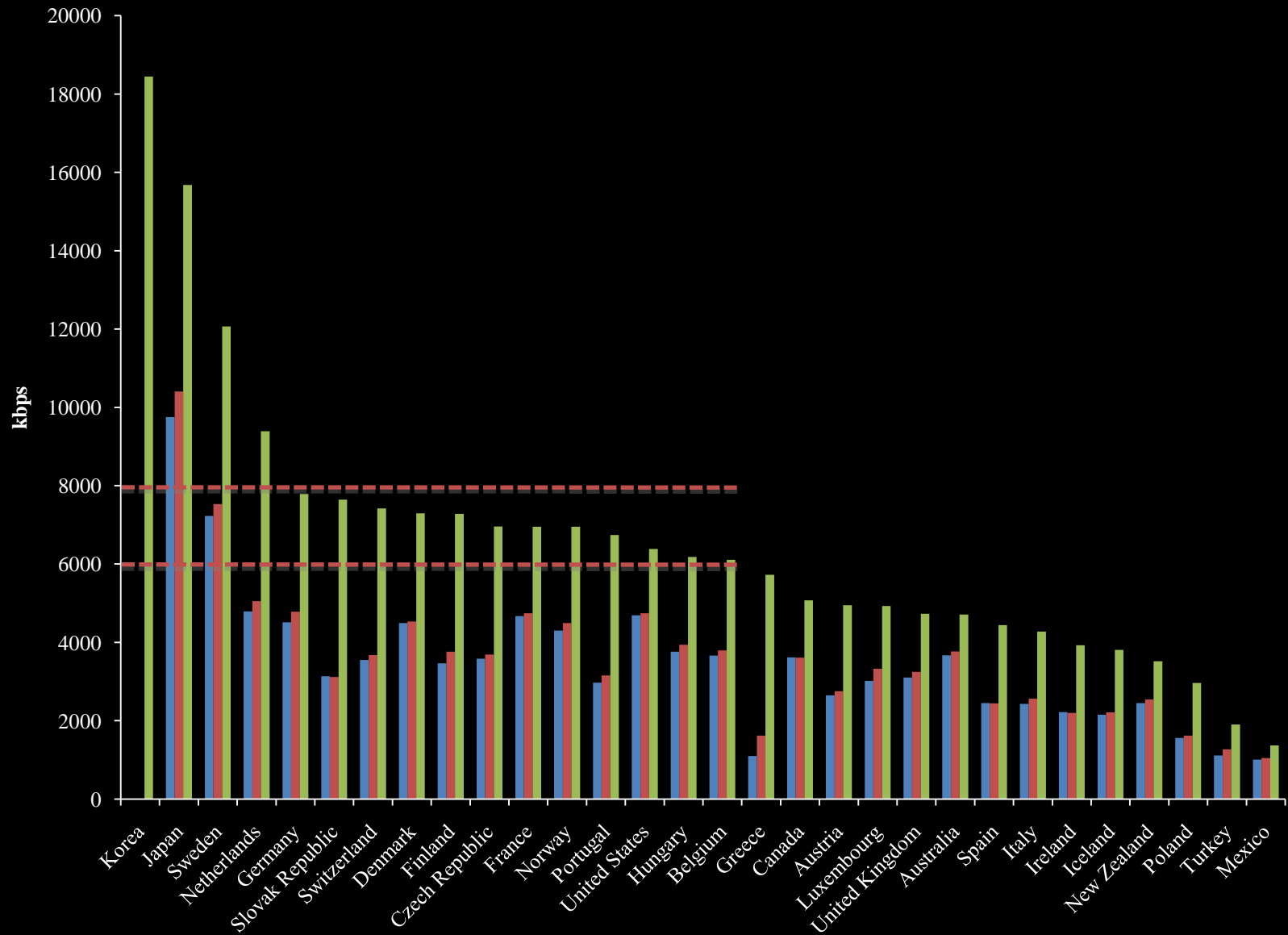
- Number of connections per capita is not meaningful
 - When every household in every OECD country is connected the U.S. will rank 18th in connections per capita.
 - In 2006, U.S. ranked 45th in the world in number of landline telephones per capita.
 - ✓ For wireline connections, use connections per household.

