

Universal Service for Broadband?

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The Rationale for Universal Service Policy

- Political: Income redistribution to “un-served areas”, particularly (politically over-represented) rural areas
- Economic: Consumption externalities and network effects

Universal Service Policy in Telephony

- A rational economic policy in early period of low penetration by consumption (call) externalities
- But today, virtually every household in advanced economies has traditional fixed-wire telephone service unless it has dropped it in favor of wireless
- Moreover, wireless has achieved universal service without any subsidies in most countries

Universal Service Policy: The Mechanics

- In most advanced economies (except the U.S.) , telephone rates do not vary between urban and rural areas despite differences in cost
- Calling rates have traditionally been set far above marginal cost to cross-subsidize local connections
- In the U.S., explicit “high-cost” subsidies are now provided to rural carriers, totaling more than \$4 billion per year
- In addition, U.S. has low-income subsidies for installation and monthly service fees that add another \$0.9 billion to the cost of universal service

Universal Service Policy: The Results

- Relatively few empirical studies of the effect of rural subsidies on subscriptions or monthly subscription rates
- Most studies find little or no effect of U.S. high-cost subsidies; but there is little interest in such studies.
- Crandall-Waverman (2000) found that the distorted U.S. rate structure devised to promote universal service produced annual welfare losses of \$4 billion to \$7 billion per year
- Low-income subsidies increase U.S. telephone penetration, but at a cost of \$900 per year per additional subscriber (for a \$25/month service).

Are Rural Subsidies Necessary? The Example of Rural High-Cost Subsidies on Telephone Rates in the State of Iowa

Communities	Population Density	Average Telephone Rate (\$/Mo.)	Average Subsidy per Line (\$/Mo.)	Average Telephone Rate Plus Subsidy (\$/Mo.)
Rural With High-Cost Subsidies	50	21.22	19.40	40.62
Rural With Limited High-Cost Subsidies	35	25.91	1.63	27.54
Urban	349	25.10	0.04	25.14

Source: Crandall, RNE, 2009.

Universal Service Policy in Perpetuity

- Despite its well-understood failings, U.S. universal service subsidies for traditional telephony continue to grow
- FCC has been trying to change contribution mechanism (based on long-distance calls) for about decade, but it cannot overcome political resistance from lobbies and large telcos
- High-cost program continues to expand because of political strength of small, rural carriers

Justifications for a New Universal Broadband Policy

- Consumption externalities
- Network effects
- Input to economic growth

But Where Are Broadband's Consumption Externalities?

*Exhibit 3:
Online Activities of
American Adults
(figures as a % of users
in each group)*

	All Internet users	Dial-up users	Broadband users
Buy a product online*	78	56	83
Get local or community news*	75	55	80
Visit local, state or federal government Web site*	75	53	79
Use a social networking site*	52	41	55
Submit a review for a product or service*	52	36	55
Download or stream music*	47	22	52
Upload or share content*	45	26	48
Play games online*	46	38	48
Get international or national news	73	54	77
Bank online	63	43	69
Get information about or apply for a job	57	39	60
Get advice from a government agency about a health or safety issue	50	39	54
Download or stream video	38	18	42
Post to own blog or group blog	23	7	26
Take a class online	22	8	24
Play complicated role-playing games online	14	9	14

Source: Federal Communications Commission survey of 5,005 adult Americans, October-November 2009. Draft final results. For broadband users, n=1,378 for activities marked by * and n=1,278 for other activities. For dial-up user, n=212 for activities marked by * and n=247 for other activities.

Broadband and Economic Growth

- Broadband is largely a mass-market, consumer service which may be complementary with a variety of new or existing services
- Very limited empirical evidence that broadband is an important catalyst for economic growth even though it may deliver substantial consumer value (which is surely conveyed through normal market transactions).
- Even if economic activities in remote, rural areas would benefit from high-speed Internet services, such services are likely available in the center of small towns through conventional services

Network Effects from Universal Broadband?

