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Rural Development and Telecommunications Potential and Policy

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Author

Bradshaw, Ted K.

Publication Date

1990-10-01

Peer reviewed

Working Paper 524

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Telecommunications
Potential and Policy

Ted K. Bradshaw

October 1990

University of California at Berkeley

Rural Development and Telecommunications
Potential and Policy

Ted K. Bradshaw
Institute of Governmental Studies
University of California, Berkeley

May 18, 1990

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Rural Development and Telecommunications
Potential and Policy

Ted K. Bradshaw
Institute of Governmental Studies
University of California, Berkeley

I. Introduction

The need for rural development is so extensive and well documented it needs little further justification. The National Governor's Association book, A Brighter Future for Rural America? notes that there are numerous and varied signs of gloom for rural areas. Migration from rural areas to cities increased to over three-quarters of a million persons in 1987, rural job growth proceeded at one third the rate of urban growth, rural incomes are falling further behind urban incomes, and rural areas are unprepared to participate in the global economy. Rural education lags at both the primary and college levels, and in general rural industries are at the low skill end of the scale (DeWitt, Batie, and Norris, 1988: 1-3). The optimism about rural growth in the 1970s seems to have been replaced by increasingly ominous signs of relative decline for the 1990s.

Telecommunications improvements have been identified as one of several factors that might be critical for rural development. Two different arguments are presented for increasing emphasis on rural telecommunications capacity. First, increased telecommunications capacity (eg, digital switching, fiber optic cable) may be an important stimulus and resource for

rural development, enticing to rural areas businesses which might otherwise locate in large cities. The second argument is that the failure of rural areas to keep up with increasingly sophisticated high capacity telecommunications systems significantly hampers economic growth in rural communities, making existing businesses more vulnerable because they can not make use of computer data transmissions, fax, and other services required by suppliers, customers, or clients. These themes are pervasive concerns among policy makers and technology promoters alike.

The purpose of this analysis is to examine the role of telecommunications in rural economic development and to suggest the policy directions that will best utilize the potential of telecommunications in rural areas. The report concludes that telecommunications, like virtually all other technological developments, is one of many factors which are important for rural development and that telecommunications capacity alone has virtually no impact on rural development. Consequently, for telecommunications to be a positive benefit for rural communities, it must be part of an integrated local development effort that links telecommunications to economic development through a strategy of community organization and human resource improvement.

1.1 What is Rural Development?

The goal of rural development is to help rural areas become developed, which implies that they should have more highly differentiated and specialized economies that are able to obtain local benefits through interdependent networks that provide local control. Development as a concept is elusive, a conclusion from both domestic and third world efforts over many

decades (Bradshaw, 1989). A general theme throughout the literature however is that development involves increasing specialization, differentiation, and interdependence (eg see Landau, 1972; Smelser, 1959). This is true of the technology which forms the backbone of the economy (eg more specialized and thus capable industries, greater diversity of products, more complex markets). Specialization also characterizes the process of developing more capable social organization in both the business and noneconomic sectors, for with increased specialization comes the unique ability to produce more valuable resources and to mobilize more talent for needed local projects. For example, telecommunications development involves both equipment with more specialized features and the associated organizations that are able to help customers use the equipment.

Development is a self-sustaining capacity to utilize local resources in a way that produces continuing well being (Korten, 1980) rather than simply increasing rural incomes (eg, see Stuart and Streeten, 1984; Seers, 1979). In order to be self-sustaining, rural communities must avoid dependence on single firms, industries, or outside government agencies; they must generate real alternatives in which local people participate in an interdependent rather than exploited role. The process of reaching this capacity is the difficult task of rural development (Bradshaw and Blakely, 1979).

The differentiation of the economy has not bypassed rural areas. Dillman and Beck (1987) note that rural communities in the US have experienced three eras of social and economic organization: first, local community control, then mass society, and now the information age. In the information age new social and economic potentials reshape both what needs to be done as well as how to do it. For example, rural jobs will be

increasingly in services, they will be created by new and small firms, mass production will not compete with specialized production, information will be necessary to more tasks and it will be obtained through increasingly complex networks, local information infrastructures will be essential for rapid development, and people will have greater choice where they live because telecommunications can provide information linkage virtually anywhere. The critical question as we enter the information age is whether rural areas will be able to capture what Parker et al (1989) call the new "rural comparative advantage". In the past rural areas were hampered by distance; telecommunications easily overcomes problems of distance. The critical question is how telecommunications can be used to stimulate the kind of differentiated interdependent economy and organizations that are required in the information age.

1.2 Telecommunications and Rural Development

It is important at this point to note that development is an extremely complex and time consuming process involving many economic and social factors. Telecommunications may play a role in rural development, but its role is limited relative to the entire development process, and it needs to be placed in context.

First, telecommunications access by itself would be unlikely to stimulate economic development because development is so complex. Single factor strategies of rural development almost always fail, and one would expect that simply adding telecommunications capacity would not rescue otherwise faltering rural economies. Even in cities, "smart buildings" that have the most sophisticated electronics built in have not been particularly

successful in gaining tenants willing to pay for it. Underdeveloped rural communities with a high-tech facade will likewise fail to attract growing industries.

Second, it is important to realize that in particular situations, telecommunications barriers can limit expansion of existing enterprises, make some activities less efficient, or block development that might occur. Difficulties in resolving telecommunication problems can lead existing firms to look elsewhere and to potentially relocate or to expand in other settings. For example, in the midwest, medical supply producers need to be connected to an on-line inventory control system for hospitals or else they can not access that market. In many businesses the capacity to reliably move orders, money, specifications, fax copies, and other computerized data is a prerequisite to operations, and the businesses needing this include not just specialty manufacturers but even local rural hardware stores (See the report of the Aspen Institute conference on rural telecommunications and economic development, Parker et al, 1989: 138-45).

Finally, many barriers to effective development (such as weak telecommunications capacity) can be overcome by creative development programs and skillful leadership. In some cases the solution is very complex and involves negotiations with state and federal regulatory agencies, telephone utilities, and other businesses. In some cases local pressure can help the utility see the benefit of doing something sooner than was originally scheduled. In other cases temporary solutions can be found. However, the leadership at the local level to negotiate these arrangements is often lacking and leadership is usually the most difficult part of development.

1.3 The potential of Telecommunications Development

Telecommunications can play a decisive role in rural development. It is useful to review the conclusions that Parker et al (1989: 30) report of ongoing research on the role of telecommunications on economic development.

1. Investment in telecommunications contributes to economic growth.
2. Both residential and business telephones contribute to economic growth.
3. The indirect benefits of telecommunications generally exceed the revenues generated by the telecommunications network.
4. Rural and remote areas where distances are greater and telephone penetration is generally lower may benefit most from telecommunications investment.
5. Telecommunications acts as a complement in the rural development process; that is, other conditions must also exist for telecommunications to yield maximum development benefits.
6. Use of telecommunications can improve the quality and accessibility of education, health care, and other social services.
7. Telecommunications can help a wide range of rural businesses and organizations improve productivity, boost product quality, provide more efficient services, and reduce costs.
8. Telecommunications can foster a sense of community and strengthen cultural identity, which contribute to development in intangible but important ways.

In short, as a public investment, rural telecommunications capacity has an essential place along with other public utilities such as water, waste disposal, transportation, and energy supply. Telecommunications has many

indirect benefits to the community. However, most of what we know about the impact of telecommunications on economic development comes from studies of communities that previously had no telephones or very inadequate service.

Rural America faces a number of challenges in upgrading its telecommunications capacity. The technical challenge today is not to provide basic service to remote areas, but to remove the remaining multi-party lines and upgrade the quality of service so that fax and data can be easily transmitted. The administrative challenge lies in resolving a series of complex pricing and regulatory problems.

The consequence of these changes for rural development is not clear. We do not know very much if anything about how telecommunication improvement will contribute to the economy of rural communities that already have minimal telecommunications service but are limited in their ability to handle data and other intensive communications. Specifically, we know little about whether the most effective strategy in these situations is first to provide general upgrading for rural telecommunications systems or if the best strategy is first to develop means to handle specific needs as they arise. Three issues seem to be critical for rural economic development concerning telecommunications.