Broadband Penetration is not an Issue

All Wealthy OECD Countries Will Reach Saturation in a Few Years



Download Speeds

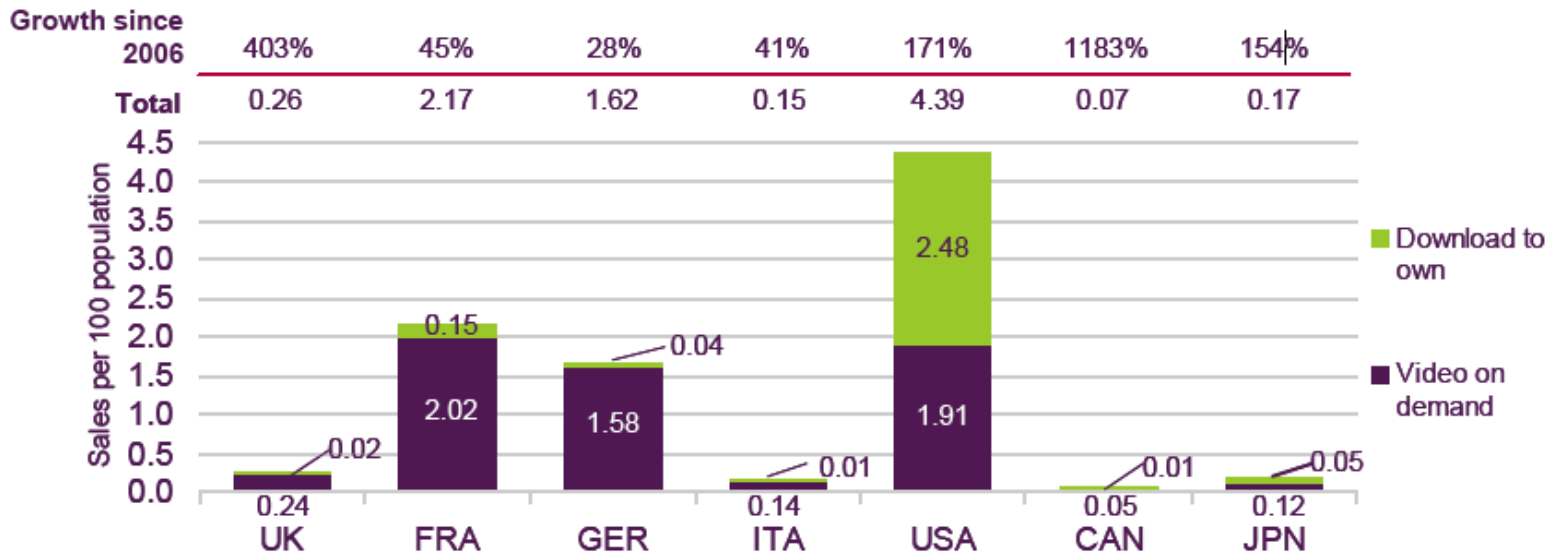


Source: Speedtest.net

■ 2007 ■ 2008 ■ 2009

Americans Buy More Movies Online than Others...

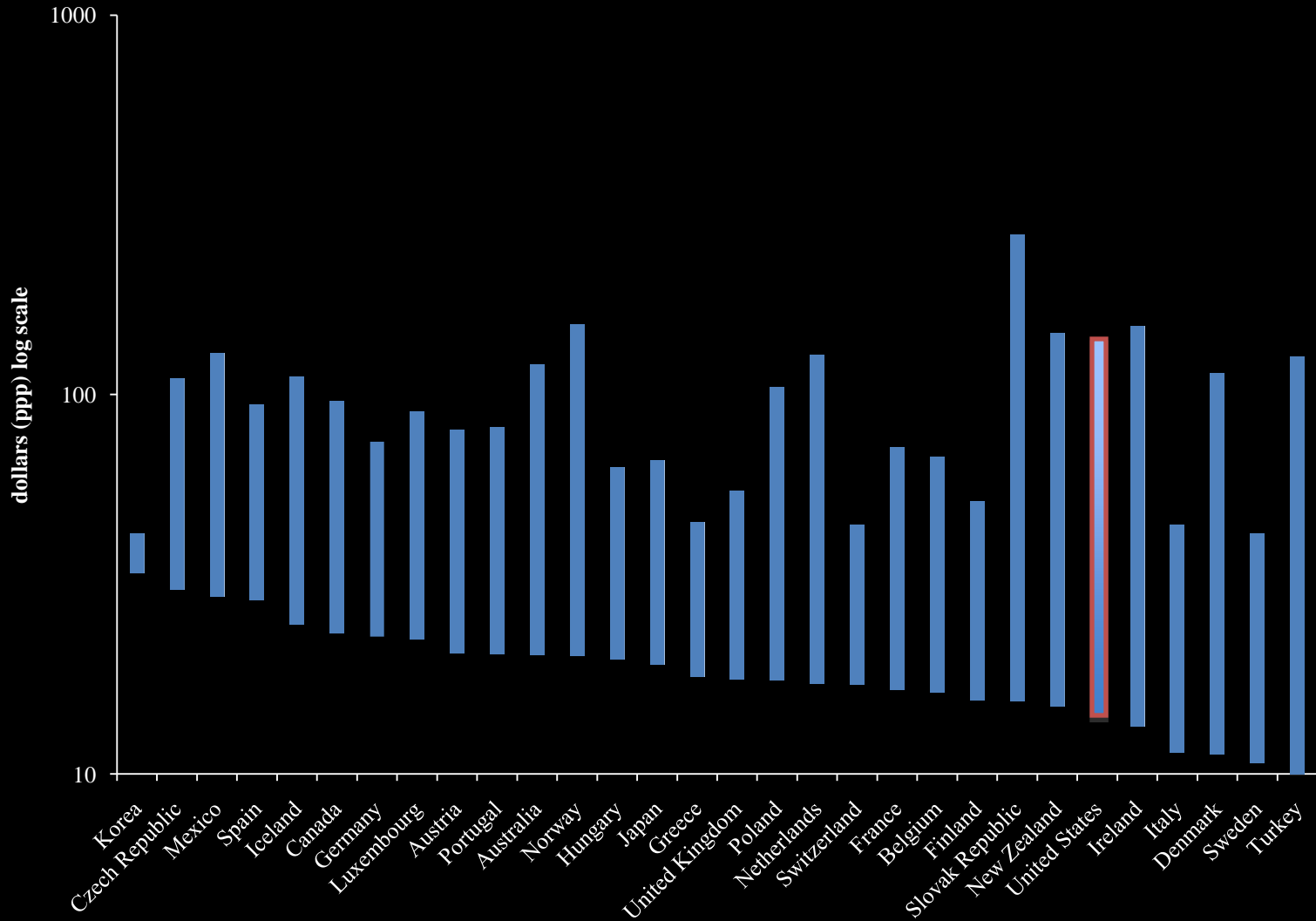
Figure 3.7 Sales of online films per 100 population, 2007 (VoD/DTO)



