

## Rural America in the Digital Age

Full Study By

**Jorge Reina Schement**

**Marsha Ann Tate**

*Institute for Information Policy*

*College of Communications*

*School of Information Sciences and Technologies*

*The Pennsylvania State University*

Policy Brief By

**Dorie Pickle**

**Sharon Strover**

*Telecommunications and*

*Information Policy Institute*

*College of Communications*

*University of Texas*

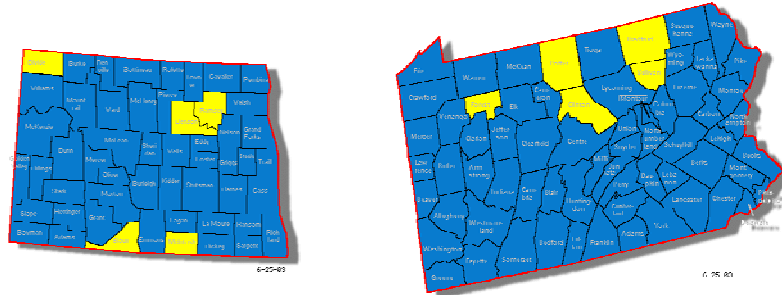
### Introduction

The Telecommunications Act of 1996 section 254 expresses a strong position taken by Congress to provide equal access to the nation's telecommunications and information infrastructure. Specifically, "access in rural and high cost areas" is one of the guiding principles underlying "... the preservation and advancement of universal service." The intent of this *Brief* is to inform policy regarding the conditions under which a range of rural locations experience the information age. The findings from the study "Rural America in the Digital Age" conducted by the Institute for Information Policy at The Pennsylvania State University are useful in understanding a broad range of rural conditions and can be applied in determining telecommunications policy in rural America. The full paper on which this Brief is based is available at [www.utexas.edu/research/tipi](http://www.utexas.edu/research/tipi) and at <http://www.rupri.org/telecomm/>.

The findings in this *Brief* are based on research from 10 different counties in 2 states:

**North Dakota:** Benson, Divide, McIntosh, Ramsey, Sioux (see map left)

**Pennsylvania:** Bradford, Clinton, Forest, Potter, Sullivan (see map right)



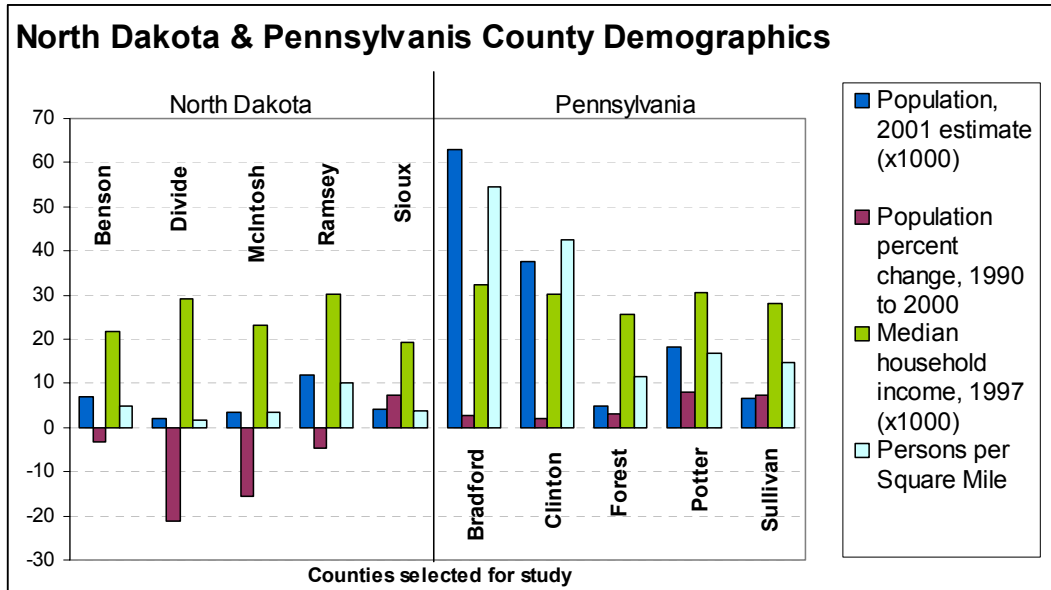
The study examined the range of the following information assets available to residents of these counties: **Newspapers, Public Libraries, Telephone, TV and Radio Broadcasting, Cable/Broadband, Internet.**

