



The Path to Universal Broadband: Why We Should Grant Low-Income Subsidies, and Use Auctions and Experiments to Determine the Specifics

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Congress and the FCC, through its National Broadband Plan (NBP), are aiming to increase broadband availability and penetration throughout the country. Governments around the world have historically subsidized telecommunications service for equity and efficiency reasons—to ensure a minimum level of service to all citizens and to build network effects. In addition, politicians can use subsidy programs to direct resources to favored constituents.

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However, a recent survey by the Pew Internet and American Life Project shows some public skepticism about universal service. Most people do not think that the government should make affordable broadband a high priority, and “non-internet users are *less likely than* current users to say that the government should place a high priority on the spread of high-speed connections” (Pew survey, p.2). Accordingly, it is important that any future universal service program for broadband be designed in an efficient and politically-palatable manner.

Currently, the government subsidizes universal voice service. The new possibility of converting these subsidies for broadband service creates an opportunity to remake the universal service program.

In particular, as we will explain, the transition to broadband provides opportunities (1) to run experiments to determine which types of programs are likely to yield the biggest bang for the buck; and (2) to use competitive bidding to reduce the cost of providing service in high-cost areas.

THE FACTS REGARDING CURRENT BROADBAND USE

The legacy voice universal service program favors high-cost subsidies at the expense of low-income support, and the current thinking on universal service for broadband seems to be taking the same approach—such as, for example, the recently introduced Boucher-Terry Universal Service Reform Act of 2010. Unfortunately, however, the voice universal service model is not an auspicious foundation for this

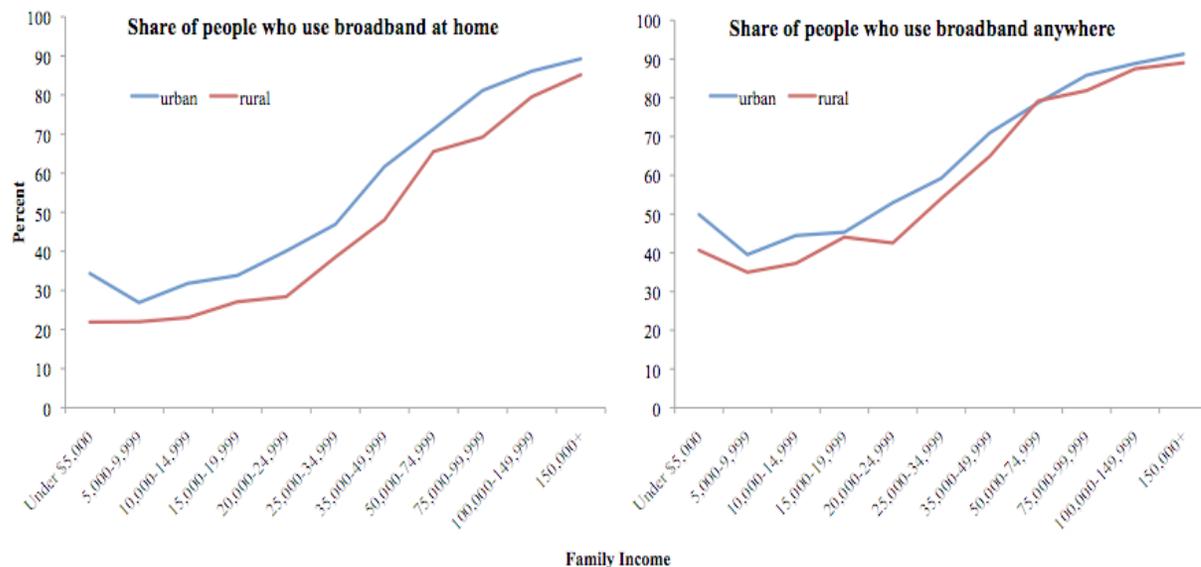
new effort—for the current system is inefficient in both its collection mechanisms and in what it supports.

To see why, consider broadband availability and adoption relative to where non-subscribers live. Figure 1 shows rural and urban broadband use by income—demonstrating that while there is a rural-urban adoption gap, there is a much larger income gap.

For any given income level, home broadband use is five to ten percentage points higher in urban areas than in rural areas. Yet at the same time, in both urban and rural areas, each \$5,000 increase in household income is associated with an increase of about five percentage points in home broadband use. So, for example, about the same percentage of households in rural areas with incomes between \$25,000 and \$30,000 have broadband at home, as do households in urban areas with incomes between \$20,000 and \$25,000. Moreover, the second chart in Figure 1 shows that roughly the same percentages of rural and urban residents, respectively, access the Internet.