Source: Ofcom calculations based on Screen Digest data

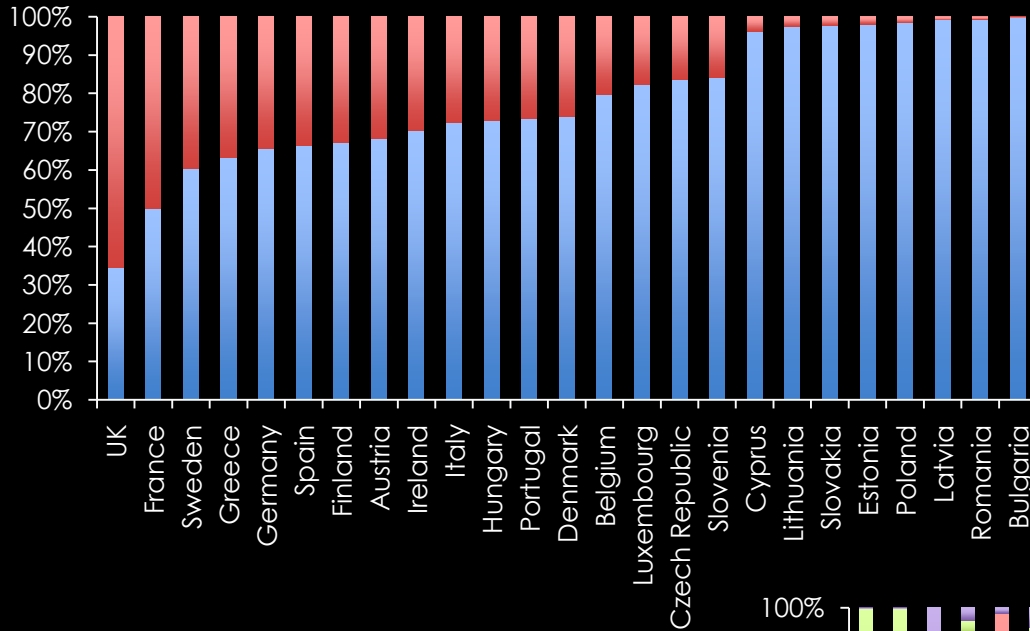
U.S. Has Low Low-End Prices and High High-End Prices

Highest and Lowest Observed Monthly Broadband Prices
OECD Countries, September 2008



