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Center for Social Development



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Introduction

The purpose of this paper is to examine the proposition that improved connectivity, specifically through the use of broadband telecommunications, may be an important factor in enhancing the value of the “rural experience” and in so doing, improving the economic prospects for rural communities. This paper is one of a series focusing on wealth-building in rural America.

The paper begins with a discussion of the current issues and perceived opportunities associated with the introduction and expansion of broadband telecommunications in rural America. It continues with a number of perspectives on the “rural experience” and in particular on those natural assets in rural areas that have potential for economic development. It concludes with some assessment of the possible benefits of broadband connectivity for the identification, stewardship, and leverage of natural assets through the medium of entrepreneurship.

Broadband for Rural America: Issues and Opportunities

According to a recent government report on the use of the Internet (National Telecommunications and Information Administration, 2002), rural areas approach the national average in Internet use, but that this is primarily through telephone-based dial-up

services. The availability of broadband connectivity in rural areas falls short of that in urban areas and the gap is widening. As economist David Freshwater notes:

Because rural areas are, by definition, low density and remote, they pay a penalty for obtaining telecommunications access. The fixed costs of the system are spread over a small population base and are higher to begin with because of low-density settlement patterns and more difficult terrain. In addition, long distance calls tend to account for a high percentage of rural customers' calls since they must call outside of their local exchange more often than urban customers in order to reach a variety of businesses and services. The situation is exacerbated by the need to call long distance to gain access to advanced services like the Internet, e-mail or telephone support. (Freshwater 1997, p. 4)

Freshwater goes on, "Local access to the Internet – which requires broadband capability – is essential if rural areas are to avoid being left behind. Businesses without local access to the Internet will face tough new competition from competitors who have adopted the technology." (Freshwater 1997, p. 3) A similar point is made by Fox & Porca (2000, p. 81):

The Internet and related technologies are revolutionizing the way people live, communicate, access information, work, create employment, and obtain services such as education and medical services. Information infrastructure can allow certain footloose service firms such as telemarketing, back office finance, and

travel offices, to operate effectively in rural areas. The relative lack of this technology...could widen the gap between urban and rural areas.

In a study for the Appalachian Regional Commission, University of Texas researchers Sharon Strover and Michael Oden concluded that:

Communities across the Appalachian Region, especially those in rural areas, face serious challenges exploiting new information, computing, and telecommunications (ICT) technologies to expand their economic development horizons. Access to advanced technologies is often uneven and limited, while the capacities to use these technologies to improve performance in public and private sector institutions are often not as well developed as in wealthier communities.

(Strover & Oden, 2002, Executive Summary)

They continue:

The risk for economic development, especially in rural Appalachia, is the emergence of another vicious cycle. Service providers continue to skip areas with limited demand, firms spurn communities with poor ICT access and weak technical capacities, and the stimuli to improve local access and know-how fail to emerge because people do not have the same level of exposure to the new technologies at work or at home as their urban counterparts. (Strover & Oden, 2002, Section II)

The technical issues associated with breaking this cycle are complex and beyond the scope of this paper other than to note the following key points. The two primary ways of accessing broadband services in the United States are over cable modems and over the Digital Subscriber Line (DSL), both of which depend heavily on population density and are thus mainly deployed in urban areas. Other technologies that have greater potential in rural areas include fiber optic cable, wireless, and satellite systems, but these are expensive to deploy (Fox & Porca, 2000). In other times, the concept of universal service was applied to electrification, telephones, and paved highways in order to ensure that rural areas had equivalent infrastructure to their urban counterparts. But a combination of rapidly changing technologies and the federal deregulation of telecommunications has made the possibility of universal broadband access more problematic. Although the 1996 Telecommunications Act includes a number of universal directives, the Federal Communications Commission only monitors, but does not mandate, the spread of advanced telecommunications to rural areas. “Most importantly, businesses and households are not among the users that ‘should, generally, have access’ [as prescribed by the legislation] to broadband. That class of users is restricted to schools, classrooms, health care providers, and libraries.” (Malecki, 2001)

There are, however, many who believe that in spite of these difficulties, there is some cause for optimism. In a study for the US Economic Development Administration, Jo Min and colleagues provided an up-beat vision for rural America:

...with advances in telecommunications technology, especially with the growth of the Internet and the introduction of broadband technology, distance is much less of a barrier for economic development in rural communities. For example, with well-planned infrastructure for broadband service, businesses such as telemedicine, electronic commerce, and back office functions, may find it advantageous to locate in small communities.” (Min et al, 2001)

Some examples are given in an important article by Joel Kotkin in the Washington Post (Kotkin, 2002). He referred to a Forbes magazine study, which identified Sioux Falls, Iowa City, Bismarck, and Fargo as among the 25 best smaller cities for high-tech companies. These Upper Midwest centers have been home to several successful technology firms, including Gateway Computers, Great Plains Software, and many smaller start-up companies. Kotkin suggests that while these cities are no longer really rural, they do help to support the economy of the surrounding rural areas, and in so doing enable younger people and their families to stay close to home.

