

Agricultural Outlook Forum

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BROADBAND USE BY RURAL SMALL BUSINESSES

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There are two popular beliefs pertaining to the deployment and use of broadband services – first, that these services are enormously important to consumers and the overall economy, and second, that rural deployment and use of these services lags urban broadband deployment and use. If both of these beliefs are true, then it follows that the benefits of broadband services are failing to reach many rural consumers. While the topic of a rural digital divide is not new, in December 2005, the Office of Advocacy for the Small Business Administration released a study written by TeleNomic Research that offers some new information about the nature of the rural divide. This research is somewhat unique in that it focuses primarily on rural small businesses' use of broadband services this issue. My comments today will discuss the findings of this research.

The Economy is Inextricably Linked to Broadband and IT Investment

The presence of broadband services works to facilitate the advancement of innovative applications, thereby fulfilling many needs common to peoples' daily lives, including communications, entertainment, games, computing, productivity, security, and information needs. Examples of business applications and services include online training, public safety, support for the disabled, and real time sign language interpreting.

Some broadband-based applications and services appear to have clear benefits for rural communities, compared to urban communities. There are also numerous studies showing that IT investment has had enormous stimulative effects on the productivity and growth in the economy. Consistent with that general conclusion are a handful of studies that have made a direct link between broadband investment and consumer benefits. Therefore, encouraging broadband deployment would accelerate the attainment of these benefits, including benefits to small businesses.

Rural Digital Divide

Compared to urban areas, the general consensus is that rural broadband deployment has been slow, leaving many consumers and small businesses without high-speed access to Internet services. Some government reports have found that “rural areas are currently lagging far behind urban areas in broadband availability.”

While the FCC does not collect information on how many lines are provided to small businesses, it does collect ample data to estimate the disparity of broadband services between urban and rural areas based on population density. The FCC data show that as population density decreases, the availability of broadband services to consumers decreases, albeit modestly.

Using an FCC’s file *Zip Codes by Number of High Speed Service Providers*, covering data for the period December 31, 2003, I was able to match these data to a U.S. Census Bureau zip code file containing estimates of population and square miles. **Figure 4** shows a summary of these results – namely, that market density is strongly linked to the number of broadband providers. As the number of providers operating in a zip code declines as average population density within zip codes falls. Therefore, consumers living in low-density markets have fewer choices among broadband providers. Thus, evidence shows a strong disparity in the number of competitors between urban and rural areas, confirming the existence of a rural digital divide.

Does this disparity exist for rural small businesses? An analysis of the SBAOA survey results shows that there is a statistically significant difference between urban and rural broadband use. According to the survey, rural broadband use was 25% lower than urban broadband use. In addition, this study gives statistically significant evidence that rural small business are less likely to subscribe to Voice-over-Internet Services, apparently as a result of lower broadband use. Therefore, the lack of broadband use in rural communities impedes the ability of some small businesses to use a potentially lower-priced alternative to traditional telephone services.

To summarize, this study does find that rural small businesses do not subscribe to broadband services as frequently as urban small businesses do, and finds the difference in broadband use between rural and urban areas to be statistically significant. Therefore, the benefits of broadband investment and services are not reaching rural areas as timely as in urban areas.

What Causes of the Digital Divide?

For small businesses, what causes the rural digital divide? This study investigates and finds several factors that contribute to the shortfall in rural broadband use by small businesses.

Firm Size. Larger firms are more likely to have Internet access than smaller firms. Unfortunately, small business data for U.S. is not available in the OECD data. The SBAOA survey indicates that rural small businesses have, in fact, fewer employees (on average) than urban small businesses. Specifically, the survey results show that rural small businesses averaged 5.4 employees, while urban businesses averaged 11.3 employees. This may reflect the fact that rural small businesses are serving smaller scale markets. Therefore, urban small businesses, by virtue of the fact that they tend to be larger than rural small businesses, are more likely to have Internet access, subscribe to broadband services, and spend more on broadband services.