Despite the obvious similarities that would exist among any rural areas in America, several variables differentiate the rural experience in North Dakota from that of Pennsylvania:

- The counties of North Dakota represent some of the least densely populated counties in the United States (at 9.3 persons per square mile), with the exception of Alaska, while the Pennsylvania counties represent some of the most densely populated rural counties in the country (at 274 persons per square mile).
- Rural North Dakota has experienced a constant level of population decline since the 1980's. On the other hand, rural Pennsylvania has experienced a slight increase which can be attributed to the emergence of a "commuter society" wherein individuals and families who formerly resided in New York City or Philadelphia, for

example, relocate their residences to rural areas while keeping their jobs in the city. Because population growth or decline in rural America is an important factor in the development of information infrastructure, this difference may have significant policy implications.

- North Dakota is a more ethnically diverse sample than Pennsylvania, in some cases with up to 48% Native American.
- The North Dakota samples have a higher percentage of families living in poverty than Pennsylvania in most cases.



### Newspapers

As small newspapers lose out to big papers, and as conglomerates shut down the small town press around most of the US, North Dakota and Pennsylvania remain the exceptions. North Dakota has 10 total daily newspapers, while Pennsylvania has 84.<sup>i</sup> The relatively high incidence of newspaper readership correlates with the older average age of North Dakotans and Pennsylvanians, since older individuals are more likely to read newspapers.

Larger counties are served by one or more daily newspapers while smaller counties are served solely by weeklies. The larger counties also tend to have newspapers in adjacent counties that partially/fully cover their areas. The subscription rates vary from as few as 1,450 paid weekly subscriptions in McIntosh County, ND to as large as 11,200 paid daily subscriptions in Clinton County, PA.

### Public Libraries

While Pennsylvania is home to 457 public libraries compared to North Dakota's 81 libraries, North Dakota boasts 3.76 volumes per capita of the served population while Pennsylvania offers only 2.47 volumes. In addition, operating expenditures that each library spends per capita. In North Dakota, the expenditure per capita served is \$12.05, while in Pennsylvania \$19.91 is spent per capita.

Another notable difference is the availability of public libraries to residents of these 10 rural counties. In North Dakota 9.97% of the population in 2000 was unserved by public libraries. By contract, Pennsylvania served almost 98% of their population, with only 2.4% of the population left unserved.

## **Telephone**

In general, research shows a strong correlation between income and telephone penetration, but income does not operate in a vacuum; other factors compound or lessen the income effect. Households receiving any government assistance fall below national telephone penetration levels. Likewise, women who are heads of households with children fare poorly. The unemployed suffer inordinate loss of telephone service. In addition, minorities, especially Native Americans, fall to the bottom of nearly all categories. US reservations and trust lands have a penetration rate of less than half of the national average.

FCC data indicate that telephone penetration in North Dakota decreased from 94.6% in 1984 to 94.4% in 2001. During the same period, telephone penetration in Pennsylvania went from 94.9% to 97.0%, a 2.2% increase.<sup>ii</sup> Nationally, telephone subscribership penetration rate in the U.S. was 94.9%, up 0.8% from November 2000.<sup>iii</sup>

Some experts suggest that as wireless service becomes more and more affordable, landline telephone penetration rates may begin to decrease. In November of 2001, over 1% of households report that they have only a wireless phone and no landline telephone service.<sup>iv</sup> This number is expected to rise, changing the trends in telephone penetration rates.