“There’s more opportunity here now” notes Mike Chambers, founder of Aldevron, a Fargo-based biotechnology firm. “People are starting to stay.” Entrepreneurs such as Chambers believe that advances in telecommunications technology could eventually allow firms such as his to provide some work to the smaller communities, even to contractors on isolated ranches...Some smaller companies, such as Killdeer Mountain Manufacturing have seen the advantage of such rural-based development. Headquartered in a small town at the edge of the

North Dakota badlands, Killdeer...employs 140 people at four locations making cables and other parts for aerospace companies. Some of the work is done in communities with barely 100 residents. The company's long-range vision is to locate 10 plants in similarly tiny towns across the state, networked together via a high-speed fiber-optics system. (Kotkin, 2002)

The fear of being left behind coupled with excitement about the possibilities that might flow from broadband connectivity has encouraged several communities to take the initiative when incumbent telephone companies or other providers are unwilling or unable to invest. In McDermitt, Nevada, a one-time mining boomtown now with a population of 370, a school teacher worked with his students to create their own Internet Service Provider (ISP) and satellite service. They now have 200 subscribers. "Already the area's ranchers and farmers are using the Web to monitor commodity prices, check the weather, and market their cattle and produce directly to customers...With digital infrastructure in place, McDermitt is connected to the world." (Sierra Business Council, 2003)

To an audience of wireless internet service providers in October 2004, Michael Powell, the Chairman of the Federal Communications Commission provided this vignette of the Tribal Digital Village of Southern California:

Using a network of WiFi devices, eighteen Native American reservations located in a remote region – spanning more than 150 miles – now have broadband

connectivity. The project had many technical challenges – the terrain is rocky, mountainous, and has deep valleys – making it hard to achieve line of sight. Creative solutions for supplying power to the network access points were also needed – so, the Native Americans used solar power and, in one location, even used a car battery. The fruits of their efforts have been substantial – among other benefits, the 12,000 Native Americans in that area can now take classes at a distant university and their youth can now access the Internet and listen to archived recordings of elders speaking Native languages – helping them to preserve their rich culture. (Powell, 2004)

Min et al (2001) cite a number of examples from Alaska, Colorado, Georgia, Iowa, Minnesota and Texas of partnerships between cable, electric, telephone, and local communities to provide creative ways of bringing broadband using different technologies. Strover and Oden (2002, Conclusions) refer to the emergence of ‘electronic villages’ in Virginia that are “at root economic and community development efforts...that seek to bring telecommunications capabilities to broader constituencies for the purposes of improving the quality of life...[and] ultimately contribute to business improvements.” On a similar theme, McMahon & Salant (1999) argue that systematic community-based strategic planning can focus local efforts on demonstrating that adequate demand exists for broadband connectivity and on increasing that demand. In this way, communities can present evidence of aggregate demand to argue their case for investment with telecommunications providers.

Brian Staihr of the Federal Reserve Bank of Kansas City concludes:

It is clear that the introduction of broadband in smaller communities will play a vital role in rural America's survival. A communications infrastructure that can support high-speed data will not solve all of Main Street's problems, but it can work in a synergistic way with other rural economic assets to attract and retain businesses and residents. In short, it will help level the playing field between urban and rural America. (Staihr, 2000)

The Value of Rural Experience

According to David McGranahan (1999) of the U.S. Department of Agriculture's Economic Research Service, population change in rural counties over the past 30 years has been strongly related to their attractiveness as places to live. Using mild climate, varied topography, and proximity to surface water, both inland and coastal, as the main measures of natural amenities, he found that counties that scored high on these measures doubled their population, whereas low scoring counties remained static or lost population. Counties high in natural amenities and with strong population growth tended to be in the West and Southwest where the climate is mild, the topography varied, and lakes or the ocean are readily accessible. In fact, McGranahan found that county population change is more highly related to these natural amenities than to urban proximity, population density, or economic type, although these too play a role.

Nearly two-thirds of non-metropolitan counties dependent on recreation industries and three-quarters of those classified as retirement destinations fall in the top quarter of counties in natural amenities. Natural amenity areas are tiered in their attractiveness – some like the Rockies or Florida attract people from across the country; others such as the lake areas of the northern Midwest attract people from within the region for recreation or retirement.