Competing Definitions of Competition

Share of DSL Lines Retailed by Incumbents and Others



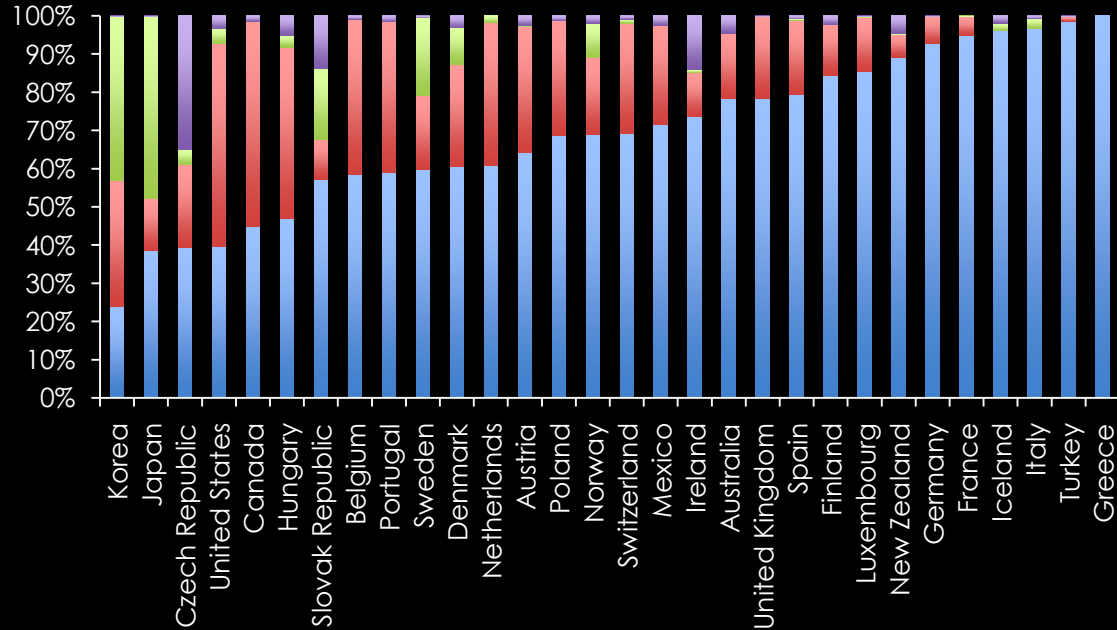
← intra-platform

- Retailed by incumbent
- Retailed by others

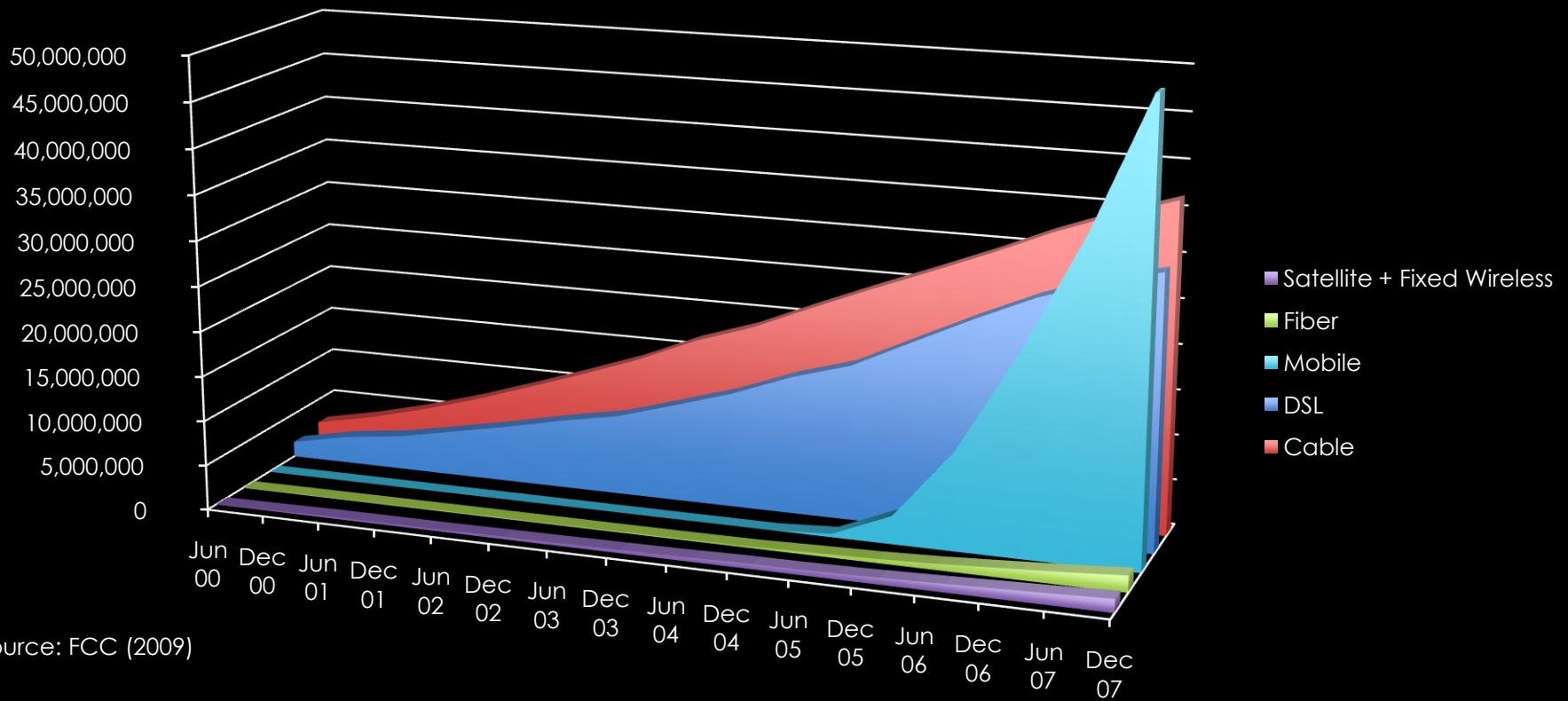
Share of Broadband Connections by Type

inter-platform →

- DSL
- Cable
- Fiber
- Other



Platform Competition in the U.S. Number of Connections by Technology 2000-2007



Source: FCC (2009)