## **TV and Radio Broadcasting**

The signal quality and reach of broadcast television service is indicated by "grades". Grade A service indicates "satisfactory service expected at least 90% of the time for at least 90% of the receiving locations whereas Grade B service indicates "the quality of picture expected to be satisfactory to the median observer at least 90% of the time for at least 50% of the receiving locations within the contour.

In North Dakota, approximately 50% of Benson County, 20-25% of Divide County, and a significant percentage of McIntosh County appear beyond the coverage of either Grade A or Grade B broadcast television.

Many of the Pennsylvania counties are located within metropolitan listening viewing areas, while North Dakota counties in this study are only served by retransmissions from larger cities in the state. The concern with retransmission is that local information remains confined to a weekly newspaper.

## **Cable/Broadband**

The irony of cable's urban-rural service gap is that cable first developed to serve rural homes unable to receive broadcast television signals. Now, those rural communities find it difficult to attract advanced cable providers because the economies of scale of laying cable make the density of urban markets far more attractive. The attractiveness of urban profit margins renders rural service unappealing to providers.

Broadband distribution shows similar trends, which is expected considering that 65% of broadband use employs cable technology. According to the American Electronics Association (AEA), broadband access is readily available in urban areas, but is only available in about 50% of the nation's rural areas.<sup>v</sup>

A state-to-state comparative study conducted by the AEA found that North Dakota ranks 48<sup>th</sup> in broadband users out of the 50 states; however, North Dakota's broadband growth rate grew by 133% between December 2001 and June 2002, the second highest growth rate in the nation for that time period. In the same study, Pennsylvania ranks 10<sup>th</sup> in broadband users in the nation. The growth rate in broadband users in Pennsylvania was up over 600% between December 1999 and June 2002.<sup>vi</sup>

## **Internet**

In North Dakota, FCC data show that "47% of households do not own a computer and 54% do not have Internet access" which is greater than the national averages of "... 43% and 49% respectively." In Pennsylvania, 47% of households do not own a computer, although fewer Pennsylvania households--51%--lack Internet access.<sup>vii</sup> In general, North Dakota and Pennsylvania lag behind national averages though not by a major percentage spread. The lack of access in North Dakota occurs in the rural counties, since the infrastructure and service is limited. For Pennsylvania, the story differs slightly. The inner cities of Pennsylvania's two large metropolises also lag behind the state average; here it would appear that rural communities suffer lack of access comparable to the inner cities.

## **Recent Telecom Developments**

Centers of Excellence in Rural America (CERA)<sup>viii</sup> is involved in an initiative in North Dakota that helps implement high-speed online access to rural communities. This project assumes that deploying affordable, high-speed telecommunications services to small, rural towns will result in increased job creation and/or income in those towns while also improving access to education, healthcare, and governmental services.

Several new telecom initiatives have also been recently announced in Pennsylvania to supplement a number of other ongoing projects. Programs through Waynesburg College, Pennsylvania Humanities Council, Pennsylvania Telephone Association, the Center for Rural Pennsylvania and many others have begun making efforts to research and offer insight into remedying the rural digital divide. Given the relatively recent nature of these endeavors, however, it is still somewhat early to judge their effectiveness in providing additional telecom access to rural populations in both states.

## **The Determinants of Rural Access**

Three main components determine whether rural access will be successful:

- **Connectivity:** Barriers to connectivity are still significant. Geographic barriers, long-distance charges, connectivity charges, and inferior access are all problems that still challenge rural participants.
- **Capability:** Informational literacy may be a barrier to successful implementation.
- **Content:** The mere availability of information does not guarantee success in using it. The value of access may be determined in many cases by the accessibility and quality of the content.