As might be expected, McGranahan found that employment change is also highly related to natural amenities, with low-scoring counties experiencing little or no growth in jobs, and high amenity areas increasing their jobs three-fold over the past three decades.

But as Chuck Hassebrook of the Center for Rural Affairs in Nebraska responded:

Most farm and ranch communities don't have mountains or lakes. They aren't likely to become the next tourist-filled Aspen, and most of us wouldn't want that. But each of our communities has assets, strengths, and opportunities we can build on to draw people – native sons and daughters back to raise their families and others seeking a rural life style. Those assets range from natural amenities, to strong schools, to friendly neighbors. The best place to start is with existing strengths. (Hassebrook)

In their assessment of opportunities and challenges facing rural America, Leslie Whitener and David McGranahan noted that:

...rural economic health and vitality depend on innovative ways to generate income. Jobs are declining and incomes are eroding in rural areas that depend on natural resource-based industries, such as farming and mining. Those areas that can adopt innovative income-generating strategies to build on their assets, diversify their economies, attract new businesses, and sustain their successes will likely thrive in the global economy... Enhancing rural economies as places to live, retire, and vacation may improve not only the quality of life for existing residents, but also the possibility of attracting new businesses and residents. (Whitener & McGranahan, 2003)

Economist Thomas Power believes that non-commercial, non-consumptive landscape values are rising in importance.

The natural landscape is not only a 'warehouse' of commercial resources waiting to be extracted by various industries. The landscape is also the source of a broad range of largely non-commercial goods and services that include clean air and water, wildlife and biodiversity, scenic beauty, recreational opportunities, and cultural, historical, and spiritual values. (Power, 1996, p. 237)

Power argues that environmental quality is a central element of local economic bases and thus a determinant of local economic vitality. "A community won't show much vitality, economic or social, if no one wants to live there...Commitment to place is

important to local economic development, and...[o]ne quality that has always instilled a sense of place is a desirable natural landscape.” (Power, 1996, pp. 237-8)

“People’s intense experiences with the land have enhanced the cultural value of rural areas” writes landscape architecture professor Herbert Gottfried (1997, p. 11) He notes that most rural landscapes are man-made and as such show a many-layered history of human intervention. Gottfried suggests that “cultural conservation holds an important place in rural policy because it reinforces the sensory experience of the rural landscape and strengthens landscape’s role as a symbol of stability.” To illustrate this concept, he refers to landscape corridors with water systems, steep topography, and diverse plant and wildlife.

The typical corridor has a natural structure with which people come to associate cultural values. For example, water elements include streams, rivers, wetlands, watersheds and cultural expressions related to water like swimming and boating, dams, millponds, and bridges. Similarly, topographic aspects include steep slopes, caves, and rock outcroppings, connected to trails and shelters. Vegetative resources, such as timber stands, wild flowers, orchards, meadows, associate with State and county parks, fire towers, rights-of-way, hiking and picnicking. There are historic artifacts that are archeological or architectural, perhaps constructed with corridor materials. There is wildlife in the corridor: waterfowl, birds, hunting and trapping, and observing activities. Lastly, there are places with which we associate special sensory experiences and perceptual qualities, sites

where natural systems and cultural expectations interact to engender aesthetic experience. We think of these as being beautiful, and they often prescribe a view – through a wood or across a valley. (Gottfried, 1997, p. 13)

Capturing the value of natural assets is the driving force behind the rapid global expansion of ecotourism. David Barkin provides a helpful definition of ecotourism that embraces twin goals:

...a series of activities to attract visitors, offering them an opportunity to interact with nature in such a way as to make it possible to preserve or enhance the special qualities of the site and its flora and fauna, while allowing local inhabitants and future visitors to continue to enjoy these qualities. [At the same time, effective ecotourism, he argues, needs to] establish a durable productive base to allow local inhabitants and ecotourist service providers to enjoy a sustainable standard of living while offering these services. (Barkin, 1996, p. 1)

One of the most comprehensive regional assessments of the entrepreneurship possibilities of the rural experience has been conducted by an alliance of eight rural organizations in Ohio, Kentucky, Tennessee, Virginia, and West Virginia known as the Central Appalachian Network. They see natural capital and the heritage of the people and place as the key assets of rural communities in developing sustainable economic development and entrepreneurship strategies.