Cost. First, rural areas by definition are low population density areas with larger distances between individuals and businesses involved in social and economic networks. In these rural areas the cost of installing infrastructure is much higher on a per customer basis, but cheap and efficient communications are the key to reducing some of the penalties of distance that make it less desirable for business activity to be located in rural areas. Telecommunications capacity as a distance spanning feature

needs to be economical enough to permit rural areas to remain competitive. However, the regulatory trend away from blended or uniform pricing toward cost of service pricing will mean that the high costs of installing telephone lines in low density settings will be reflected in the price. This could be detrimental to rural development, but this impact has not been fully assessed.

Telecommunication based firms. Telecommunication based firms are already finding attractive venues in rural communities. In northern California an international weekly magazine is published by satellite linkage. In a small North Dakota town a major nationwide travel agency located its 800 number phone service. Over time this firm has begun to need more telecommunications capacity and it is being installed. In short, creative use of telecommunications will allow a greater benefit from information based economies, with better jobs and more efficient communities as a result.

Competitive Environment. Rural areas must be attentive to telecommunication capacity just to stay competitive with suburban and exurban communities. New urban dynamics have created increased pressure on rural communities because the exurban growth around many large cities has many of the supposed advantages of rural living. For example, in low density and attractive exurban settings businesses have access to the cities as they need them, as well as a growing population of workers who like these living conditions. The benefits of a more distant rural location are consequently minimized. Rural communities need to plan and anticipate demand and to assess the costs of not having adequate competitive position as the patterns of growth rapidly change.

In sum, the critical question is not if telecommunications has a role in rural development (since it clearly has a central role), but how telecommunications improvements can be best used to further the development efforts taking place in rural communities. In the next section I will outline the character of rural development efforts in the United States today and summarize what is known about the role of telecommunications in each.

II. Rural Development Strategies.

There are many possible classifications and ways of organizing the range of rural development strategies used by the various levels of government and private groups. Rural development is easily but not usefully divided into categories such as agricultural programs, industrial development, infrastructure, or human resources; these categories are all part of most effective development programs and tend to reflect different government bureaucracies rather than different strategies. For example, the General Accounting Office (1989) in its report on rural development categorized programs in terms of economic development, agriculture and natural resources, infrastructure, and human resources. The effective use of all these programs at one or another stage of development suggests that a full understanding of the development process requires a stronger theory of development on which a classification could be based. The essence of this theory and its applications is presented in this paper.

2.1 Four Types of Rural Development Strategies.

In articulating a theory of development it is essential that it take into account the two major problems of development which are 1) to improve an area's capacity to utilize resources and 2) to increase local organizational capacity and its ability to link to outside resources. The first focuses on the need for investment in the means of production and the infrastructure that is required to have industries that produce wealth. The second focuses on the human and social patterns, including the ability for community residents to control local patterns of development. The first has usually been responded to in terms of theories of economic development and industrial growth; the second by theories of community development. (For the origin and analysis of these problem types see Bradshaw 1990).

Successful development is rarely achieved by a single minded focus on one or the other of the two problems. Extensive experience in the US and the Third World has shown that it is necessary to have coordinated efforts to both develop the economic infrastructure and to increase the capacity of the social structure to mobilize people.

The typology shown as Figure I explores the relationship between these two efforts which are distinguished as different problems that development efforts address. The horizontal dimension represents the problem communities face when they lack resources for production. When there is a low capacity resources are constrained and scarce, and production is severely limited. At a medium level resources are available but poorly mobilized. The goal of resource development is an abundant and integrated economic system that utilizes local resources for general well being. The vertical dimension represents the problem of limited social organization and dependence on

outside interests. At the low end of the scale, underdeveloped areas are typically dependent and have limited capacity to obtain local benefits. At the medium level there is a community organizational network, but it remains underdeveloped. The goal of improving social and organizational capacity is to be in a position of interdependence where the local community has power to determine its future.

Cell I shows the types of development programs that are pursued when communities are not capable of responding to the challenges of institutionalized development programs; In these communities the need is so great that efforts are limited to those that meet individual needs to assure survival and provide the basic skills and human resources for development. The second cell focuses on economic development issues for the improvement of the capacity to use resources for production. The third cell focuses on community development efforts which aim to strengthen the social network and overcome problems of local dependence. The fourth cell focuses on efforts to join economic and community development using local development strategies. See Figure I.

Figure I

Rural Development Strategies Depend on Type of Development Problem

Extent of
Social
Organization

Capacity to Utilize Economic Resources

Low:
dependency

Med:
underdeveloped
networks

Low:
Constrained, Scarce

Med:
Limited Capacity

I Individual	II Industrial Development
III Community Development	IV Local Economic Development

2.2 Type I. Individual Strategies: Social and Physical Capacity are Underdeveloped.

The most severely depressed rural communities lack most of the resources needed for rural economic development. The firms in these communities are weak or are dominated by outside interests, creating local dependency conditions. Moreover, the levels of education, the organizational skills, and the community organization are so limited that effective local economic development strategies are not forthcoming. The problem in the most depressed communities is that they seem to get only the "bad news" about plant closures, falling farm prices, drought, or technological change that passes them by. Local initiatives are generally limited to reacting to bad situations and keeping them from getting worse. Much of the rural development problem in the Third World is in this situation, but it is pervasive in the developed world as well. Much of the rural South and parts of virtually all other states have regions of pervasive poverty and depressed living conditions.

There are no available estimates of how extensive this problem is in the United States. A proxy measure might be the 242 persistently poor counties identified by Davis (1979) and Bender et al (1985) that were in the bottom quintile of a national ranking of nonmetro counties based on per capita income from 1950 to 1979. The persistent poverty counties have a total of about 10 percent of the population and they are heavily concentrated in the Southeast, have had chronically low income over several decades, have low population density, and contain disproportionate numbers of disadvantaged persons with limited potential labor force participation (Ross, 1986: 9). These areas are surely in need of Type I economic development assistance.

Many other counties and parts of counties have similarly poor opportunities for development. For example, the classification mentioned above also includes three types of counties which may be greatly underdeveloped; those counties are statistically dominated by federal lands, mining, and agriculture. About half the nonmetro counties and their population fit into these categories, which might be the upper limit. Thus, severe development problems face between 10 and 50 percent of rural America, and these counties and communities need some level of direct assistance.

2.21 The Problem: The first type of development pattern involves the serious incapacity of an area to develop its economy without substantial outside assistance. Typically the traditional economic base has failed due to technological change or other problems. Efforts to recruit new employers have probably been unsuccessful, and typically firms have left these areas in a downward spiral.

Various versions of the "vicious cycle of rural poverty" have been presented in rural development literature, all demonstrating that persons and communities in poverty tend to cycle deeper into poverty in the absence of intervention. Specifically, Sher shows how the lack of adequate rural employment opportunities leads to high unemployment, personal poverty, and rural to urban migration. The cycle continues because, in aggregate, low personal income and the depletion of community resources erodes the local tax base and leads to reduced public services such as education, health, job counseling, and community development. As a consequence, displaced and new workers do not get the training and services they need, available skilled jobs are not filled, and businesses that could provide employment are neither retained nor attracted. Thus, the cycle produces deteriorated employment

opportunities, which continue the downward spiral. (see for example, Sher, 1977: 298)

2.22 Intervention Strategies: The dominant policy strategy for depressed areas in a cycle-of-poverty is an immediate transfer of resources to the people in greatest need. In areas lacking both economic activity and resources, the limited capacity of individuals stands out as the major problem and the first line of attack. Relieving misery and developing local human resources is an attractive strategy to both stem the outflow of people and jobs, as well as a base that will be necessary for any new development.

In this sense, human resource development is the fundamental building block for other types of development, for without it all else fails. In this strategy, the key is the limited capacity of the individual; the theory is that as individuals gain more capacity they will be able to earn income through their own farm operations, other business activity, work in more sophisticated organizations, and do work requiring more skills, thus improving their market potential.

Human resource development is also easy to sell from a policy perspective because it is a lasting investment that is also geographically transferable; if the rural economy falters and rural people leave for the city, the migrants still have their skills and training that can be used more easily and effectively in urban centers.

