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Rural Areas in the New Telecommunications Era

The new Telecommunications Act, enacted in 1996, was the first comprehensive rewrite of the Communications Act of 1934 that had ushered in an era of universal phone service for rural areas. The 1996 Act's provisions fall into five major areas: telephone service, telecommunications equipment manufacturing, cable television, radio and television broadcasting, and the Internet and online computer services. All these provisions will affect rural areas, but universal service is the most critical. Without the universal service provision rural areas may rapidly fall behind urban areas. In May 1997, the Federal Communications Commission enacted regulatory provisions for universal service.

Telecommunications are essential for rural areas: the availability of telecommunication services reduces isolation, increases business viability, improves farming productivity, and improves access to educational and medical services. The quality of telecommunication services can encourage business activity to remain or develop in rural areas. On the other hand, some business activities, such as banking, may lessen their presence in rural communities as they take advantage of better telecommunications to consolidate more of their operations.

Telecommunication services, however, have been changing rapidly due to transformations in technology and the regulatory environment. These changes are having profound effects on the cost, type, and availability of telecommunications. New technology and regulatory provisions are also creating a great deal of uncertainty. The new era in telecommunications will offer rural communities many new challenges and opportunities.

Changing Telecommunication Technology Leads to New Legislation

Telecommunication technology has changed rapidly in the last decade, with new developments in computers, switching devices, digital signal processing, wireless communication, satellite technology, and Internet services.

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These changes have blurred the line between what had been discrete services. Local telephone companies now have the technology to offer long-distance phone service. Cable TV corporations now have the technical capabilities to deliver voice and Internet services. Similarly, technology has improved so greatly for wireless service that high-end services, such as the Internet, can be offered to many subscribers.

Demand for telecommunications services has increased rapidly, generated in part by new technology, and by lower costs from increased competition among major companies, such as AT&T, MCI, and Sprint. This created economic pressure to thoroughly revise the existing telecommunication laws. After 4 years of serious negotiations, a new comprehensive telecommunications bill was passed by Congress and enacted into law in 1996. The Act addresses three important issues dealt with here: universal service, media ownership, and phone service.

Universal service, section 254 in the Act, is defined as "an evolving level of telecommunications services that the Commission shall establish periodically under this section, taking into account advances in telecommunications and information technologies and services." It guarantees the availability of quality phone service to households at affordable rates. Section 254 also aims to give schools, hospitals, libraries, and clinics equal access to the information superhighway by the year 2000. As a conse-

Provisions of the Telecommunications Act of 1996

The Telecommunications Act of 1996 is the first comprehensive rewrite of the Communications Act of 1934. The Act modifies previous legislation, such as the Cable Act of 1992, and judicial actions, such as the early 1980's consent decree in the breakup of Ma Bell (American Telephone and Telegraph).

The provisions of the Act fall into five major areas:

- furnishing telephone service
- manufacturing telecommunications equipment
- supplying cable television
- supplying radio and television broadcasting
- supplying Internet and online computer services

In each of these areas the Act relaxes concentration and merger rules for telecommunication companies, eliminates cross-market entry barriers, and assigns new implementation obligations to the Federal Communications Commission (FCC).

The Telecommunications Act of 1996 was created to achieve the following goals:

- carrying out the transition of the telecommunications industry from a heavily regulated market
- improving the telecommunications network so that consumers are able to send and receive voice, data, images, and video at affordable rates
- promoting economic growth, creating jobs, and increasing productivity
- further advancing universal service to help deliver educational, health care, and other social services

quence, people in rural and low-income areas will have access to information that can open up new opportunities.

Another provision relaxes previous rules on media ownership, although it still limits the concentration of television and radio ownership in order to maintain a diversity of viewpoints. A company may own a limited number of stations that reach up to 35 percent of all national viewers. Also, a company may not own two television stations in one market, or a newspaper and television station in the same market, or a newspaper and cable TV system in the same market.