Cost and Price. Another factor contributing to the lower broadband use is the high Cost and Price for the service. According to survey data on small businesses, rural small businesses tend pay 10% more for prices for broadband services than urban small businesses do. The reason for the higher cost is likely due to the fact that rural areas are often more costly to serve. It is also worth noting that, if rural markets have fewer competitors, prices may also reflect the lack of competition.

The paper also finds that broadband services are price elastic, meaning that consumers are very sensitive to small changes in price. For example, if rural broadband prices are

10% higher than in urban areas, as the survey estimates, the rural subscription rates are expected to be 15% lower. In other words, higher prices leads to lower demand.

Demographics. This study also offers indirect evidence that demographic factors play a role in broadband use in rural areas. Evidence shows that broadband users tend to be somewhat more educated, affluent, and young, and these characteristics tend to be more prevalent in metropolitan areas. If consumers in metropolitan areas are more apt to subscribe to online services, small businesses will find broadband services to be a more effective means to reach the public, advertise and sell services, provide product information, and communicate with employees. Therefore, based on differences in demographic characteristics, rural small businesses may not demand broadband service to the same extent as urban small businesses do. However, further evidence and work is needed to measure the extent to which this poses a significant factor. Therefore, firm size, cost and price, price elasticity and demographics all appear to explain why broadband demand lags in rural communities.

In summary, there appears to be evidence supporting two commonly held beliefs: first, that broadband services can be beneficial to consumers and the economy; and second, that rural consumers (including small businesses) are not using broadband services to the extent that urban consumers do. Therefore, compared to their urban counterparts, rural small businesses are not seeing the benefits resulting from the investment and use of broadband services.

If public policies are to be considered for the purpose of accelerating the deployment and use of broadband services in rural America, research is needed to explore the cost and benefits of these policies. To the extent that supply-side problems lead to higher broadband service costs and prices, universal service policies, grants and subsidies can encourage investment and consumption. However, if rural small businesses are not demanding broadband services to the extent as urban small businesses do, either because rural small businesses have (on average) fewer employees or because of the demographic

characteristics of the markets they serve, it is not clear what role, if any, public policies should have in encouraging the consumption of broadband services.

More research is needed to measure the importance that supply and demand-side factors play in causing the rural digital divide.

About the Author

For over twenty-five years, Mr. Pociask has worked in and consulted for telecommunications and high-tech industries. As president of TeleNomic Research, a consulting firm specializing in public policy analysis for information technology industries, he is responsible for a wide variety of applied economic studies. A number of his studies are filed at both federal and state regulatory commissions, and recently have included topics such as rate reform, universal service, deregulation and productivity incentive plans. Mr. Pociask has appeared before the FCC in its open forums and at its staff meetings. He has spoken to numerous state and local legislators on broadband issues, and testified before the Congressional Subcommittee for Telecommunications, Trade and Consumer Protection on Internet and broadband legislation. He has written about deregulation, long-distance industry cost structure, local exchange competition, high-speed Internet deployment, the economics of multimedia data networking and cable competition.

He recently completed the study "A Survey of Small Businesses' Telecommunications Use and Survey of Small Businesses' Telecommunications Use and Spending, sponsored by Small Business Administration's Office of Advocacy. That first of a kind study provided valuable insight into telecommunications and broadband purchases, as well as perceptions, of small businesses. He has appeared numerous times in the media, including Bloomberg News, CNBC, Telecommunications Reports, Telephony, Congressional Quarterly, America's Network and CNET Radio.

Mr. Pociask previously served as chief economist and executive vice president for Joel Popkin and Co., an economic consulting firm in Washington, DC. Before this assignment, he spent eighteen years working in the telecommunications industry. He has completed his Ph.D. coursework in economics and has an M.A. in economics from George Mason University.