2.23 Types of development policies. There are several policy arenas in which Type I rural development policies and programs have been utilized.

A. Job training. Job Training is a complex process that has constituted a large part of the federal Department of Labor effort over several decades. The federal focus of these efforts has been on skill or

job training first through the Manpower Development and Training Act of 1962 and later the Comprehensive Employment and Training Act (CETA) of 1973. Again revised in 1983 under the name of the Job Training Partnership Act, the programs for training displaced and unemployed workers has taken on an increasingly diverse set of goals. The first programs were relatively straight forward federal funded training programs displaced workers, but under more recent programs training has been decentralized and state and local programs have been targeted to more particular needs, training goals and format have expanded, and stronger links to employers have been forged. Thus, the JTPA makes extensive use of Private Industry Councils (PICS) that link employment to job training. The emphasis in JTPA is on training coupled to job placement, often with jobs assured in advance of training, private sector programs working on a contract basis instead of government programs, and more local autonomy (see Levitan, 1987).

Training for severely disadvantaged persons is also provided by federal programs. For example the Job Corps provides intensive special training for poor youth. Remedial education as well as vocational training and counseling are provided and the students completing these programs have high success rates in attending other programs and getting employment. (Levitan, 1987:713)

Vocational education and cooperative extension provide additional human resource capacity in rural areas. Mostly funded through grants to states, the delivery of educational efforts in rural areas remains sparse. In some cases colleges or universities have small branch "campuses" which in rural areas may be no more than a classroom that is occasionally used by a travelling professor. In some cases televised courses are used as the core

curriculum and a faculty member leads discussion and grades assignments. These programs work best for motivated students in professional continuing education courses (eg for nurses; see Hudson, 1988), but limited success has been seen in other types of programs.

B. Work experience. Employment subsidies to employers who provide initial work experience to disadvantaged persons is another individual based program that can help in rural areas. Offering persons the opportunity to actually develop work experience is viewed as a means to provide access to the employment pool which is generally closed to inexperienced persons. In these programs federal funds subsidize employment for disadvantaged persons for a period of time during which they gain experience that does not cost the employer so much; ideally the employee would prove valuable and continue working for the company after the subsidy ends. These programs may target youth (eg the summer youth employment program), veterans, or the elderly. Physically handicapped programs also receive funding for this type of economic development activity.

C. Job placement. Federal and state unemployment programs are generally coupled with referral services to assist able and skilled workers in finding jobs. These programs are structured in various different ways and serve hundreds of thousands of rural persons each year. State and local governments generally operate these programs, often from county seats and larger cities which makes rural access difficult.

Job referral services are less often used in rural areas. Rural people tend to know of the possible employers in their community because there are few places that use people with any set of skills. Consequently, rural people use their interpersonal communication networks within their community

to learn if any potential employer is hiring. Rural persons looking for work are less likely to maintain their registration with employment agencies after their unemployment benefits are depleted. With lower registration, many rural unemployed persons are not counted, deflating rural unemployment rates and leading to decreased employment services. Nonetheless, rural job placement efforts can benefit rural employers, especially those looking for specialized workers.

D. Work Entry Assistance. One barrier to rural economic development is that willing workers lack personal resources to allow them to become employed, such as no childcare, transportation, tools, clothing, bonding, or other prerequisites. Existing federal and state programs have only provided limited help in these matters, with more attention being paid by church and other nonprofit groups. Transportation problems are particularly severe for poor persons in remote rural communities. Work is often sporadic and long distance from home, and limited public transportation networks almost demand that a person have a car—a barrier to most of the poor.

E. Personal well-being. Rural development efforts include programs to improve personal well being in housing, health, nutrition, legal matters, welfare, language skills, and even overcoming racial and ethnic discrimination. Programs such as self-help housing, community vegetable gardens, nutrition etc. can reduce the need for cash income among rural residents, thus helping their low incomes go further. Again, these programs have typically been sponsored and funded both by the federal government and local programs. Often they are associated with other economic development programs because they meet real and pressing needs. In fact, people who participate in these programs often have improved chances of fitting into the

rural economy.

2.24 Assessment. Individual level policies and programs are an important first step in improving the rural economic base and providing for rural well being. For the most part they are of direct benefit to workers and they provide some subsistence. They also improve the base for all other types of development.

The limitations to individual level policies and programs is that they do not in and of themselves generate economic growth in the rural areas. They are a necessary and important foundation for growth, but do not really create the jobs into which the skills would be utilized. In general, the lack of jobs in rural areas means that the long term investment in training and human resource skills is not easily converted to employment for rural people.

A major problem with the administration of individual improvement programs is that they tend to be national or regional programs that meet needs present in both rural and urban areas, and consequently most programs have been designed for urban rather than rural administration. JTPA programs for example, are based on the premise of local administration, but in rural areas they are typically administered by a multi-county agency. In Northern California, for example, six counties are part of one administrative unit, which blurs any connection to local problems and biases projects toward the needs of the largest cities in the area. Projects which have the largest scale get the most attention, reducing effectiveness in the smallest places.

2.25 Telecommunications Opportunities. In Type I strategies telecommunications can play a major role in the delivery or administration of programs but will have little direct effect on the overall development of an

area. For example, job training programs in many rural areas use a variety of telecommunications techniques such as centralized classrooms linked to satellite locations.

However, the utility of telecommunications in education and job training is still being debated. On the one hand the potential of providing much more specialized material to learners in remote locations is appealing, and has promoted much speculation and experimentation. On the other hand, the results are far from convincing. The computer revolution in education remains to be realized in most fields with the exception of mathematics and some science programs. In more subjective fields based on creative insights, the programming has not been available to do more than introduce subject matter. For job training, a major limitation will surely be the need for hands-on experience and the inability of many of the people needing training to work well with media rather than a person. Research has shown that personal contact remains essential in making the training materials work, and again this creates a problem for dispersed rural areas where the teachers will need to travel long distances to reach few students.

Cooperative Extension programs linked to university centers are effective in certain areas to provide sophisticated training to already skilled farmers and local government officials who need further assistance.

At another level, telecommunications can play an important, though limited, role in administering some rural jobs programs such as work experience and job placement. In work experience programs workers and possible placements can be made more efficiently with dispersed data access. Job placement may use telecommunications efficiently in providing good interactive placement services in remote locations where job availability

information could be received by computer terminal or even phone. Registration for benefits could be handled again by phone or by remote terminals.

Finally, rural programs benefitting poor persons can often be handled more efficiently by using telecommunications. Health and transportation programs are examples. In some rural communities health care is a development problem because it is unavailable or unspecialized. Rural hospitals are underutilized, leading to pressures to consolidate. Some hospitals cut costs and provide better services by telecommunications that interconnect several rural hospitals and/or city hospitals. Telecommunications can provide both specialized technical and professional medical skills to isolated communities especially for interpretation of medical tests (Hudson, 1988). Good telecommunications contact with ambulance personnel can reduce travel time and can facilitate speedy treatment when patients arrive at a hospital (see Bradshaw and Blakely, 1979). In the health area the government plays a large but indirect role. Government medical payments make up a large part of the income for most rural hospitals, but the government payments do not cover the higher than average costs associated with small rural hospital services. The Federal government did help build many rural hospitals through the Hill-Burton Act, but it contributes little to their operations. The use of telecommunications is often cited as an effective means to reduce costs and increase effectiveness in rural areas. This is clearly one area in which more effective programs at the private level will make it more attractive for businesses to locate in rural communities, for poor health service is sometimes a barrier for many types of development.

Public transportation in rural areas is an ongoing problem. Without the necessary density and with the prevalence of private cars, rural public transportation systems are underused. However, poor persons and those who can not drive for one or another reason still have unmet public transportation needs, and the government has traditionally felt a responsibility to assure that these persons have an affordable alternative to driving. Rural transportation system innovations heavily rely on dial-a-ride programs and other unscheduled systems linked by radio and phone. Continuous computer assisted route scheduling communicated to the driver can make these systems even more effective.

Social security administration may also be a venue for the further use of telecommunications. Millions of retired persons now receive their checks in rural locations and the administration of the program is often inefficient and delayed. Increased telecommunications capacity would facilitate improved social security administration.