Natural capital entrepreneurship is based on the sustainable use of forests, farmland, rivers, lakes, and mountains of our region. Organic and niche crops, ecotourism, wood products made from sustainable harvested timber, and non-timber forest products such as ginseng are all products of entrepreneurship based on natural capital. Place-based entrepreneurship draws on the beauty and heritage of our region through development of traditional crafts, music, foods and natural treasures such as historic bed & breakfasts. (Central Appalachian Network, 2005, p. 31)

The Central Appalachian Network have assembled some useful statistics to give an idea of the scale of the economic potential (2005, p. 32). Nationwide, tourism is a \$545 billion industry sector that employs 7.8 million people, and in Appalachia, tourist spending contributed more than \$29 billion to the region's economy in 2001. Ecotourism is the fastest growing aspect of tourism, with a 10-30 percent rate of annual growth. Heritage tourism visitors generate 36 percent more income per visit than the average tourist.

Wildlife recreation – hunting, fishing, and wildlife watching – was in 2001 a \$108 billion industry nationwide, more than the total cash receipts of the U.S. livestock industry in that year. (Henderson, 2004). According to the Central Appalachian Network, American handmade crafts income totals \$14 billion, and in West Virginia, over 2,500 craftspeople in the state generated a direct economic impact of \$54 million, with a total economic impact of over \$81 million in 2002. Kentucky craft producers in

2000 generated \$252.4 million in sales of which nearly 60 percent were out-of-state sales. The median household income for fulltime craft families is \$50,000, well over the average median family income in the U.S.

Thinking about the rural experience as an asset or a portfolio of assets is a relatively new phenomenon. It is part of a major shift in thinking in community and economic development circles from focusing on what's wrong with an area (deficits), relying on outsiders to provide resources and solutions, and being willing to trade long-term assets for short-term benefits to a different paradigm. This entails focusing on an area's strengths and unique qualities, building the capacity of communities to create tailored solutions to challenges and opportunities, and finding sustainable ways of using and renewing critical long-term assets.

Sociologist Cornelia Flora has been a leader in developing typologies that enable communities more readily identify, protect, and leverage their assets so as to achieve sustainable development, especially in a rural context. She describes 'capitals': "those resources we think of as primarily related to humans and their interactions" – *cultural capital, social capital, human capital, and political capital*; and "those resources we think of as physical" – *natural capital, financial capital, and built capital*. (Flora & Flora, 2004)

This asset-based approach to rural development is very much apparent in the work of the Sierra Business Council, a business organization serving parts of 23 counties in California and Nevada along the 400 mile-long Sierra Nevada mountain chain. It is a

unique alliance of business owners, professionals, property owners, ranchers, residents, and government officials dedicated to the social, natural, and financial health of the region. Its focus is on four strategies, the first of which is capitalizing on existing assets – the other strategies are cultivating innovation and economic diversity, creating long-term social capital, and catalyzing community partnerships. As might be expected, the key existing assets or, as the Council describes them, comparative advantages, are water, the land use pattern of historic towns surrounded by fields and forests, and the Sierra’s wildlands – all natural assets or different facets of the rural experience (Sierra Business Council, 2003, p. 7). Safeguarding the supply of clean, healthy water has obvious health benefits but as the demand for water continues to increase, the resources of the Sierra will become ever more valuable. Stewardship of the ecosystems that govern the quantity and quality of water is therefore a critical economic activity.

The historic towns are increasingly attractive to people wanting to move out of the metropolitan areas in search of a better quality of life, away from the pollution, traffic congestion, and lack of neighborliness. Maintaining the downtowns and preventing sprawl become essential to protecting a key asset. As for the wildlands, “some people are willing to take a pay cut to live where there is easy access to places to hike, fish, and ski. When businesses can offer an employment package that includes superb quality of life, they can attract top-drawer people without paying top-drawer prices. (Sierra Business Council, 2003, p. 7).

Enhancing the Value through Improving Connectivity

There is a general consensus that broadband telecommunications are now an essential part of the nation's infrastructure, and a driving force for economic change and development. A cocktail of technical, business, regulatory, demographic, and educational issues has led to what is commonly referred to as the rural digital divide. The lack of cost-effective access to the Internet is just another barrier to rural communities being players in the global economy as the gap between metropolitan and rural areas continues to widen. That said, there is much evidence to show that with creativity and ingenuity, forward-looking communities in every part of the country have found ways to narrow this gap.

