Closing the Digital Divide with Better Technology Policy

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Technology is powerful. It can transform society in ways that are not always predictable, for better and for worse. The invention of the cotton gin in the late 1700s was a boon to the American economy, but it institutionalized slavery in the Southern states. The development of nuclear technologies in the 1940s tantalized the world with the promise of independence from fossil fuels, but also raised the threat of inconcei tion from nuclear war. Often, political decisions about an e technology profoundly influence how that technology pla role in peoples' lives.

Despite all the talk of "e-revolutions" and "new rules for the global economy," the emergence of the Internet is really no different than the emergence of many other technologies. The telegraph, the automobile, electricity, the telephone, and the airplane all affected society in fundamental and complex ways, with specific effects of those technologies determined by political moves.

So far, the Internet has proven to fuel a long stretch of economic prosperity in the United States. Stock prices hav soared and worker productivity has risen to unpreceder heights. Many business and government leaders are herald possibilities of the digital age.

But hidden in the cracks of the recent American econom where the Internet has failed to boost incomes and spread p called "digital divide"—whether it refers to gender, race, socioeconomic factors, or location—threatens to widen existing economic gaps. The digital divide is particularly acute between rural and urban areas: while cable companies are delivering high-speed broadband access to large cities, that sort of high-speed service is unheard of in many rural areas.

The challenge in delivering high-speed access to all Americans is the so-called "last-mile problem." While two-thirds of small communities in the United States will likely have high-speed Internet access within a couple of years, connecting the remaining third of those communities is enormously expensive.[2] Senator Conrad Burns (R-Mont.), chair of the Senate Communications Subcommittee, often says that since "there's a lot of dirt between light bulbs" in some rural areas, the cost of laying fiber-optic wire or cable to those communities greatly exceeds the revenue that a company could hope to regain from customers in those rural communities.[3] In some cases, the hefty fees charged by the federal government for laying wire across the federal land that surrounds many rural communities increases these costs even further.[2]

For example, in the small eastern Montana town of Jordan—thirty miles from the compound where the separatist Montana Freemen group made their stand against the federal government—extending high-speed Internet to the 397 people who live in the center of town would cost about $38 per person, using phone lines. But the cost of providing comparable service through DSL lines to the 390 people who live on the outskirts of Jordan would cost $32,000 per customer.[2]

That sort of cost underscores how the last-mile problem prevents many rural communities from accessing the Internet. Many rural communities can not even access the Internet at slow, dial-up speeds. In Alaska, for example, most communities with populations under 25 lack a local Internet service provider.[4]

As urban America grows wealthier and more empowered because of the Internet, the staggering lack of access in rural areas is leaving much of the rest of America behind. That growing gap is unfortunate, because better policy could actually use the Internet to narrow the traditional economic divide between urban and rural communities. Traditionally, businesses would locate near big cities so they could access more customers. But since the Internet allows suppliers and customers to do business over large distances, the Internet theoretically could allow businesses to prop up rural economies by locating in rural towns. Some businesses have already relocated to rural areas that are well-served by Internet access, where other costs of business may be lower.[10]

One of the intentions of the 1996 Telecommunications Act was to encourage the deployment of high-speed Internet access to small communities, so that more businesses would be able to set up in isolated, economically depressed areas. Section 706 of that act stipulates that the Federal Communications Commission (FCC) "shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment."[8]

Unfortunately, some lawmakers have complained that the FCC has been less than less than proactive in complying with the intent of Section 706.7 In fact, FCC regulations have actually hindered the deployment of existing Internet technology to rural areas. Accelernet, a Houston-based company, has developed a way to broadcast two-way, high-speed Internet services over wide areas using the signal of low-power television broadcasting facilities.[1] This technology could provide high-speed access to rural communities, sidestepping the traditional problem of extending costly cables to those communities, and broadcasting over the airwaves would work particularly well in isolated mountainous regions.[3] Accelernet has been providing these Internet services over a range extending 50 miles in all directions from their broadcasting facility in Houston.[1] But the FCC will not allow them to set up similar facilities in other regions, because the section of the spectrum they would use has been earmarked only for television.

A bill introduced on April 13, 2000 by Senator Burns and Senator John Breaux (D-La.) aims to remove those regulatory restraints. The bill (S. 2454) would "authorize low-power television stations to provide digital data services to subscribers,"[6] allowing Accelernet and other companies to apply broadcast Internet services to peel back the last-mile problem.

The bill initially encountered some tough opposition. Senator Ted Stevens (R-Alaska) was concerned that allowing low-power television stations to use their signal for such a potentially lucrative service would discourage them from their traditional role of broadcasting community programming.[9] Broadcasting groups claimed that heavy use of a section of the digital spectrum for Internet services would cause interference with the future rollout of digital television, a claim vociferously denied by Dean Mosely, the CEO of Accelernet in testimony before the Senate Commerce Committee.[9] One FCC representative said the bill "could undermine digital transmis-

sion and undermine the spectrum."[5]

In response to this criticism, the bill's supporters have introduced an amended bill that would allow Internet services over the airwaves, but restricted to a few test areas to explore whether the predictions of interference problems would prove valid.[5] Action on this new version of the bill is pending.

This developing struggle over solving the last-mile problem illustrates how political battles with powerful interest groups can influence exactly how technology will transform society. The Internet will certainly change our economy; to some extent, it already has. The question that remains is whether the Internet will strengthen our society by spreading new prosperity for all Americans or weaken our society by exacerbating old divisions. No matter how many dot-coms spring up in Silicon Valley or along Boston's Route 128, the Internet will fall short of its full potential until we bring impoverished rural America into the digital age. The technology to do just that is at our fingertips, but current public policy is lagging behind.

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