In sum, more efficient program administration is possible in rural areas if telecommunication potential were increased, but in most cases greater telecommunication capacity will face significant barriers to good performance and acceptance. Especially in terms of computer linked programs, rural people may continue to feel isolated and remote from the social programs they need. Training of staff and beneficiaries to use the equipment may be very demanding. In short, with only some exceptions, most desperately needy rural people will not find their well being improved very much by telecommunications availability or upgrading.

2.3 Type II. Industrial Development Strategies: Developing Resource Capacity.

The second type of development problem is most commonly known as "economic development," meaning that the economy in the local area needs to be stimulated to provide more jobs and income.

2.21 The Problem. The fact is that training alone does not help an unemployed or underemployed rural person if there are few job opportunities suggests that industry needs to be expanded. Economic development thus needs to go hand in hand with Type I individual level support programs.

The premise of economic development is that lagging rural productive systems and economic structures need investments to increase capacity, attract firms, capture more profit, and become self-sustaining. A second premise is that rural communities have some economic resource that can be identified and utilized for the expansion of local business. In some cases the resource base is agriculture, forestry, mining, or other primary industry that can provide more economic activity. In other cases the community's rural setting provides an attractive site for tourism, trade, or transportation related services. Human resources advantages are also attractive, such as a reliable or well trained labor force. Thus, the problem of rural economic development is to create or expand the capacity of the rural community to utilize the resources that are present to generate more business.

There are a number of ways of describing the types of input needed to develop local economies. One popular concept is that of the five "M"s. Economic development needs, according to this concept, Money, Materials, Management, Marketing, and Manpower. Other concepts build on the interplay

of firm creation, expansion, financing, infrastructure, and technological transfer. In many cases the emphasis is to discover industries that fit with resources available in the community. Economic development texts cover these points, and I will not review them in this paper (eg see Moriarty, 1982). My interest in this paper is to discuss the programs that provide assistance to firms and that create the conditions under which new and existing firms can operate in more productive ways, including ease of obtaining infrastructure assistance (including telecommunications), financing, etc. The critical factor generally is whether the economic development efforts lead to jobs that would not be in the community.

2.32 Intervention Strategies Since Type I human resource development strategies are limited by the inability of able and willing workers find jobs and to earn good wages, rural developers gradually have come to understand that intervention in the economy is essential.

The basic assumptions of resource development strategies for rural areas are:

- most areas can support some expanded industrial or commercial activity because important resources are currently underutilized;
- barriers to development exist including lack of information about the potentials of the area, inadequate physical facilities, lack of firms, or poor financing.
- the effects of induced increases in business will have beneficial multipliers throughout the community; thus the public good is served by having increased economic activity even at public expense.

Most rural communities have resources that will be attractive to further economic activities such as their labor force or natural resources or

tourism, but these resources are not fully exploited at the present. Rural areas are particularly lacking in the modern amenities that make it attractive for economic development. The theory is that if you provide what businesses need, they will come and create jobs.

2.33 Types of Development Policies: Economic development is a complex process involving many parts. The lack of any one is critical, but there is no true hierarchy by which the parts need to be assembled.

A. Rural Industrialization. This development policy is an overarching strategy which includes many of the particular strategies detailed below. Industrialization in rural areas has concentrated on the manufacturing sector based on the concept of the role of a "basic" industry in driving the motor of a local economy. The basic sector creates a flow of money into the local economy because it exports products. The local benefit of these product sales is that this outside money stimulates sales of goods and services in local "secondary" sectors which do not export but which provide for local jobs. Along with sales of products from local natural resources, manufacturing is the key to effective rural economic growth, according to the dominant theories and policies of the 1960s and 1970s because manufacturing is the key "basic" industry. Tax incentives, financing, infrastructure, and other techniques are used to try and attract or develop businesses which would expand rural economies.

Gene Summers summarizes the results of rural industrialization:

Unfortunately, a quarter century of experience tells us that the reality of rural industrialization has not been entirely as expected. The results have not lived up to the optimistic rhetoric of the 1960s....Studies show that local labor markets operate in ways which often work against the needs of the people for whom rural industrialization was promoted....New industry may raise the average income in a community while depressing the relative income status of some segments of the population....In general, people who do not possess

resources or assets for which there is an increased demand generated by the new industry will experience a relative decrease in income. (Summers, 1986: 182-3)

Summers notes that there are some community benefits from industrialization such as population growth (or slower decline), and increased commercial activity in the local economy. However, manufacturing is not increasing as a proportion of the national economy, leading to the conclusion that its potential, even if it delivered more extensive benefits to local people, would be limited to just a small number of jurisdictions each year, and these might well come at the expense of other rural communities which would loose employment.

B. Attraction Programs. Rural communities spend a lot of time and money trying to attract outside firms. In North Carolina, for example, a massive state led network of professionals working with local communities produced colorful flyers, attended industrial location shows, and created an impressive organization to identify potential firms that might locate in rural communities and to offer them the packages that would be adequate to secure the plant in the state. Perhaps the most effective of all state programs, the North Carolina program netted perhaps a hundred thousand jobs, largely in textiles and other manufacturing industries (Blakely et al, 1983).

Are these programs worthwhile? On the one hand, thousands of jobs is impressive and has surely buffered economic impacts for the state from the massive displacement of people from small farms that has been ongoing in North Carolina for many years. On the other hand, the jobs that were created were largely low wage jobs and North Carolina has remained at or near the bottom in average wage figures (Moriarty, 1982). The plants were located in rural North Carolina partly because of the attractive financial package

offered by the state, including significant tax reductions. The plants did not contribute very much to improving the quality of life in the community and as the 1980s came to an end there has been a general concern that these same plants are very footloose and are leaving for areas of still lower wages, including foreign locations. In short, if a plant was footloose enough to locate in North Carolina during the 1970s, what is to stop it from relocating elsewhere as soon as it exhausts the public benefits offered to attract it in the first place?

C. Retention/expansion If communities are willing to invest large amounts of money and time attracting outside firms, a variant is to put the same level of effort into the retention and expansion of firms already in the local area. Many small communities generated a great deal of antagonism from their existing businesses when new firms (sometimes competitors) were given very large incentives to locate in the area while an existing firm was having difficulty financing expansions, or was considering relocating itself. Thus, economic developers noted that it is easier and less costly to retain and expand a local firm than to find an outside firm to bring in. Many rural communities have taken the approach of setting aside investment moneys for technological upgrades, expansions, and other efforts to help local employers. Specific job training activities, for example can be provided to existing firms to help them with technological change. The jobs would be retained and industry-community relations improved.

D. Financing. There are essentially four ways that economic development projects in rural areas can help with the financing of firms. The development project can guarantee loans through private sources, provide below market rates by raising money from bonds or subsidizing rates, package

loans so that worthwhile projects can be fairly evaluated by commercial banks, and invest public money in ways that facilitate loans (including deposit accounts and direct investment of pension and other funds).

The first option of loan guarantees assumes that the project can afford the market rates, but because of rural location there is a prejudice against issuing a loan to rural companies. By guaranteeing the loan, the government sets up a pool of resources to cover defaults, and it monitors the operations of the recipients of the loans to make sure that they can pay back their loan. If there is any problem, the government agency usually provides some technical assistance to try resolve it before the company defaults on its loan. Loan guarantees are generally thought to be an inexpensive way to target assistance. The private lenders operate fairly much as usual but are willing to assume loans for projects that they would otherwise consider too risky. This type of program makes most sense when the economic development agency believes that the particular firms are financially sound and that the banks are too restrictive. Ideally, under these conditions the financial implications of the program are minimal, as a very high proportion of the firms will succeed and default amounts will be low.

The second option is to provide money at below market rates to selected economic development projects. These funds are often obtained from bonds issued by public agencies, often qualifying for tax exemptions, and thus at low interest rates. Some programs receive an initial allocation of funds that can be loaned out again as they are paid back by the first borrowers. The interest is waived in some programs, and in others the savings in lower interest rates are passed on to the firms.