To regard broadband connectivity as essential infrastructure places it in the same category as highways, water, electricity, and telephone, all of which are necessary preconditions for rural development and prosperity but in of themselves insufficient to ensure it. Broadband connectivity is no panacea for curing rural America's ills, but without it, the patient will take much longer to recover. It is perhaps helpful to think of broadband connectivity as a catalyst, which when added to other ingredients, will speed the processes of change. Malecki (2001) cites Kearney, Nebraska as an example of community that has been successful in aggregating demand for advanced telecommunications access, and it is instructive to consider the context. Nebraska writer and economic developer Steve Buttress describes the cycle of prosperity of his hometown:

Kearney leaders created a locally-based, diversified economy that produces wealth, which gets reinvested in the community, which makes it a more attractive place to live, which is an environment that attracts industrial and agricultural workers and retirees and health care professionals and professors, who make it a better place to live, which attracts entrepreneurs, who create companies and jobs and wealth, which gets reinvested in the community, which...” Buttress (2002)

There appear to be a number of ways in which broadband connectivity can enhance the value of the rural experience as an economic driver and wealth creator for local residents – once these residents embrace the notion that their natural and cultural attributes are indeed long-term assets. But there is an essential prerequisite. William Bygrave talks about “initiative, imagination, flexibility, creativity, a willingness to think conceptually, and the capacity to see change as an opportunity.” What he describes is a set of skills, traits and characteristics that characterize entrepreneurship that can be usefully applied in a variety of circumstances, as a business creator, community leader or an employee in the private, public, or nonprofit sectors (Babson College, website). Entrepreneurship is rapidly becoming recognized as a, if not the, critical economic development strategy for rural America, offering the promise of linking the human and natural assets of rural communities to regional, national, and global markets for their products and services (Dabson 2002, Dabson and Malkin 2003). It is the presence and actions of business and civic entrepreneurs that will find the most effective ways of using advanced telecommunications to capitalize on a community’s natural and cultural assets.

As mentioned earlier, the Central Appalachian Network (2005) places natural capital entrepreneurship at the center of its strategy. The Network suggests four ways in which this can be supported and enhanced: helping entrepreneurs and communities focus on niche opportunities; promoting rural flavor; improving the quantity, quality, design and innovativeness of products and services; and fostering regional collaborations. These provide a useful framework for discussing the possible catalytic qualities of broadband connectivity.

Niche opportunities might include garden and farm-related visits, bird watching and animal photography, hunting and fishing, or non-timber forest products such as herbs and organic produce. The Internet is now the primary connector between such niche opportunities and their customers, the vehicle for assessing the nature and strength of competitors, and for conducting research on effective practices. Without these information flows, entrepreneurs and communities are unable to fully exploit the opportunities presented by their natural assets.

Promoting rural flavor is concerned with combining and packaging a number of niche opportunities and unique places into a recognizable, marketable regional identity. The wine-making industry has long understood the economic benefits of promoting a region of multiple wineries, and it is becoming increasingly common for regions and even states to pursue “made in...” campaigns to increase the marketing power of individual producers. This power can be greatly magnified by the use of the Internet to rapidly transmit data and images to customers, encourage regular communication

between producers and service providers in the region, and make use of specialist consulting and information services.

Improving quantity, quality, design and innovativeness of products and services is best achieved when entrepreneurs and communities are exposed to ideas, information, and expertise from across the world. This is the way they can understand consumer trends and best tap into newly emerging markets. Sometimes this may require learning new skills and techniques that often can most conveniently be acquired over the Internet through web-based curricula, learning circles, or list serves.

Finally, fostering regional collaborations, a rapidly growing realm of interest in rural America as communities and institutions grapple with scarce resource and ever more complex challenges. Bringing people together from multiple levels of government, the private sector, and the nonprofit sector with an interest in natural assets across wide geographical areas can be expensive and time-consuming for all concerned, but the growing sophistication of video-conferencing and web-casting offers an alternative, cost-effective way of creating successful collaborations.

Communities that have taken the initiative to establish their own broadband connectivity justify their investment in many ways. These include the information, education, marketing, and interaction benefits mentioned above, but also increasing property values as communities become more attractive to businesses and residents, second home owners, and tourists all of whom increasingly expect on-line access; more

accessible and convenient health care through telemedicine; and improving the efficiency and accountability of government through making agendas and reports readily accessible, enabling on-line permitting and payments, and posting of regulations and services.

To conclude, harnessing the value of the natural and cultural assets of rural America through careful stewardship and entrepreneurship is becoming increasingly recognized as a major opportunity for rural revitalization. Access to advanced telecommunications in rural places is at best uneven and there is much to be done before broadband connectivity becomes established as basic infrastructure. However, a number of communities have found their own ways of ensuring they are not disadvantaged by the digital divide. Moreover, there appear to be a number of possibilities for further enhancing the value of the 'rural experience' in all of its manifestations through broadband connectivity. The next task will be to gather evidence of the quantifiable benefits and returns as more communities begin to weave together these themes.

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