The last principal provision of the Act, phone services, allows the Baby Bells to provide long-distance telephone services and to manufacture telecommunications equipment. The Baby Bells—the seven Bell Regional Holding Companies—are the major local phone companies that were created when AT&T (Ma Bell) was split up in the early 1980's. The Baby Bells have about 136 million access lines. GTE, a large holding company and the other major provider of local telephone service, grew from the purchase of independent telephone companies and has nearly 17 million access lines. Most of these independents were in rural areas and hence, GTE became a major provider of local telephone service in rural areas. GTE was providing long-distance service before the Baby Bells were allowed to (with passage of the 1996 Act). In addition, there are nearly 1,300 smaller local telephone companies, most serving only rural communities. They account for over 24 million access lines.

The Act reduces direct government involvement in sectors of the telecommunications industry; nevertheless, a legal framework still must exist. Many new and revised regulations resulted from the Act. The Federal Communications Commission's (FCC) responsibility is to write these new regulations, as it has recently done for universal service.

While many of the Act's provisions will take years to come to fruition, some cross-industry and intra-industry mergers have already occurred because of it. US West's purchase of Continental Cablevision is the first major restructuring in the telecommunications industry to result from the legislation. Two sets of Baby Bells are also merging; Southwestern Bell and Pacific Telesis became SBC, and NYNEX and Bell Atlantic merged to become the new Bell Atlantic. AT&T has recently been in merger talks with one of the newly combined Baby Bells (SBC) to create a new telecommunications colossus; if the merger were carried out, the combined company would have over half the long-distance subscribers and one-third of the local phone subscribers in the Nation. Many more profound results of the Act are expected.

Will Deregulation Mean Better Rural Economic Growth?

Proponents of the Act have made several claims about the benefits that will accrue to national and rural economies. A deregulated industry would promote innovation and the development of new services, thus increasing efficiency and lowering prices of telecommunication services. Even under the old Act, innovation had occurred in the

form of cellular phones, paging systems, and other products. The breakup of AT&T led to a host of innovations and new products because the breakup allowed independent companies to sell to the Baby Bells for the first time. Prior to this, Bell Labs, a wholly owned subsidiary of AT&T, had the "sole right" to sell telecommunications equipment to AT&T.

With the 1996 Act, fewer regulatory hurdles and delays postpone a product's entry into the marketplace. Consequently, more profits will accrue to the innovators and less to the imitators (who offer products similar to the innovators) than under the previous regulatory climate, spurring further innovation. Increased innovation, in turn, may lead more quickly to new technology that reduces the cost of telecommunication services in rural areas, with the consequence that these services would more likely be offered in rural areas.

Under the old regulatory system, people did not have a choice of providers for local telephone service. With competition, consumers will now be able to choose among several services, and competition in the retail market will, in turn, lead to a reduction in the cost of telephone services for consumers. In fact, in the last decade, profits for telephone companies have risen significantly because their costs fell faster than the prices they charged. Innovations that had reduced costs for telephone companies had already been spurred by the breakup of AT&T. Prices paid by consumers, however, tended to be "sticky" due to the lack of competition in retail markets. Regulations by State public utility commissions, though, kept the charges in check.

The existence of monopolies, however, makes the entry of competition into markets difficult, and in some cases expensive and risky. The transitional rules are intended to encourage investment opportunities without protecting certain industry segments. The Act's proponents argue that opening up the markets will lead to an increase in job opportunities, national competitiveness, and economic development.

New entrants in local markets could include cable companies, electric utilities, wireless communication services, and satellite companies. Two years ago, industry analysts felt that cable companies were going to enter the local phone service market very quickly, offering service superior to the existing phone service. The technical hurdles turned out to be more difficult to surmount than expected, so cable's entry apparently will not happen, at least not as fast as it had earlier been thought. Rural communities, however, may benefit if some companies find that it is cheaper to deliver combined phone and cable TV service than each separately. US West, a Baby Bell with its large rural service area, may have already decided to try

this. The company recently purchased a large cable TV company, Continental Cablevision.

Another new telecommunication entrant may be the electric utility companies. MCI Communications Corp., for example, announced in March 1997 that it was teaming up with local power and telephone companies in Iowa to provide new competitive services to rural communities. Other power companies may also offer local phone service because they already have fiberoptic cables alongside their powerlines into communities. Other technologies also have the potential to offer cheap and efficient services to rural areas. A study done by Hatfield Associates showed that in low-density areas (under 100 persons per square kilometer), it is cheaper to use wireless technology than wire-line technology. In the future, satellite technology may become cheap enough to become a viable alternative for standard local phone service.