The question now is how to determine the appropriate subsidy amount and allocate

Figure 1: Share of People Who Use Broadband, 2009



Source: U.S. Census Current Population Survey

it in ways that will increase household broadband-penetration most efficiently. According to the National Broadband Plan (Federal Communications Commission 2010b, p.20), about five percent of the U.S. population does not have access to a wired broadband network (but most have access to satellite service).

How much would broadband adoption increase if all remaining areas were wired?

If households in those areas were to subscribe to broadband at the same rate as the rest of the U.S.—somewhat less than 70 percent—then wiring the remaining five percent would, at first glance, appear to increase the

U.S. broadband penetration rate by about 3.5 percentage points. That estimate, however, is too high. The people in unwired rural areas who place the highest value upon access to the Internet already subscribe via satellite, meaning that the increase in adoption will be less than that estimate suggests.

In addition, such efforts are unlikely to be cost-effective. The National Broadband Plan (NBP) estimates that wiring the last five percent of housing units would require subsidies of about \$23.5 billion. Connecting all seven million of those homes implies a subsidy of nearly \$3,400 for each home that will have wired broadband newly available. Not all people will subscribe, however. If we assume that those people will subscribe at about the same rate as the rest of the country (say, 70 percent, to be generous), then the per-subscriber subsidy jumps to almost \$4,800. Additionally, if we assume that 80 percent (a low estimate) of the 668,000 (as of June 2009), or about 534,000 residential broadband satellite customers live in rural areas. That brings the cost to about \$5,200 per new subscriber. All of our assumptions are conservative, suggesting that the true number would be higher.

THE WAY FORWARD: EMPHASIZE LOW-INCOME SUBSIDIES, AND EMBRACE EXPERIMENTS AND AUCTIONS

Reforming universal service means accepting that universal service funds are a scarce resource that needs to be allocated as efficiently as possible. The first step in making allocation decisions is to decide the goal of universal service. If the goal is to bring services to the largest number of people, then the current and proposed allocations of resources are inconsistent with that goal.

Current policy proposals heavily emphasize rural build-out and subsidy, at the expense of low-income adoption. Only about 14 percent of subsidy funds go to low-income adoption programs, while more than half go to high-cost support. About 60 percent of the universal service fund goes to rural areas, while only 40 percent goes to urban areas.

As the discussion above demonstrates, expanding wired coverage in rural areas will require large investments, yet it will generate fairly small returns in terms of increased broadband use. Instead, the most effective way to increase broadband adoption is likely to be inducing subscription by low-income

people to whom broadband is available, but who do not currently subscribe.

REFORMING THE DISTRIBUTION OF BROADBAND SUBSIDIES

Currently, it seems that the political will for such a shift in our telecom priorities is unlikely to exist. Yet real reforms are still possible in the context of the current distribution of allocations. In particular, experiments and auctions would go a long way towards increasing the effectiveness of universal service programs, even given the current emphasis on rural subsidies.

The NBP says “[T]he FCC should begin the expansion of Lifeline to broadband by facilitating pilot programs that will experiment with different program design elements” (NBP, section 9.2). Experiments are crucial because we do not know how low-income programs should best be constructed. For example, how large should subsidies be? In principle, the subsidy should equal the cost of providing service, less a family’s willingness to pay. But we do not know what reasonable levels or types of subsidies would be most cost-effective. Should the subsidies be temporary? If so, for how long should they extend? What types of services

should the subsidy cover—only broadband to the home, or mobile services as well? Experiments—including trials for competitive bidding for subsidies in high-cost areas—can help answer these critical questions by testing different subsidy programs over the next two to three years.

If the FCC cannot stop providing subsidies to high-cost areas, it should minimize the cost of such subsidies by providing the money to companies who provide the service for the least cost. The current and proposed systems do not allow firms to compete to provide service at the lowest cost. Congress and the FCC should develop a system that uses competitive bidding to limit the cost of rural broadband support, and to induce efficient provision. The FCC released a draft “Statement of Objectives for the Design and Proof-of-Concept of Market Mechanisms to Implement the Broadband Plan” that includes using procurement auctions for the provision of service to high-cost areas (Federal Communications Commission 2010a) and its Notice of Proposed Rulemaking asks for input on the idea of using such auctions (Federal Communications Commission 2011). Universal service auctions have been

successful in other countries, and they have the promise to help make funding for rural high-cost broadband less inefficient (Wallsten 2009, Milgrom et al 2009).

Reforming universal service is a dauntingly complex, yet important task. Opportunities for real reforms of such politically-sacrosanct programs are few and far between. The current push for reform—which has been created by the impetus to use the universal service program for broadband—presents the chance to radically increase the efficiency of what is, today, a largely wasteful program. It would be a huge mistake if we let this rare opportunity pass us by.

Letters commenting on this piece or others may be submitted at <http://www.bepress.com/cgi/submit.cgi?context=ev>.

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