



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Telecommunications Technologies in Rural Communities

Telecommunications technologies may promote rural economic development. Some believe that modern telecommunications will substantially reduce costs associated with isolation from urban centers and markets—costs such as those for transportation and communication. Others have documented successful telecommunications-linked firms in rural locations, and still others believe advanced telecommunications technologies can increase the quality of medical care, education, and other services in rural communities. On the other hand, advances in telecommunications also create the potential for increased centralization of certain service activities, such as banking, which could siphon jobs away from rural communities.

Here we report on current levels of use of telecommunications technologies by rural residents and businesses in twenty rural communities in six midwestern states (see box and figure 1). We asked residents and businesses in these communities for their opin-



Figure 1. Location of study communities

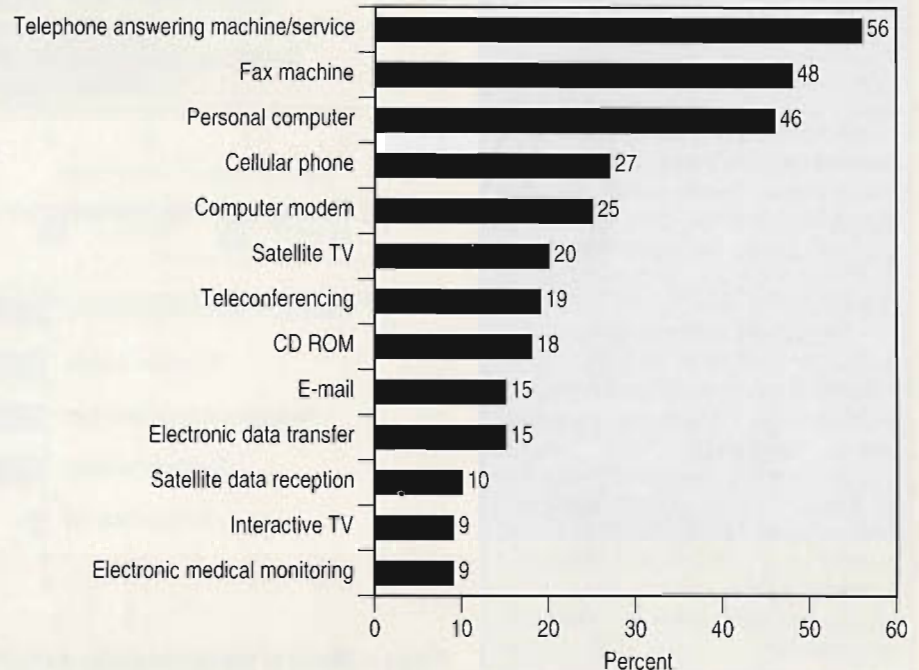


Figure 2. Residents' use of telecommunication technologies, 1994

ions about the role of telecommunications in economic and community development, and their views on policy options for making advanced telecommunications capabilities more available in rural areas.

Use of telecommunications

Some 56 percent of the rural resident respondents use telephone answering machines (42 percent regularly and 14 percent occasionally; see figure 2). About 48 percent use fax machines, 46 percent use personal computers, 27 percent use cellular phones, and 25 percent use computer modems. Among the other telecommunications technologies/capabilities, the use rates were lower, but about one respondent in six reported using e-mail and electronic data transfer while one in ten reported sat-

ellite data reception.

Business owners and managers who responded to the survey frequently use today's telecommunications technologies. More than 60 percent of these firms use fax machines, VCR training tapes, and telephone answering machines/services (figure 3). About half use computerized accounting/billing services. Between one-third and one-half of the firms use cellular phones, computer modems, computerized inventory systems, and "800" numbers for customers. Use of the other telecommunications capabilities was reported less frequently.

We also used statistical techniques to gauge what factors increased the use of telecommunications capabilities overall. For residents, we found that longer distances to the nearest metropolitan

Gathering Information from Rural Communities

Information was gathered through surveys of residents and business owners/managers in twenty rural communities scattered across six midwestern states (figure 1). These towns ranged in population from about 600 to 6,900. Seven were located within 100 miles of an MSA, including one that was actually located in a metropolitan county, while two were more than 200 miles from a metropolitan area. The communities differed somewhat with respect to their economic base and recent population trends; they appear to be generally representative of nonmetropolitan communities in the Midwest region.

Two independent mail surveys were conducted in 1994 to obtain information from households and businesses. Random samples were drawn from each community's telephone directory. In total, nearly 2,000 resident households and almost 1,000 businesses returned completed questionnaires, for response rates of 36 percent and 30 percent, respectively.

statistical area (MSA) increased residents' use of telecommunications and higher-quality local adult education and training programs (as evaluated by the respondents) increased the level of use of telecommunications.