Interest reductions are possible through other means as well. For

example, some development projects offer firms an outright subsidy in terms of interest co-payments. In instances where a firm is locating in an area that has higher external costs or where it has low productivity, a subsidy of loan costs may be necessary to sustain the firm. If all goes well the firm will contribute to the community well being through employment and taxes, and the community will be better off in the long run. Other economic development projects package a number of rural small business loans into one larger loan and then market it commercially; the bank then has only one loan to deal with and it is less expensive to monitor because the agency is involved in evaluating the individual firms, resulting in lower rates. Other innovative interest reducing schemes are discovered annually in economic development projects, but no financing program meets all needs.

Several federal programs offer interest rate reduction programs but they typically operate through state agencies. Perhaps the best known programs are for small business, and these are very popular in rural development. While access to information about the programs and guidance in gaining access to the funds is limited in rural areas, the concept is important to rural development interests. For example, small business makes up a larger share of rural employment than in urban areas, and rural banks tend to have limited incentive and capability in dealing with business loans. Some private development programs involving foundations do interest rate reduction financing, but government programs are generally necessary.

E. Marketing Market identification and development plays a critical part in the expansion of most industrial activities. For example, in the introduction of the kiwi fruit by California agriculture interests, there was an active interplay between the production interests who planted new acreage,

and their producer's organization which conducted extensive marketing efforts to introduce people to the new fruit. In early years the market would fluctuate wildly relative to demand, with high demand and high prices bringing more producers, and more producers providing more supply and more incentive to market.

In another example, rural economic developers have found markets for locally produced agricultural products, manufactured goods, or arts and crafts items, often in foreign countries. For example, a Wisconsin firm developed a way to make chopsticks for an export market, and in Australia a firm discovered how to market a variety of fish that was locally abundant, but not prized, to the Japanese for whom this type of fish was a delicacy. Another example is the Indians in Washington state who started marketing their smoked salmon in the major department stores in New York instead of simply using it locally. In each of these cases the process involved finding a market, developing the institutional ties that permitted access in that market, and expanding local capacity to meet the new demand. In this way marketing was a critical component.

F. Infrastructure projects, eg industrial parks. According to most of the people in economic development departments and programs in rural communities, the construction of industrial parks and the provision of other specialized packages of infrastructure has been a prerequisite for rural economic development. For example, Kale and Lonsdale write that:

The presence of developed industrial sites or parks will probably become an increasingly important consideration for many industries seeking a nonmetropolitan location....Because many communities offer developed sites, towns without one or more developed industrial sites may find themselves automatically excluded from consideration by prospective industries. (1979:53)

The evidence for this point of view is scanty or nonexistent, yet it helped

structure major Federal programs in the Economic Development Administration, for example (see Rasmussen, 1985), and in most state governments.

However, it is truly a myth that industrial parks create economic growth. For example, Belzer and Kroll (1986) identified 24 industrial parks that had been placed in rural Northern California timber region communities. Of these industrial parks, built during the last decade or more, a total of 16 stood totally empty, and only two, built for lumber mills, were full (1986:54). As Belzer and Kroll note, "industrial parks can be very costly, and they often do not meet the major needs of firms starting up or expanding in rural areas (52)." In Wisconsin the development of rural industrial parks has been estimated to be adequate for current rates of expansion until the year 2010 (Blakely, et al, 1983). Thus, empty rural industrial parks are more than evidence of the fallacy of believing that this type of infrastructure will lead to rural growth, but the empty lots are a continuing blight on the countryside and a reminder of the broken dreams of the rural communities that built them with hope that they would bring in the industry necessary to get them out of their depressed conditions.

Infrastructure. A significant problem in rural areas does involve infrastructure. For example, many rural rail lines are now in very poor condition. It is not uncommon to see rural lines serving rural communities unable to support trains going more than 10 or 20 miles per hour. Deregulation has changed commitment by rail lines to serve many counties. Also, roads are often in poor condition, making truck access both time consuming and costly. Those communities located near interstate or major highways have much less of a problem with difficult access, and indeed they often support bus and trucking lines. For example, long distances to good

transportation networks have seriously hampered the development of the northwestern corner of California, for example. Lake county is less than one hundred miles from San Francisco, but because of limited road access its economy remains largely isolated. These limitations can be severe barriers to rural development.

Water supply and sewage capacity are another serious rural problem. Whereas most rural residents living outside towns can operate successfully with wells and septic tanks, industry generally has too large a capacity for these small scale systems. Adequate community water supply and waste treatment becomes essential for most industrial development. The federal environmental protection programs that operated through the 1970s provided a significant share of funds for the expansion of municipal systems, though this program has now dramatically reduced the number of systems funded and the proportion of funding provided. Within the Farmers Home administration a program of water and waste disposal continues to provide both grants and loans for small communities. The Corps of Engineers continues to build projects for flood control and irrigation. However, the role of federal funding for these types of infrastructure has declined and the responsibility of local areas has increased. As a consequence, rural communities are having to find other ways to fund these facilities. Communities that did not get their systems upgraded when the federal money was available seem to be having a hard time finding funding now.

Energy utilities have also played an important part in the development of rural economies. In some parts of the country with access to very cheap electricity (especially in parts of the west where public hydro-electric systems supply municipal utilities), low energy prices can attract energy

intensive industry (eg, metals refining, pulp, paper, chemicals). In some areas the availability of waste heat (steam) from other industries becomes an attractive feature. The focus on energy resources as an economic development focus has diminished considerably since the early 1980s when oil prices were at their peak. Today, the federal government supports the Rural Electricification programs for small rural utilities which typically have higher than average costs due to the fact that their customers are so widely scattered.

All these infrastructure programs are necessary for some types of industrial operations in rural communities. In some cases a new industry will contribute to the infrastructure cost, but for the industry to pay directly or indirectly the local community needs to have significant advantages over other areas which already have the necessary facilities (eg, proximity to certain resources and markets, college near by, etc). Unfortunately, in other cases the lack of infrastructure means the industry will locate elsewhere. States and local areas have taken up some of the slack with regional organizations playing an increasingly important role.

It is important to note that technological change and increasingly strict discharge requirements in nearly all parts of the country make infrastructure an issue for plants that already are operating in the rural community. In many industries (from manufacturing to tourism) firms may have serious problems meeting governmental standards without substantial investments. Of particular interest is the example of efforts to deal with this in California where the "Rural Renaissance" program provides funds (usually loans) for infrastructure where specific firms require upgraded infrastructure to remain, expand, or relocate in rural communities. Funds

are generally not available prior to a signed commitment by a firm needing the facilities.

The public utilities infrastructure with the exception of transportation is now undergoing important technological changes which may provide efficient small scale options that give rural areas some of the benefits of being able to incrementally increase capacity and locate facilities in many remote locations rather than paying for the centralization of facilities with area wide collector and distributor networks. For example, small scale sewage treatment facilities are now available for small subdivisions of rural housing, and dispersed electricity production technologies are becoming more cost effective each year (Summerton and Bradshaw, 1990). It may be possible to meet the capacity needs of rural development through these small systems and avoid some of the major capital outlays that were assumed in the past.

Infrastructure for Telecommunications. Telecommunications capacity is important at a certain level for economic development in rural areas. In general, all rural areas have telephone access, and the problem is cost and quality of service for businesses that have special needs. This should not be underplayed, and the general upgrading of rural services should be a priority. However, one should not assume that sophisticated telecommunications services will attract potential economic development to rural communities. The accommodation of special telecommunications needs seems to be an issue for which rural communities and their telephone company should have a policy. For example, the company might agree to put in the capacity desired by certain types of industry if it would provide regional employment benefit. The way this improvement would be paid for could be negotiated as well. In this way the community has prepared for development,

and if it is needed before there is a general service upgrade it would be done quickly, but the investment does not have to be made until it is needed.

The agricultural sector seems to be particularly demanding of new telecommunications capacity in rural areas. For example, a recent review noted that there are 11 types of information that farmers now use (Carr, 1988:162).

1. News and community service information, local and world.
2. Weather forecasts and related emergency or disaster information.
3. Crop and livestock production information, including pest management, irrigation water management, and feeding recommendations.
4. Marketing information including current and future prices.
5. Hedging risk through the purchase and sale of futures contracts or options on futures.
6. Selling of farm products through teleauction or computer auction.
7. Purchasing farm and home supplies, including teleshopping.
8. Banking services, including lending and cash management.
9. Business management including recordkeeping, budgeting, and planning.
10. Information concerning farm programs and regulations,
11. Personal education and entertainment.