Rural areas, however, will have greater telecommunication challenges to overcome than urban areas and, in some ways, greater challenges than poor urban areas. Because of low population density, competition in the industry will likely come more slowly in rural areas or may not come at all.

Moreover, prices of telecommunication services will likely fall more slowly in rural areas. Rural areas have special challenges in natural barriers, such as mountainous terrain, that add to the cost of communication lines between communities. The present universal service program requirement (essentially the 1996 Act's universal service provisions have not yet taken effect), however, has meant that, on average, rural households have spent less than urban households for phone service; in 1991, rural households spent \$601, on average, while urban households spent \$621 for telephone service. The difference is largely due to the advanced (and costly) calling services available to urban residents, but usually not available to rural residents. Rural households, however, have lower average incomes, so they spend a larger proportion of their income on telephone service, 2.4 percent versus 2.0 percent. Without the universal service regulations rural households would have spent more than urban households on telephone service while receiving less service.

After the Telecommunications Act was enacted in February 1996, the Federal Communications Commission began the process of drafting regulations for the new law. The new Act mandated an expanded universal service and gave the Federal-State Joint Board the responsibility of making recommendations to the FCC. The Joint Board made its recommendations in November 1996; the FCC regulations came out in May 1997.

These universal service regulations are the telecommunication provisions most critical for rural regions. Ultimately, the universal service provisions in the Act will determine what telecommunications services will be available in rural areas, at what cost, and for whom. This will, in turn, help determine what economic growth and quality of life potential will exist for any given rural area.

Universal Service Has Meant Greater Access

Two diametrically opposed views (with many views in between) exist on the need for providing universal service. One would allow market forces to determine the supply of and demand for telecommunications services. In this view, because the cost of phone service has fallen a great deal over time and competition has increased through new technologies, such as wireless phone service, concern over high prices is misplaced. Thus, universal service support for rural areas would subsidize the more well-to-do rural residents. The other side holds that extensive changes in prices and competition have not yet reached rural or poor areas. Any too rapid move away from universal service would create inequity and inefficiency in the economy.

Universal telecommunication service historically has meant that telephone rates were set so that they were affordable to all but the poorest in America, even for residents of remote, expensive-to-service areas. The Communications Act of 1934 established universal service and defined it as making available, "so far as possible, to all the people of the United States a rapid, efficient, nationwide, and worldwide wire and radio communication service with adequate facilities at reasonable charges. . ." Until recently, universal service was defined as basic phone service (old party-line, rotary phone service) with later national and individual State legislation enlarging the definition to include such services as 911 emergency service. The 1996 Act, however, will allow (without new legislation) an evolving definition of universal service to encompass future changes in technology and markets.

Service costs for telephone service providers in high-cost areas were defrayed under the existing universal service provisions (based on the 1934 Act and minor revisions). Since the breakup of AT&T in the early 1980's, the Federal Universal Service High Cost Fund has transferred funds from long-distance providers to local exchange carriers in high-cost (often rural) areas.

Two other mechanisms for universal service come from the State level: geographic rate averaging and subsidizing residential lines via business lines. Within States, geographic averaging allows a State's public utility commission to set rates (for a phone company serving both rural and urban areas) in a way that rural households pay less

than the market conditions would indicate. Likewise, businesses pay more than households within States.

As a result of the universal service funding mechanisms, rural and poor urban areas were subsidized to some extent by richer urban areas; private businesses subsidized all households, including richer households. The new Act requires all telecommunication providers to contribute to a fund that will subsidize universal service. Given the evolving definition of universal service, future Internet access may become part of what is considered universal service and Internet access providers may be required to contribute to the universal service fund.

According to the FCC, seven principles of universal service are to be implemented:

- Quality services should be available at just, reasonable, and affordable rates.
- All regions of the country should have access to advanced telecommunication and information services.
- Low-income, rural, insular, and high-cost areas should have access to telecommunication and information services reasonably comparable to urban areas at similar prices.
- All providers of telecommunications services should make an equitable and nondiscriminatory contribution to the universal fund.
- Federal and State support mechanisms will be established to guarantee universal service.
- All elementary and secondary school classrooms, health care providers, and libraries should have access to advanced telecommunication services.
- Other steps should be taken that are necessary and appropriate for the public interest.