Caveats

- Mobile count overstates prevalence of wireless broadband.
- Elasticity of substitution between wired and wireless not yet measured.

Which type of competition promotes investment?

Scott Wallsten, Stephanie Hausladen. "Net Neutrality, Unbundling, and their Effects on International Investment in Next-Generation Networks."

Review of Network Economics. Vol. 8, Issue 1. 2009

Static vs. dynamic considerations

- Can maximize number of connections by requiring sharing, but
- reduces returns to investment and thus incentives to invest.

Data

Source: European Commission Information Society and Media Directorate Communications Committee Working Document on “Broadband access in the EU: situation at 1 July 2007.”

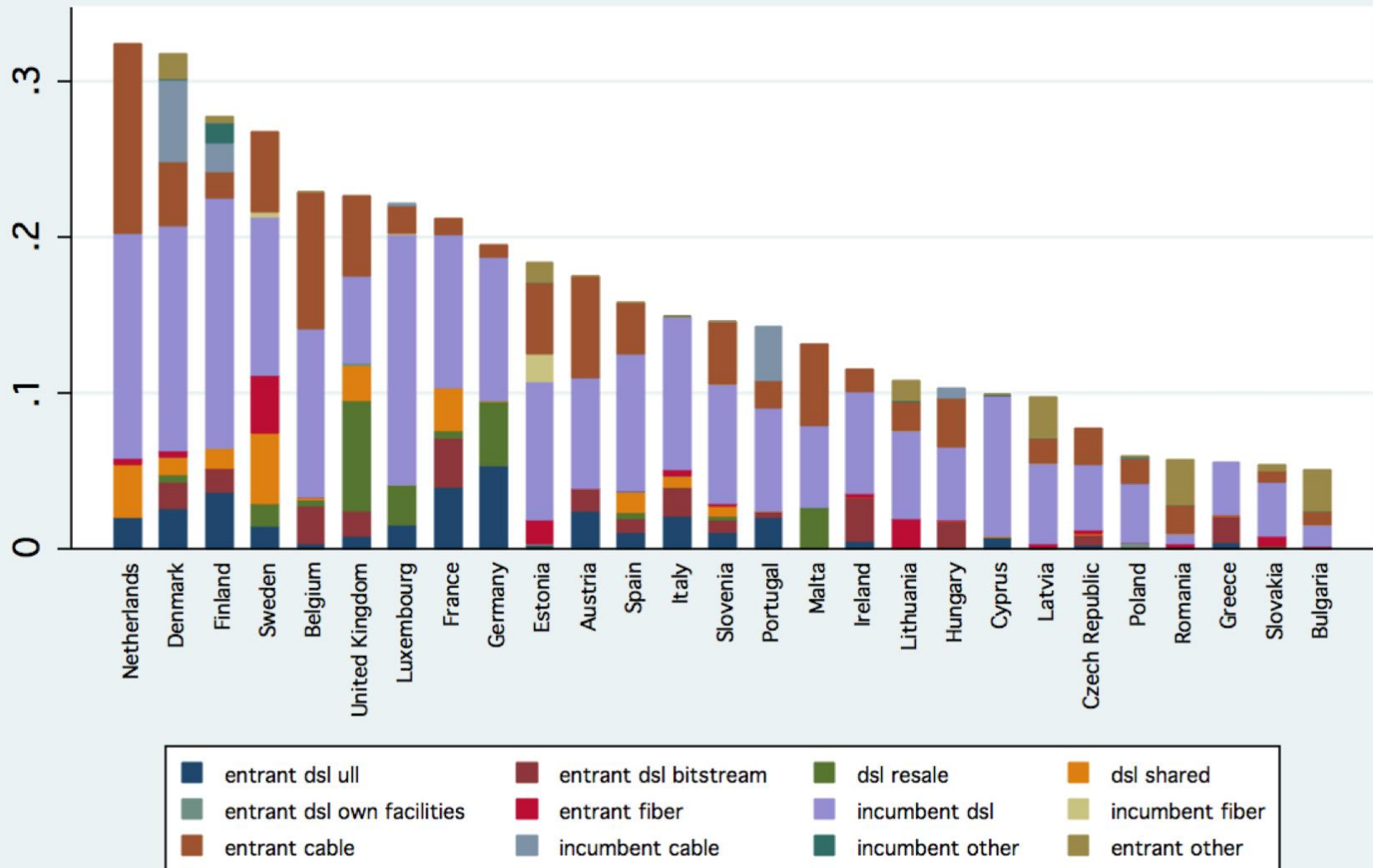
27 European countries, July 2002 – July 2007 (data from January and July in each year)