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Figure 1

Benefits for Rural Communities

- Distance Learning
- Telemedicine
- Economic Development
- Productivity
- E-commerce

Figure 2

The IT Economy Linked To Economic Growth and Prosperity

- Output
- Productivity
- Multiplier Effects
- Inflation
- Wages

Figure 3

Broadband's Direct Economic Benefits

- Economic Output
- Jobs
- Multiplier Effects
- Consumer Benefits

Figure 4

Population Density

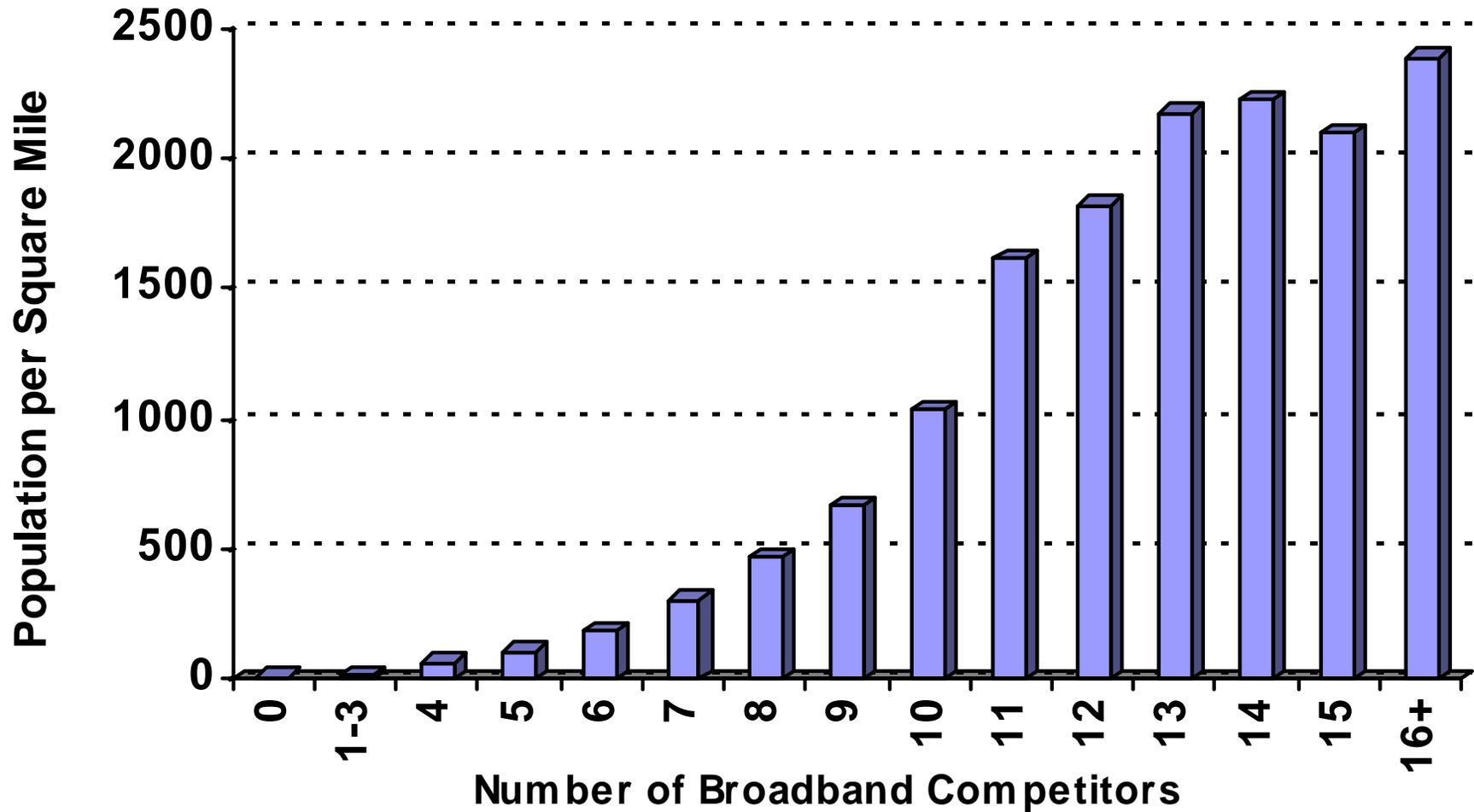
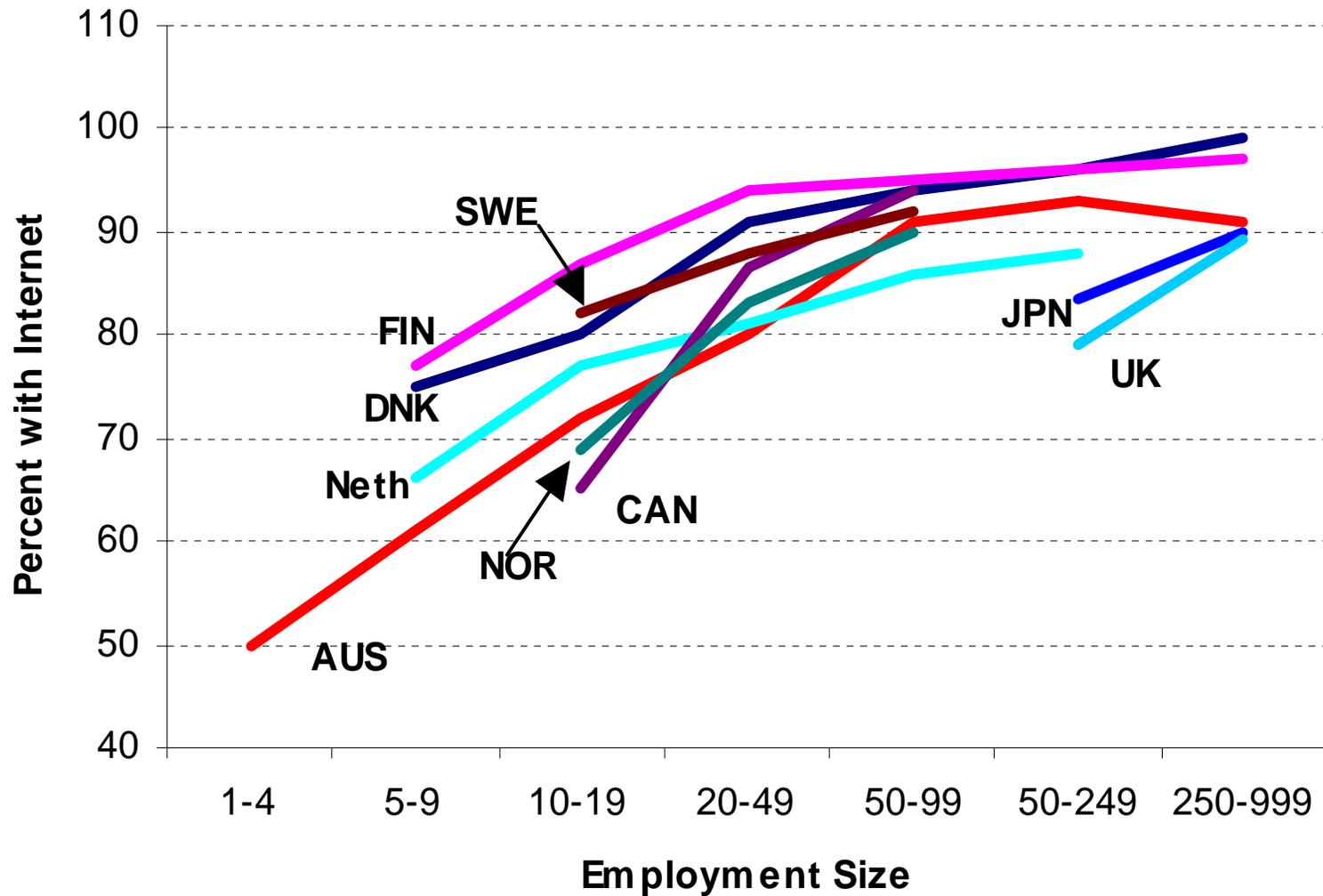


Figure 5

Business Internet Access



Source: OECD, 2001.

Figure 6

Supply and Demand Factors

- Firm Size
- Cost and Price
- Elasticity
- Demographics