The legislation requires that the FCC implement these principles in a manner consistent with the pro-competition purposes of the 1996 Act.

Universal service is currently measured by telephone penetration, which is the percentage of all U.S. households having a telephone on the premises. The FCC reports that, in 1996, 94.2 percent of all U.S. households owned a telephone. The pre-1996 law governing the universal service program has kept the rate nearly as high for rural areas.

The share of rural households with phones, however, varies greatly by income, from 81.6 percent for rural households with incomes less than \$10,000 to 99 percent for rural and urban households with incomes greater than \$50,000 (U.S. Dept. of Commerce). Again, the success of the current universal service program is apparent here: the percentage at each income level is nearly the same for rural and urban areas. Divergence in telephone ownership between urban and rural areas, however, does occur for racial groups. While non-Hispanic White households have nearly the same ownership rates in rural and urban areas, Black, Hispanic, and Native American households are much less likely to have telephones in rural areas than in urban areas.

Rural communities vary considerably with respect to quality of telecommunication service. One measure is the percentage of digital access lines (older lines are analog). No data directly measure rural versus urban communities, but data for the independent telephone companies and the Baby Bells give some indication. The data, however, can also easily be misinterpreted. A 1992 study indicates that, in the aggregate, over 80 percent of the access lines for independents are digital, while, for example, only 63 percent of Bell Atlantic's heavily urban system of access lines are digital. Rural communities on average do not have better service than the highly urbanized Bell Atlantic service region as this simple comparison might indicate (it is much more complicated than this). Many rural communities, for instance, still have old mechanical central offices and party lines while no major urban area still does. Overall it can be concluded, however, that the universal service policy has helped many rural communities afford relatively modern telecommunication systems.

The FCC Adopts the Joint Board Recommendations

The FCC adopted nearly all of the Federal-State Joint Board's November 1996 recommendations. For rural households, this means that a full range of telephone services will be covered in the universal service program. States still determine the phone rates. The funding mechanism has not yet been determined, but is expected to take effect on January 1, 1999. States may either adopt a funding mechanism that the FCC has determined or establish their own based on State cost studies.

The new funding method will be designed to have a neutral effect on telecommunication service providers. For example, under the old funding system, some telephone companies were not eligible to receive universal service funds, so they had an incentive to sell off high-cost regions of their service areas to companies eligible to receive the funds. Hence, the cost of the service was transferred to some extent from the phone company and the State to the Federal Government. The new Federal funding method, however, does not affect current

intrastate mechanisms for the delivery of universal service. Believing that economic forces will compel States to adopt explicit intrastate support for universal service that is consistent with the 1996 Act, the FCC will make no attempt to convert intrastate support into the Federal program.

Provisions concerning school, library, and health care providers are crucial to rural communities. Eligible public and private elementary and secondary schools as well as libraries will be able to buy any telecommunication service, including the Internet, at a discount. Discounts range from 20 to 90 percent of the provider's rate, based on need and high-cost factors. Universal support expenditures for schools and libraries are capped at \$2.25 billion per year, though unspent funds can be carried forward to subsequent years.

The \$2.25-billion universal support package would average \$21,000 per school if all schools were eligible. It would be no more than \$19,000 if all libraries were included. Only schools and libraries in high-cost delivery or poor areas are eligible for a 90-percent discount. The FCC determined that all nonmetropolitan counties (as defined by the Office of Management and Budget) qualify as high-cost areas. Also, rural areas in metropolitan counties are considered high-cost areas.

Universal support funds can be used to hook up schools and libraries to the telecommunication network, including the Internet. According to QED, a private consulting firm, 64 percent of schools were hooked up to the Internet in March 1997. The rate varied considerably across the States, ranging from 100 percent of schools in Delaware, Hawaii, Nebraska, New Mexico, and South Carolina to less than 15 percent for California, Illinois, Oklahoma, and Texas. More recent information, though, indicates States like Texas have been rapidly hooking up more schools. The percent of classrooms, however, is much lower than the 64 percent rate would indicate. Funding support from the universal service fund covers installation of services within eligible schools. Computers, software, training, and maintenance are not supported, and these additional resources constitute over 80 percent of the cost of connecting schools to the Internet, according to the FCC.