- Number of broadband connections by incumbents and entrants offering through
 - DSL, cable, fiber, WLL
 - Full unbundling, shared access, bitstream, resale

Incumbent: “the organisations enjoying special and exclusive rights or *de facto* monopoly for provision of voice telephony services before liberalisation, regardless of the role played in the provision of access by means of technologies alternative to the PSTN.”

Entrant: “alternative telecommunications operators, as well as internet service providers (ISPs).”

Broadband Connections per Capita by Type, 2007



Source: European Commission 2007

(lines by competing platforms)

$$ngn_{it} = \beta_0 + \beta_1(\text{unbundled lines per capita}_{it}) + \beta_3(\text{GDP per capita}_{it}) + \alpha_i + \gamma_t + \varepsilon_{it}$$

i = country, t = month.year

ngn = next-generation network (fiber)

unbundled lines = bitstream, llu

competing platforms = cable, DSL over own infrastructure

α = country fixed-effects

γ = date fixed-effects

Intra-Platform Competition (unbundling)

	fiber per capita			
	entrants		incumbents	
unbundled lines per capita	-0.103 (3.06)**		-0.041 (2.26)*	
bitstream lines per capita		-0.219 (4.77)**		-0.064 (2.51)*
GDP per capita	-0.048 (0.35)	-0.100 (0.74)	0.034 (0.46)	0.021 (0.28)
Constant	0.000 (0.05)	0.002 (0.48)	-0.001 (0.42)	-0.000 (0.23)
Observations	244	233	244	233
R-squared	0.84	0.85	0.49	0.49
Absolute value of t statistics in parentheses				
+ significant at 10%; * significant at 5%; ** significant at 1%				

Platform Competition

	fiber per capita			
	entrants		incumbents	
entrant cable connections per capita	0.02 (1.53)		0.054 (2.16)*	
DSL over entrants' own facilities		1.106 (3.87)**		0.352 (0.64)
GDP per capita	0.045 (0.61)	0.061 (0.85)	-0.019 (0.14)	-0.011 (0.08)
Constant	-0.002 (0.94)	-0.002 (0.83)	-0.003 (0.70)	-0.0011 (0.28)
Observations	244	244	244	244
R-squared	0.48	0.51	.84	.83
Absolute value of t statistics in parentheses				
+ significant at 10%; * significant at 5%; ** significant at 1%				

Results

Platform competition associated with more investment in fiber.

Unbundling (intra-platform) competition associated with less fiber.

UK

- Openreach: Negotiating with regulator to allow it to earn “reasonable return” on investments.
- Wants higher “broadband tax” on all lines.
- First fiber-based broadband trial this summer?
- Announced plan to accelerate FTTC investment (in regions served by Virgin Media).
- Virgin Media: already offering 50 Mbps service, expanding rapidly.

France

- No fiber yet
- FT stopped its rollout plan in response to ARCEP rules, which would not let it earn “sufficient” return.

US:

- ATT: 1.3m FTTC subscribers.
- VZ: 2.8m FTTH subscribers.
- Comcast: Docsis 3.0 to 65% of subscribers by year-end 2009.
- Cable: Docsis 3.0 to 100% by 2013.
- Netbooks bundled with 3G subscriptions.

Platform competition requires ability for new platforms to enter!

Spectrum: new, secondary markets.