## **The Fork in the Road**

As the information and telecommunications infrastructure declines or remains stagnant in rural regions, it becomes harder to attract new businesses and industries because they need improved capabilities through better infrastructure. With fewer new businesses and industries locating in the rural areas, it becomes harder to create new jobs. And, without new jobs, young adults seek their fortunes elsewhere. This problem will continue to persist without public, intentional intervention to help fulfill the promise of universal access. Once the information and telecommunications infrastructure falls below its level of self-sustenance and sets in motion a spiral of decline, can these processes be reversed? After all, the rise of the information society and economy locates the infrastructure that supports it at center stage; as it falls, it drags everything else down with it. At this juncture, when many rural communities face cloudy futures, policy makers and researchers should pursue an agenda that clarifies the conditions that lead to irreversible decline. In an era when the potential of information and communication technologies exceeds our collective imaginations, to stand by while rural communities fade away reflects willful blindness at best or at worst gross negligence.

## Policy Recommendations

Ensuring universal access in telephony as well as information through broadband deployment is and will continue to be of public concern. Policies that address at least two domains are necessary to help bridge the rural information and communication technology divides:

- Policies that encourage public and private collaboration in information services Most service providers for the information covered in this report, other than libraries, are private businesses. However, information provision and use are seen as important public goods. In order for advances to be made in broadening the reach of services, both public and private entities will need to be involved. Public policy must promote collaboration, and ensure that broad public access to information in all venues is robust, equitable and efficient.

- Policies that encourage competition The 1999 National Telecommunications and Information Administration study “Falling through the Net” concluded that competition was “vital to making information tools affordable for most Americans.” The 2000 version of this same study states that “the continuation of public policies to promote competition (that lowers prices and improves quality) and to make new technologies more accessible will substantially influence the uptake rates of the current groups of information “have-nots,” and will help move these groups to greater digital inclusion.”

In some industries, public policy discourages competition. For example, recent rulings by the FCC lifted the ban on limits that would prevent one company from owning a newspaper, television stations and radio outlets in a single market. Republicans and Democrats in Congress “fear the new rules will permit media conglomerates to grow larger and thus cut local reporting and reduce diversity of viewpoints.”<sup>ix</sup> To the extent that ownership limits diminish the prospect for competitive media in rural areas, they damage the information environment there.

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<sup>i</sup> U.S. Census Bureau, *Statistical Abstract of the United States: 2001* (121st ed.). Daily and Sunday newspapers--Number and circulation by state: 2000, p. 707.

<sup>ii</sup> Source: Federal Communications Commission. (2002). Table 2: Telephone Penetration by State. In *Telephone subscribership in the United States (Data through November 2001)*. Washington, DC: The Author.

<sup>iii</sup> Source: Federal Communications Commission. (2002). Table 2: Telephone Penetration by State. In *Telephone subscribership in the United States (Data through November 2001)*. Washington, DC: The Author.

<sup>iv</sup> Source: Federal Communications Commission. (2002). Table 2: Telephone Penetration by State. In *Telephone subscribership in the United States (Data through November 2001)*. Washington, DC: The Author.

<sup>v</sup> Broadband in the States 2003: A State-by-State Overview of Broadband Deployment [http://www.aeanet.org/publications/idet\\_BroadbandStates03\\_Details.asp](http://www.aeanet.org/publications/idet_BroadbandStates03_Details.asp)

<sup>vi</sup> Broadband in the States 2003: A State-by-State Overview of Broadband Deployment [http://www.aeanet.org/publications/idet\\_BroadbandStates03\\_Details.asp](http://www.aeanet.org/publications/idet_BroadbandStates03_Details.asp)

<sup>vii</sup> The Children's Partnership. (2002). North Dakota: Youth and technology fact sheet. The Author. Retrieved February 25, 2003, from [http://www.childrenspartnership.org/youngamericans/statefacts\\_nd.html](http://www.childrenspartnership.org/youngamericans/statefacts_nd.html)

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Retrieved February 25, 2003, from  
[http://www.childrenspartnership.org/youngamericans/statefacts\\_pa.html](http://www.childrenspartnership.org/youngamericans/statefacts_pa.html)  
<sup>viii</sup> Centers of Excellence in Rural America can be found at  
<http://www.westgov.org/wga/initiatives/cera.htm>  
<sup>ix</sup> MSNBC, July 23, 2003. <http://www.msnbc.com/news/943110.asp?0cv=BA00&cp1=1>