The Joint Board estimated that 9,600 health care providers would be eligible to receive telecommunication services supported by the universal service mechanism. All health care providers that serve rural residents are eligible. Total support is capped at \$400 million per year. Health care providers include teaching hospitals, medical schools, various health centers, other hospitals, and health departments.

Conclusion

The new Telecommunications Act was enacted in 1996. The Act was the first comprehensive rewrite of the Communications Act of 1934, which had ushered in an era of universal phone service for rural areas. The 1996 Act's provisions fall into five major areas: telephone service, telecommunications equipment manufacturing, cable television, radio and television broadcasting, and the Internet and on-line computer services. All these categories will affect rural areas, but the issue of universal service is the most critical. The 1934 Act's universal service provisions largely succeeded in making phone service affordable in even the most remote locations.

The universal service provisions of the 1996 Act ensure that quality telecommunication and information services are available at reasonable rates for people in all regions of the country. The regulations coming about as a result of the Act are meant to address this in a manner that is efficient for the national economy, while recognizing the rapid ongoing improvements in telecommunication services. The provisions also provide for advanced telecommunication services to rural educational facilities, health care providers, and libraries. Without the provisions, rural areas may rapidly fall behind urban areas in our increasingly competitive economy.

For Further Reading . . .

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Montana Adapts to the Telecommunication Act of 1996

Montana is one of the most rural States in the country and has the third smallest population. As a consequence of the State's vast distances and many mountainous regions, telecommunication networks are costly to install and maintain. Yet, in order to compete in today's markets, rural firms must either keep up with technological change or cease to exist. The Telecommunications Act of 1996 addresses the growing need for interconnection between rural and urban areas.

The Montana Public Services Commission (PSC) believes that the areas of legislation that will provide the greatest changes are universal service and the introduction of a competitive local phone service. The Act will also affect the regulatory power of the PSC. Previously, the PSC had no jurisdiction over wireless and cooperatively owned local phone companies. Recently, the Montana legislature gave the PSC jurisdiction over resellers, arbitrations, and interconnections. With the telecommunications field growing, the PSC is devoting two full-time employees and an attorney solely to telecommunications and telecommunication legislation.

Many Montanans are concerned with the changes in the pricing structure and the overall support mechanism that the Act will bring during the next few years. The Montana Telephone Association, an association of local phone companies, feels that small businesses are getting pushed aside during the considerations by the FCC until standards for large businesses can be set. The standards for the large companies, they fear, may be too harsh for smaller businesses to handle. By not allowing second-line (multiple phone lines) exemptions (used by the majority of schools and small businesses), the basic rates for these services could triple. The Association believes that even with the proposed 50 percent discount, both schools and small businesses will be worse off in the long run. Ironically, it is precisely the schools and small businesses that the Act sets out to help through universal service.

Funding has been allotted for schools and other centers where access to the Internet and other resources can be made public. The FCC regulations allow for all schools and health centers that hook up to the Internet to be funded through the universal service provision. Problems may arise, however, according to the Association, from using the universal service for purposes beyond the fund's original intent to ensure basic telecommunications infrastructure capable of supporting advanced equipment and services at reasonable prices to rural and urban areas.

Although access to adequate financing for telecommunications-related equipment and services should be available, the Montana Telephone Association (MTA) feels that the funding should not be the responsibility of universal service. Also, in allowing exemptions for small telephone companies but none for the bigger Bell companies, the incentive for the Bell companies to continue providing high-cost services to rural areas decreases. This could be particularly harmful to such rural States as Montana whose Bell company, in this case US West, is responsible for 57 percent of the telecommunications coverage. US West may have been given further economic incentive to disinvest. The solution to providing schools and health centers with the basic supportive telecommunications infrastructure, Internet access, and more advanced equipment and services, MTA argues, is found in government and private money instead.

Montana educational and health centers are succeeding through government and private funding. The Burns Telecommunications Center and Virtual Medical Center receive financial support from Montana State University, the Federal Government, private contributions, and earned revenues, such as tuition. The Burns Telecommunications Center concentrates on distance learning projects that transmit the educational curriculum from the university throughout the State, to other States, and even internationally via two-way interactive video and the Internet. The Virtual Medical Center allows rural health care workers to access medical information without having to travel long distances. Both centers are hindered by rural Montana's limited telecommunication infrastructure.