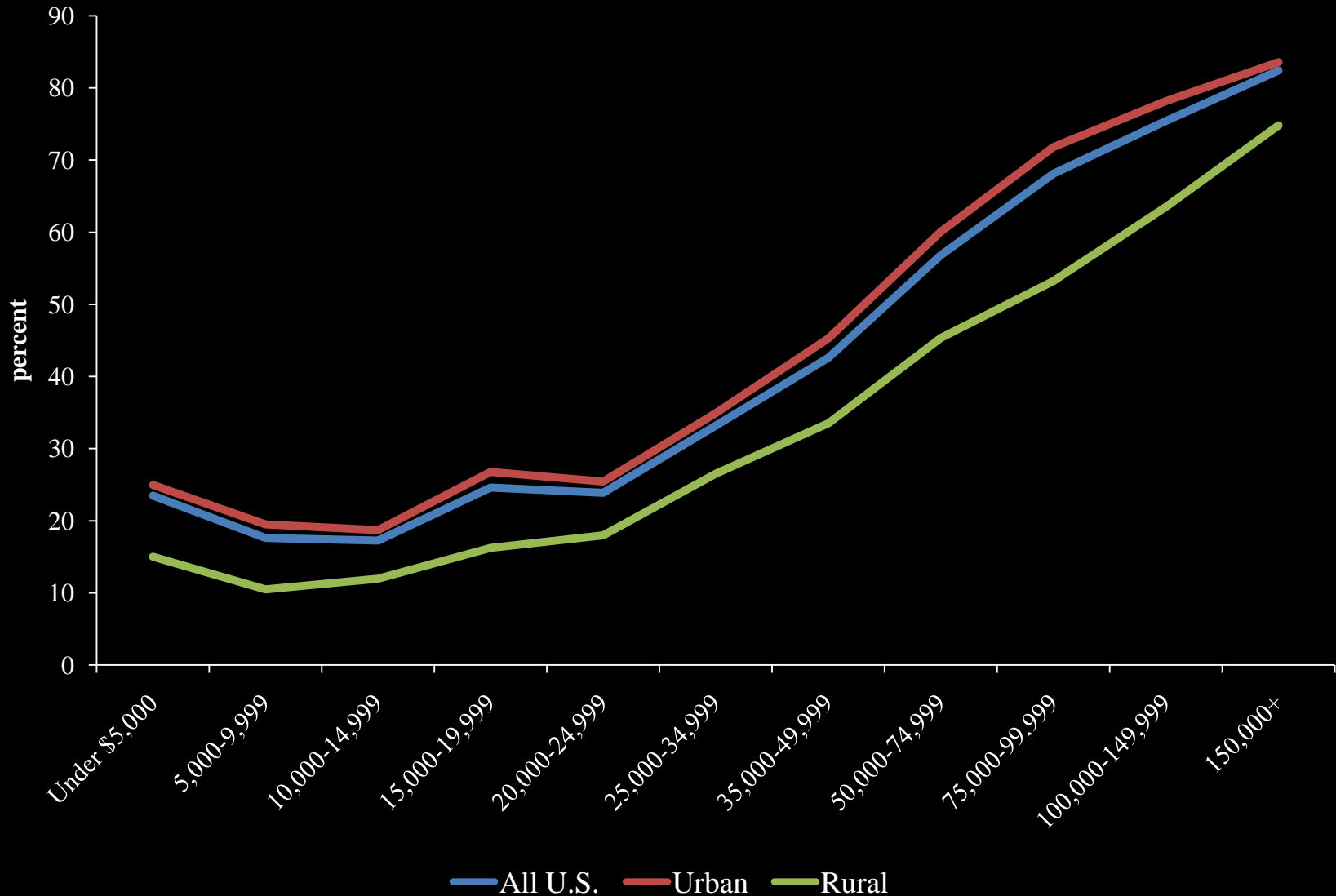
Rights-of-ways.

Role of universal service?

Special access—good data, please.

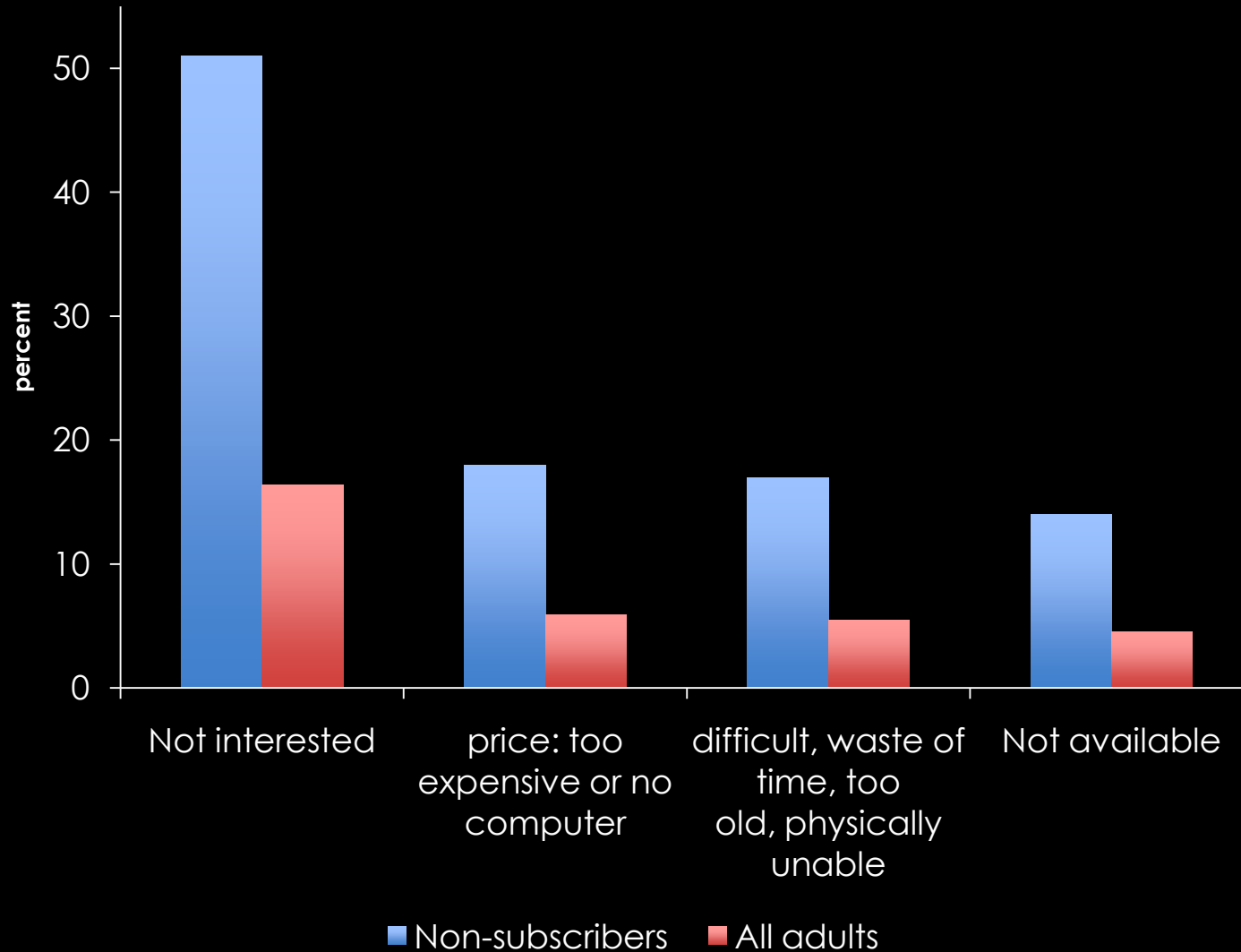
Market Not Working for All People in All Places...