In the modern farm sector these sources of information access become more and more important, and linked to farm computers, become essential to the operation of many farms. These demands on the technical infrastructure, and the companies that supply the information, go hand in hand; without adequate telecommunications infrastructure many of these capabilities will not be available to remote farmers who need the information the most.

2.34 Assessment: Programs to improve the functioning of the rural economy are essential to rural development. Yet they remain only partially capable of actually bringing jobs to rural communities. The fact remains that rural communities are dependent on urban and outside markets, they are subject to prices set in a global context, and they are very small actors in a very big game. In short, even with an ideal support system for rural economies, rural industries do not first respond to local needs. Fortunately this varies according to the particular industry, the community and region involved, and personal factors.

The development of the programs noted above have a strong bias toward manufacturing firms. However, no estimates suggest that the goods-producing agricultural and manufacturing sectors will not by any estimates experience either absolute or proportional increases in jobs during the next several decades (Deavers, 1988:389). The major employment growth in rural areas is in service industries. In fact, the service sector is mixed in its economic role in rural areas. Services are mistakenly thought of as a nonbasic industry, one that locally recycles income produced elsewhere. In fact, many service industries are basic, in that they bring outside money into the rural community. As Smith and Pulver (1980) have shown, trucking, wholesaling, insurance, business services, and many other industries are attractively located in rural communities, and they bring outside income into the community just as much or more than most manufacturing industries. In addition, some clerical operations are found in rural communities where data are processed for insurance and banking companies. Tourism, conference centers, education, and the like are also important basic service functions able to locate in rural communities. These industries, however, do not tend

to provide employment opportunities for workers displaced from agriculture or other heavy industries, and where they have been introduced they have employed mostly wives, new labor market entrants, and newcomers to the community.

Another problem with economic factor models of rural development is that they tend to redirect regional growth rather than create it. Much of the industrial attraction framework is premised on the attraction of growth occurring elsewhere. As we know the number of footloose plants is small and is probably shrinking each year. Thus these programs often show very limited benefit.

For rural areas one promising strategy in small business continues to be the examination of local spending patterns to see what types of businesses are not available locally. For example, noting that small communities of a certain size tend to have enough business to support a dry cleaners and hardware store, communities that size might find it attractive to encourage development of the appropriate businesses (these opportunities are identified using a shift-share analysis technique, see Blakely, 1989) These strategies tend to provide better balance between rural and urban areas, whereas some of the industrial competitions tend to produce misplaced hopes.

2.35 Telecommunications Opportunities. In terms of rural economic development, opportunities need to be explored to utilize the telecommunications capacity that already exists in some areas. In California, for example, one of the most sophisticated fiber optic communications systems is owned by the utility, Pacific Gas and Electric. Apparently, they have additional capacity on their system which was designed for high reliability in operating their far flung system of electrical

production, transmission, and distribution. This system necessarily crosses many small communities and could be a resource for development if regulatory and access barriers were removed and if the utility wanted to offer access to outsiders. This example shows that some creative use of resources already available could benefit rural communities.

One of the major programs in the whole rural telecommunications effort is the Rural Telephone loans and guarantees from the Rural Electrification Administration. Many rural areas are served by small rural telephone companies that rely heavily on government programs. I will not review this program further, however, except to note that small rural phone companies have an important role to play in economic development and can often be a successful partner in development efforts.

Telecommunications companies and information intensive industries may very well be good partners in rural development efforts. Industrial recruitment efforts targeted toward these companies may be fruitful because they can take advantage of some rural locations that have the necessary infrastructure.

New technologies provide yet another opportunity for rural development. Satellite and other radio based communications systems are considerably less dependent on urban locations. In fact, some rural areas may be more attractive for certain new innovations because of a lesser density of traditional uses and interference. And the cellular telephone model useful for car phones in urban areas may be the least expensive way to provide telecommunication in dispersed rural locations. It remains unclear how the variety of telecommunication innovations will affect the economic viability of firms in rural areas.

Economic development program administration in rural areas will benefit from better telecommunications as well. For example, financing for rural communities might be more easily arranged with local banks and economic developers linked into financial services networks. Contracts for government supplies or projects could also be made more efficiently in rural areas by telecommunication links between potential contractors and contracting agencies. To some extent, on line capacity is now used in urban areas.

In sum, with rising employment in the service information sections of the economy, rural industrial development projects that use telecommunications investment as one of their attractive features, may well be at an advantage, though expanded capacity is not sufficient to attract new businesses. It is not clear how extensive the upgrading of existing telephone systems needs to be to facilitate these more intensive uses, as compared to using new technologies to provide similar service. National standards for minimum telecommunications capacity should be set and lagging rural areas should be equipped at that level due to the variety of telecommunications applications that will be an integral part of the rural economy of the future. However, it is not to be assumed that this capacity alone will be adequate to greatly improve rural community opportunities.

2.4 Type III. Community Development Strategies: Developing Social and Organizational Capacity

Worldwide, development specialists have become aware of the limitation to either the individual resources model or the economic factors model because they promote dependence instead of self-sufficiency (Bradshaw, 1989). Most rural industrialization models are based on the assumptions that an

outside company needs to locate in the local area, and that good manufacturing employment is needed. In fact, when these development models are pursued, local communities lose control over their own resources. Footloose companies that are enticed to a local community by attractive local incentives are just as likely to be enticed to another community as soon as the initial deal has been exhausted.

Lacking strong local tie such as local ownership or a strong involvement in community planning civic organization, companies end up not being partners in development but restrict development. A relevant example was provided by an industrial developer in North Carolina who described his problems in locating plants in some communities because an existing firm wanted to keep its monopoly on low wage employment within the commute region. Competition was feared even though the area was one with high unemployment and presumably an adequate supply of workers to meet both firms needs (See also Moriarty, 1982). These patterns of industrial location are often very subtle and are rarely discussed publicly, though many people working in industrial development confirmed that these patterns exist (Blakely, et al, 1983). As this example shows, development requires more than just the cooperation of outside firms; it requires an active community and organizational structure to create alternative places of employment, alternative markets for local resources, and alternative nodes of community power. Type III strategies are focused on developing these alternatives.

2.41 The Problem. The third type of development strategy is based on the premise that economic activity is blocked by inadequate social and community capacity to motivate local citizens, to mobilize opportunities that come along, and to expand on the resources that presently exist. Rural areas

are too dependent on outside forces, and citizens need a venue to express their interests and talents. This involves a realization that community development is lagging, and as a consequence, economic forces are not able to work effectively and benefit citizens rather than some outside interest. In the absence of community capacity, few locally owned businesses will be developed, and the community will not care about what happens with its large firms until it is too late and they leave. One assessment is that the businesses in the rural community need to focus on management and marketing rather than the factors of production.

2.42 Intervention Strategies. Whereas the second type of development strategy looked to economic models of regional growth, the present one looks to models of organization and community structure to identify ways to benefit targeted groups of individuals and firms.

The strongest tradition in U. S. rural community development came out of the agricultural extension programs. In agriculture it was acknowledged that more efficient agricultural production was often blocked by communities. For example, early research on the diffusion of innovation showed that improved seed or agricultural practices would not be adopted by individual farmers unless some opinion leaders first tried the innovation or gave personal encouragement to local farmers to adopt it. Moreover, after World War II there was so much migration to the cities that many small rural communities lost the basic businesses and governmental services that were deemed necessary to the continued well being of the people living there. Since the community was so essential, the USDA proposed in 1956 that rural development and community development be part of the official functions of the Cooperative Extension Service (Phifer, 1980;33-35). The Johnson

administration added a large number of community development programs as part of the "Great Society" effort, and with these programs came the possibility of applying for and receiving large sums of money for local projects of many sorts under the various competitive grants programs that matched viable projects with targeted need groups.

A. Technology Transfer. Community development projects have evolved through three types (Bradshaw and Blakely, 1979: 137-42). The first type provided a technology transfer function in which modern and sophisticated knowledge was brought to rural communities. This involved information about community planning, government administration, and the economy. The extension service was largely involved in this effort, though the provision of information and technical services has broadened considerably since the 1950s.