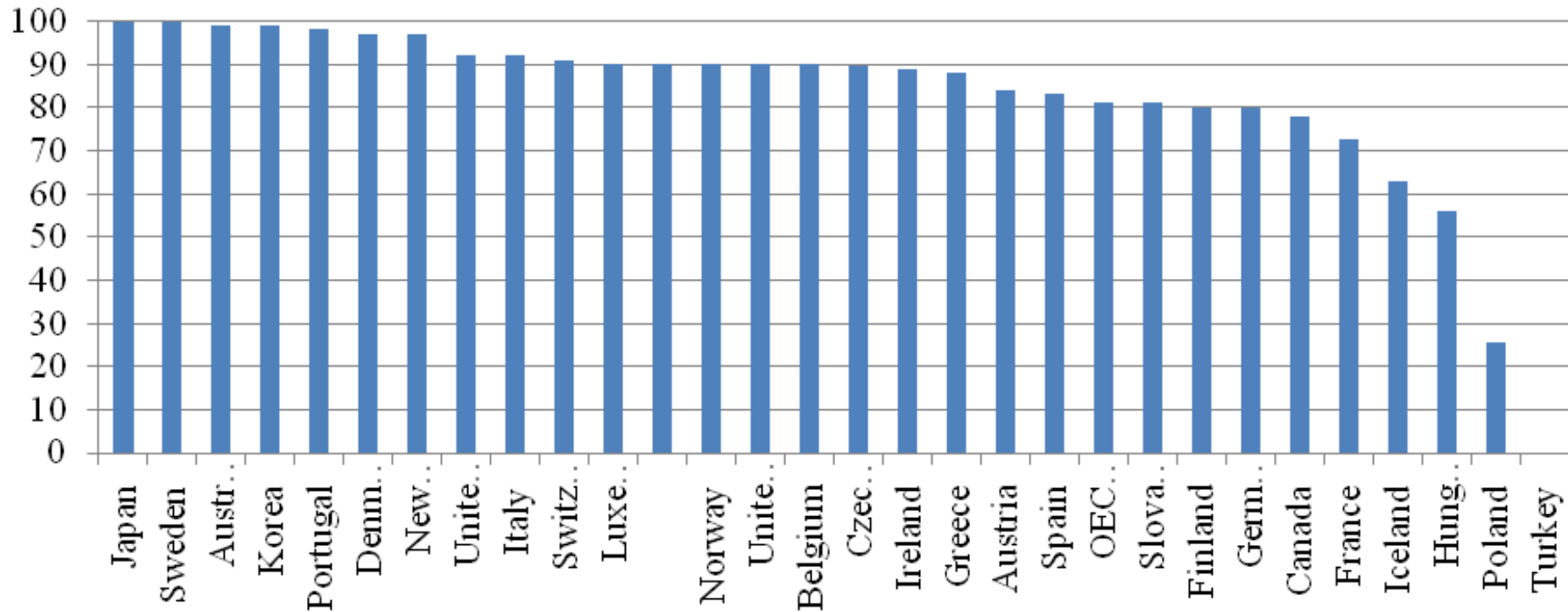
- Classic problem for new high-tech services:
 - Computer Operating System, Media Player, Microsoft Office, IE
 - I-Phone and Applications
- But market participants can internalize these network effects satisfactorily
- Besides, will subsidizing rural broadband through universal service policy really help solve this problem?

Universal Broadband and Advanced Fiber Networks

- Policymakers are frustrated by slow roll-out of fiber to the premises (FTTP).
- But investments in sunk, last-mile fiber are very risky; only Verizon, NTT, and KT are making major investments in FTTP, but they have encountered resistance from the financial markets.
- High-speed wireless looms as major alternative and, therefore, threat to FTTP deployment.

Universal Wireless Broadband Is Already Here

Wireless 3-G Coverage by Country, 2009-10



Government Investment in Fiber Networks?

- Australia and New Zealand are following a similar path: government support of a national fiber network
- New Zealand government wants to build out to 75 percent of country in ten years, thus not achieving “universal service” but :
 - “... making a significant contribution to economic growth;
 - neither discouraging, nor substituting for, private sector investment;
 - avoiding entrenching the position, or ‘lining the pockets’, of existing broadband network providers;
- Sweden is the only other country that has widespread government fiber networks, but its incumbent carrier (Telia-Sonera) has not invested in its own FTTP network

Government Investment in Fiber “Next Generation” Networks Is Risky

- Building a government-subsidized network may lock in the wrong technology
- Government investment surely “discourages” private sector investment
- Once built, the government-funded network is likely to be a powerful lobbyist against government policies – such as spectrum policy – that allow new technologies to be deployed
- Even government-funded fiber NGNs probably cannot achieve universal service quickly because of the cost of deployment in extremely low-density areas

Conclusion

- Universal service policies are yesterday's solution to an economic problem (consumption externalities) that is of relatively minor consequence in broadband services
- Traditional universal service policies have not worked very well, particularly in the U.S.
- Government promotion or subsidization of fixed-line broadband networks is risky because technology is changing so rapidly
- The principal rationale for a universal broadband policy is the promotion of economic growth, but there is very little evidence that more rapid deployment of high-speed fiber networks will accelerate growth.