Share of U.S. Households with Broadband by Income
October 2007



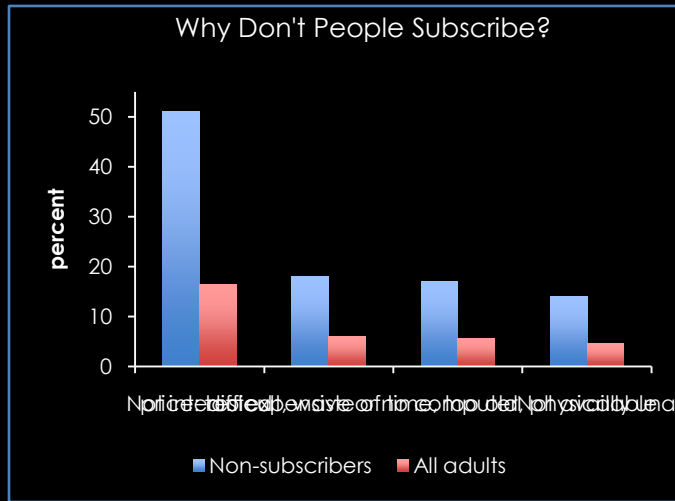
But Market Not Working for All People in All Places...

Why Do Non-Subscribers Not Subscribe?

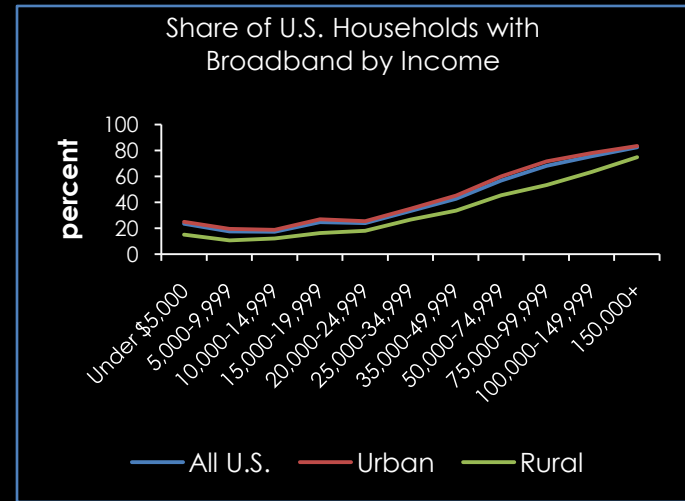


Source: Pew (2009)

Market not working for everyone everywhere....



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Biggest bang for buck in terms of improvements to consumer welfare and broadband penetration:

Helping low-income people connect (eg, One Economy model).

Conclusions

- Market is working well overall.
 - Take care that policies do not reduce investment incentives.
 - Platform competition stimulates investment in NGNs.
 - Make sure that new platform entry is possible.
- Market is not working for everyone, everywhere.
 - Target policies to get the biggest bang for the buck (e.g., low-income consumers).
 - Data, data, data.