B. Community Organization. The second type, which came later, emphasizes the organization of local communities into stronger social groups. The realization from the technology transfer era that technology transfer needs to be rooted in active groups has been reinforced by the need to have a plurality of groups in the local community who can represent the interests of disadvantaged persons. The mobilization of these groups can empower needy groups to seek social and economic change that is in their own best interest, as well as to develop self-help strategies. From a community development perspective Christenson and Robinson (1980) argue that the techniques of Saul Alinsky in focusing conflict in communities into well organized social movements is a most important component.

C. Networking Strategies. Community development strategies in the rural advanced industrial society take on an additional level of complexity.

Technology transfer mechanisms and a diversity of community organizations are typically well established in most of rural America today, and the present challenge for community development is to develop linkages among different groups within the region. The most important community development role in rural development today is working with bureaucracies and mediating the needs of local communities with the larger set of organizations that influence their destiny. As Bradshaw and Blakely show (1979:137-160), this task requires a rural development professional who sees the larger context in which community needs fit and who helps the community obtain its goals in such a setting.

2.43 Types of Development Policies. Community development strategies are enormously varied and cover a wide range of programs that necessarily are different for each different society and group in need. Here I will not summarize the full diversity of policy approaches but simply describe the most common--community development organizations, small business programs, and marketing networks.

A. Community Development Organizations. Since the end of the Great Society effort community development programs have been substantially cut back. In general it can be argued that these programs can make a significant contribution to the well being of a rural community, but that they have never been successfully implemented on a wide scale basis. For example, a detailed case study of four successful rural community based development projects by Hubert Smith (1980: 263-281) concluded that success was dependent on:

--ample start up money;

--a base of community support including both influential persons and the target community groups;

- clear and understandable goals, usually very specific;
- economic activities so that the target group is fully involved in the development process from the start;
- managerial capability;
- diverse capabilities including technical assistance provision, capital formation, human resource development;
- successes to build upon; and
- dedicated leadership who will persist in their role and learn during the difficult times their organization goes through.

These organizational contributions are important and they have lasting value in the community regardless of the particular success of the organization that they were initiated in, but they are all expensive and do not show immediate results. Many funding agencies get anxious that the organizations do not produce jobs more readily or that they become entangled in the web of their own politics. However, there is substantial evidence that good community based organizations are a prerequisite for sustained local economic development.

In addition to focused community development organizations, community participation in economic development is essential in a number of ways.

Edward Bergman has argued:

The fact of the matter is that a considerable amount of local public resources under citizen control is devoted to activities that support economic development (1983:6).

Bergman suggests some ways local citizens can be involved in rural economic development. First, the allocation of long term public investments such as the infrastructure and the human resource development program is generally a public expenditure that can be allocated to needs supporting community rural

development. Second, a large number of agencies and groups affect the direction of development, such as planning departments of local government, offices of federally funded programs such as Farmers Home, EDA, etc., locally established development corporations (especially local economic development commissions), and independent groups with special interests in rural development, including churches. In general these groups work with little directed input from local citizens, with the consequence that they often do not reflect the interests and needs of the local community. Community development efforts can successfully redirect these programs.

B. Small business and entrepreneurship programs. A second type of program and effort is specifically targeted to small businesses and the promotion of small business. Unfortunately, small business has a bad reputation in economic development because of reported failure rates of 85 percent or more in the first five years. However, David Birch has helped provide a different perspective, in that nationally virtually all the net new jobs created were in small firms. This has become a hotly debated topic but it seems that small business is a successful economic development strategy. Small business failures are probably overstated; they are concentrated in a few industries (eg womens apparel and restaurants) and a relatively few individual owners; many failures are statistical quirks in that the business never really starts though a license was taken out for various reasons such as to secure funding which was subsequently unsuccessful; and many failures are really successes in that the company and its employees become part of another company. Support for small business has become an integral part of many community development efforts.

Leading the effort for small business is the federal Small Business

Administration with its multiple programs for helping develop markets and financing for small businesses. Interestingly, an important component of the small business administration efforts has been to place small business centers in local areas. These centers not only help entrepreneurs get the funding they need from SBA, but they provide specialized assistance on such things as marketing, personnel, tax requirements, etc. They often operate in conjunction with a program using retired business executives to advise businesses on their operations. These efforts are substantial. In 1987 the Small Business Administration provided \$3.8 billion in loans and about \$42 million in grants, from which 16-18 percent went to rural counties (General Accounting Office, 1989: 35).

C. Marketing networks. The final Type III development strategy I will discuss here is the development of marketing networks involving local firms in a cooperative or collaborative process of reaching markets. The notion of a marketing order is most fully developed in various agricultural producer marketing groups. For many specialty crops California state law has provided that a share of all sales go to the marketing order which pays for advertising, quality control, and occasionally the marketing structure. Used well, marketing programs can identify markets not well served, gain access to them, and provide a considerable profit to local producers as a result. Equally interesting is the fact that international markets can be identified and local products can be exported.

Marketing efforts may have a great potential for rural telecommunications development. For example in agriculture, increased information about prices in cattle markets will greatly improve the farmer's ability to select the timing of sales. Marty Strange suggests that such

electronic markets have the potential to increase prices paid to farmers, and that the most successful ones are organized and run by farmers marketing associations. These associations pool members livestock and offer the lot for sale. The lot is offered at a high price which reduces until a buyer accepts a price, in contrast to the usual way buyers offer low prices until a producer accepts it. A further advantage, according to Strange, is that producers do not have to move their cattle to market so that they can realistically wait until another day to sell. This system works only when sellers have a binding marketing order so that output is not sold outside the system, undercutting it (Strange, 1988:283-4). To a large extent the agriculture industry is just beginning to take advantage of telecommunications resources already available, and the impact of telecommunication use remains to be evaluated. The large farms and buyers are already linked into many of these computerized telecommunications systems. Extension and other programs are offering computer and information systems for small users.

An interesting rural variation on this theme is a California project to work with artists and crafts persons in small coastal towns of Mendocino county. These persons had a high quality artistic output, but their market was limited to the tourists who came to their local shops. A marketing program was started that helped identify crafts from the area with a "Made in Mendocino" label and opened up a store where there would be much more sales traffic in the city. These efforts helped stabilize the rural craft industry and provided some increased income.

2.44 Assessment The broad use of community development and institutional means to improve the functioning of rural communities meets a

set of objectives that are necessary if a community is to achieve a level of self-reliance. These objectives break down the patterns of dependency that occur from individual centered programs in the first case or reliance on outside firms in the second case. Community leadership is developed and the community organizations are linked to the wider world. These goals are necessary for rural development.

However, community development has an indirect and only unplanned effect on better economic performance. Strong communities do not always have strong economies. Community development techniques remain passive about intensive economic intervention. The weakness of the community development approach is that even in strong and vital communities the benefits of economic growth do not trickle down. In fact, well organized rural communities can still decline if there are few jobs and declining personal income.

2.45 Telecommunications Opportunities. Communications is the backbone of community development, but face to face communication is especially important in rural areas. Thus, it is not clear how important telecommunications will be to the community development efforts in rural communities. I need to do more research on it, but it appears that telecottages in Alaska and Scandinavia serve the same type of role that small rural post offices do--they are centers for rural communication and social exchange, as well as links to the outside world. Virtually all the public community telecottage experiments I know of have had relatively little impact on either jobs or community well being, relative to their cost. The major users are people who have special skills and needs for this type of communication and are willing to use it away from either their home or job.

2.5 Type IV. Local Economic Development Strategies: Developing Economic and Community Resources

The final type of economic development strategy pursued in rural communities is an effort to blend the benefits of type II and Type III programs, each of which will avoid many of the disadvantage of pursuing them alone. It is clear that Type IV programs are more complex to design and to fund. They are difficult to administer and evaluate. And they require access to the economic development resources of Type II programs as well as the institutional and community capacity of Type III programs as input to a viable strategy. The experience with Type IV programs is still limited and the successes not fully measured. However, whenever perceptive developers review what they could do better they tend to suggest something like the programs I will outline below.