These findings indicate that rural community residents are using telecommunications capabilities to overcome distance barriers. Also, the strong positive association between use level and respondent's rating of local adult education and training programs supports the idea that rural communities will benefit from these programs.

Among the business respondents, about 61 percent believe telecommunications increase business productivity (figure 4), and 46 percent believe it helps expand their market. About 33 percent indicate telecommunications

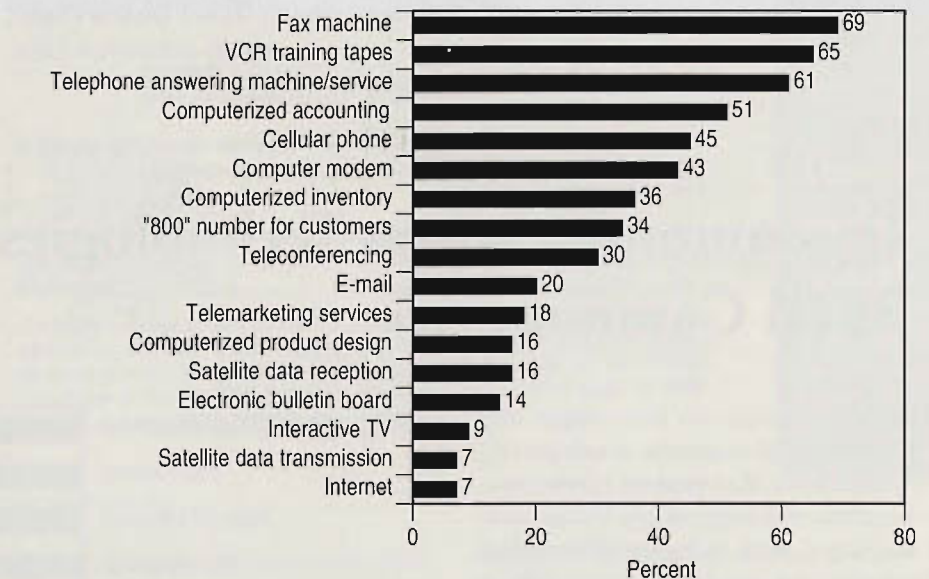


Figure 3. Business use of telecommunication technologies, 1994

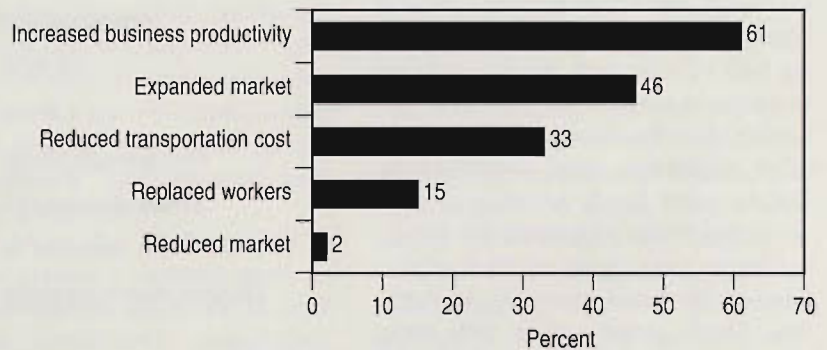


Figure 4. Effects of telecommunications capabilities to overcome distance barriers

use reduces their transportation costs, but only 15 percent indicate workers have been replaced as a result of telecommunications advances. Only 2 percent feel that their market has been reduced because of telecommunications advances.

Improving rural telecommunications infrastructure

The respondents also rated several possible government telecommunications initiatives. Both residents and business respondents gave education and training programs in telecommunication their highest rating (figure 5). Both groups gave incentive programs for linking local users a moderate rating, closely followed by incentive programs for multicommunity linkage. Finally, both

groups gave rather low ratings for low-interest federal loans to telephone companies and state deregulation of telephone companies. ■

■ For more information

Johnson, B.B., J.C. Allen, D.A. Olsen, and F.L. Leistritz. *Telecommunications in Rural Communities: Patterns and Perceptions*. RB 323, Institute for Agriculture and Natural Resources, University of Nebraska, 1996.

Leistritz, F.L. "Telecommunications Spur North Dakota's Rural Economy." *Rural Develop. Perspect.* 8(1993):7-11.

Parker, E., H.E. Hudson, D.A. Dillman, and A.D. Roscoe. *Rural America in the Information Age: Tele-*

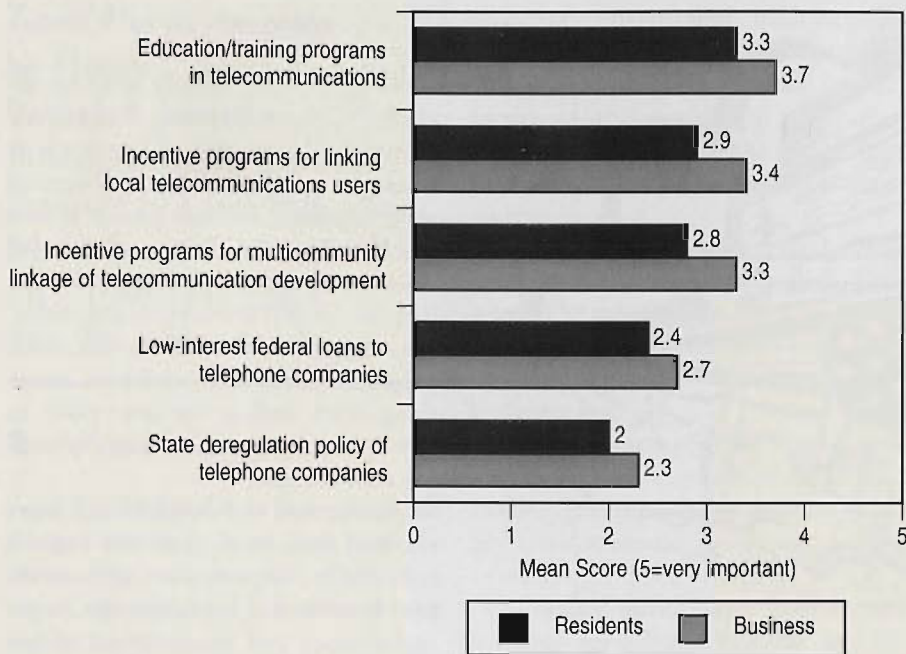


Figure 5. Rural residents' and business owner/operators' opinions of public policy alternatives for rural telecommunications

communications Policy for Rural Development. Landham MD: University Press of America, 1992.

Rowley, T.D., and S.L. Porterfield. "Can Telecommunications Help Rural Areas Overcome Obstacles to Development?" *Rural Develop. Perspect.* 8(1993):2-6.

F. Larry Leistritz, and Randall S. Sell are professor and research associate, respectively, in the Department of Agricultural Economics at North Dakota State University. Bruce B. Johnson and Duane Olsen are professors and John C. Allen is associate professor, all in the Department of Agricultural Economics at the University of Nebraska. Partial financial support for this research was provided by the Rural Policy Research Institute (RUPRI).

Findings Citations

Devadoss, S., and J. Foltz, "Evaluation of Factors Influencing Student Class Attendance and Performance," *AJAE*, August 1996. Perry, G., "Exploring the Role of Mentoring in Agricultural Economics Ph.D. Training," *JARE*, July 1996. Variyam, J., J. Blaylock, and D. Smallwood, "A Probit Latent Variable Model of Nutrition Information and Dietary Fiber Intake," *AJAE*, August 1996. Park, T., and L. Lohr, "Supply and Demand Factors for Organic Produce," *AJAE*, August 1996. Richards, T., A. Kagan, P. Mischen, and R. Adu-Asamoah, "Marketing Order Suspensions and Fresh Lemon Retail-FOB Margins," *JAAE*, December 1996. Buzby, J., R. Ready, and J. Skees, "Contingent Valuation in Food Policy Analysis: A Case Study of a Pesticide-Residue Risk Reduction," *JAAE*, December 1995. Rollins, K. and H. Briggs III, "Moral Hazard, Externalities, and Compensation for Crop Damages from Wildlife," *JEEM*, November 1996. Lence, S., "Relaxing the Assumptions of Minimum-Variance Hedging," *JARE*, July 1996.

Note: *AJAE* is the *American Journal of Agricultural Economics*, *JAAE* is the *Journal of Agricultural and Applied Economics*, *JARE* is the *Journal of Agricultural and Resource Economics*, and *JEEM* is the *Journal of Environmental Economics and Management*.

Third Quarter CORRECTION

A mistake was made in the third quarter Graphically Speaking, "Growth of Consumer-Oriented Trade: Implications for the U.S. Agricultural Market Share," on pages 22-23. In figure 4, the red line should be labeled "consumer-oriented products," while the purple line should indicate "semi-processed intermediates." *CHOICES* regrets the error.