2.51 The Problem. Rural development needs to avoid dependence on outside economic forces at the same time that it needs to tap these resources for local good. As we have noted above, two major problems keep distressed rural communities in a perpetual state of underdevelopment and stagnation--the lack of resources to develop business and economic activity on the one hand and the lack of individual managerial skill and organizational capacity on the other. Habersfeld (1981:14) notes that

"unless both the material and human/institutional dimensions are addressed simultaneously in community economic development, there will never be a basis for self-sustaining development to break the economic and psychological dependency that exists in these communities."

Rural local organizations need to become specialized in building local economies developed around both the natural resources of the area and the human resources that can be mobilized. The problem is that local resources need to be developed into an economic strategy that fits within the evolving

global marketplace, and that provides alternatives so that dependency is reduced.

2.52 Intervention Strategies. The logic of local economic development is one of developing a set of multiple resources for economic activity and using them selectively. The multiplicity of resources means that a local community needs to identify clearly what its resources are, both public and private, and to invest in the things that are missing. Selective use of development efforts means that limited resources are focused on programs and projects that have the highest return and that perpetuate diversity in the local economy. The goal is to aim for quality jobs and a high quality of life in the community for all persons; this is achieved by focusing resources on those activities which provide the greatest local benefit.

In a recent book Blakely (1989:68-70) outlined the concept of local development in terms of a dichotomy between the old economic development concept and the new:

- instead of the logic that more firms equal more jobs, the new model looks for firms that build quality jobs fitting the needs and aspirations of the population;
- instead of building an economic sector (such as agriculture or trade) the new model builds sets of integrated economic institutions that bridge economic sectors;
- instead of focusing on physical assets the new model focuses on a quality environment as a result of extensive community development activities; and
- instead of focusing on available labor, the new model focuses on the ability of the human resource base to expand to meet the needs of

rapidly growing and changing industries.

Based on this theory, economic development does not come from most of the common indicators of economic activity such as employment and investment, but it comes from the fit between the economy and the people.

The local development model argues that community control over development needs to occur with increased participation of people in meaningful ways in both the social and economic life of their community. Habersfeld (1981) suggests that developers need to take a "partisan perspective" based on helping people and communities that need assistance.

Moreover, the local development perspective suggests that firms need to be sensitive to the partnership between management and the community as well as to the need for the firm to be less dependent on one market, one source of materials, and one source of financing. This capacity to develop alternatives comes from structures that bring expertise to the local area and from networks.

2.53 Types of Development Policies I will start with an example. In the early 1980s Randolph Hester and his students started work in the small town of Manteo, North Carolina (see for example, Hester and McNally, 1983; Hester, 1990). They were commissioned to help find solutions to the town's declining employment, the threat of being overrun by tourism, and the potential deterioration of the quality of life that many in the town valued. For the next three years Hester was an observer of the town and its functioning. He identified what the people in the town valued, what they felt was "sacred" and should not be changed. He identified community resources that may have been discounted or forgotten. He gained the trust of the leadership of the community and represented the values of less articulate

groups. The strategy that emerged was a community strategy, not an outside consultant's report. It was a strategy that integrated community planning, economic development, and politics.

Manteo was a seaside port community, an historical port where the early sailing ships landed and the site of Sir Walter Raleigh's Lost Colony of 1585. For years it had a booming boat making industry and some of the old skilled craftspersons remained in town. But the wooden boat industry had been transformed by new construction techniques, and gradually all the firms in town had closed. The idea for revitalization was to reestablish the boat making industry to make custom wood pleasure boats for wealthy clients who wanted quality yachts. In order to do this the community received a grant from the state Historical Society to build from scratch an old sailing ship as a centerpiece of the boatbuilding industry. The old timers would teach younger craftspersons the trade on the historical boat, and it would be a centerpiece for a growing tourism industry. But tourism should not overrun the community, so they defined special means to protect their important local institutions and community gathering spots as tourism increased. The physical environment locally was enhanced through many projects; one of the most important was to rebuild the dock with a boardwalk, a project done largely with donated community labor. In short, the community merged self-help with outside grants, it diversified its economy, it used every project for multiple goals, and it protected the things that were important.

This example shows that local development can work in rural areas, but it is time consuming, expensive, and challenging. It may also require a bit of luck to be able to get all the pieces to fit together in the way they did in Manteo. In a recent survey of selected rural economic development

projects that have been particularly successful, the Midwest Research Institute has concluded that hallmarks of successful rural development efforts are these (Thomas, 1988: 5-7).

1. Capitalize on existing resources rather than planning to start from scratch.
2. Focus on adding value to existing products, such as processing agricultural or forestry products, making specialty items.
3. Aggressively pursue cash transfer strategies such as grants, prison facilities, power plants, federal procurement, etc.
4. Focus on helping existing businesses stay and expand, using a variety of local resources to make businesses stronger.
5. Incorporate education into their long term effort, often through local colleges and schools.
6. Seek training and capacity building for local leaders from all sectors of the community.
7. Emphasize research, planning, and long-term consistency in cooperation with local organizations.

The most telling conclusion from this report is the finding that "the rural areas that have succeeded in generating the most new jobs are areas that began their programs 15-20 years ago." (Thomas, 1988: 7).

Economic development in rural areas needs to find multiple channels for its projects. Because rural areas are small, fewer alternative options are always present, and this means that multiple benefits need to be derived from any project. Local economic development means making these links. Four types of programs are common.

A. Community Development Corporations. The multipurpose community development corporation (CDC) is an ideal strategy for economic development. Today, these organizations are called by many names since the concept was originally developed as part of the War on Poverty. Today only a few of the original CDCs survive, though most have evolved into different types of

community organizations. Many of the original distinctions that made CDCs unique have waned, but at their core remain several critical aspects. First, they are locally rooted, with strong representation of the people who need to be served in the community. Second, they are structured in such a way that they can engage in a variety of business activities such as running profit making companies, making loans, receiving training grants, and the like. Third, they pursue a broad agenda of community development and economic growth. They are indeed multipurpose organizations that perform many tasks, such as these identified by Benson Roberts et al, (1980: 40)

- use private development techniques for public purposes;
- target benefits to communities and individuals in need;
- mobilize local initiative to address local priorities;
- take a long-term approach to development;
- link planning to implementation;
- link complementary projects within a comprehensive strategy;
- link public and private sectors;
- reinvest resources in the community.

These organizations have been successful in the past in achieving local economic development goals, but with the reduction of federal funding for such programs the scope of their work has been transformed. In part this is because CDC's need a large amount of overhead to support this broad of a set of local development goals, and the money for these functions is no longer available from government or foundation sources. On the other hand, they pursue many specific programs and obtain a diverse set of resources.

It is possible for community based organizations to become very successful in the local economy. A number of specific techniques include

franchise agreements, turn-key leaseback arrangements, exclusive contracts with suppliers and purchasers, service contracts, and various equity sharing arrangements. A community development corporation can enter into these arrangements based on a realistic assessment of what it can offer, what the community needs, and how the business venture will fit into the basic effort to both stimulate new job producing firms and to increase the capacity in the community to effectively generate economic activity (Habersfeld, 1981). Community development corporations need to rely on local support to develop much of their capital for investment projects. In Harvesting Hometown Jobs it is noted that some organizations get outside money, but the most successful start by raising funds within the community. For example, in Jud, North Dakota, the community raised \$36,000 by selling 160 shares of their development corporation to community members at \$200 each. This became part of a down payment on a minimal that captured commercial sales that otherwise would have been lost to the community (National Association of Towns and Townships, 1985:13-14).

Community development corporations should probably try to start ventures and then spin them off as separate organizations. One effective CDC in Northern California recently closed its doors amid considerable turmoil and financial difficulty. But instead of a failure, this organization had successfully started at least a dozen businesses and organizations that continue today serving the community originally targeted. If all these organizations were still under the umbrella of the parent organization it is likely that they would be weakened by its troubles.

B. College or Hospital based Economic Development Programs One of the least utilized resources in rural areas are the colleges, hospitals, and

other major public organizations that for many communities are the backbones of the local employment. For the most part these organizations are not called upon to play an economic development role, but yet they have a large untapped reservoir of talent that can be used for economic development. In a number of places hospitals have helped start nursing homes, recreational facilities, and other activities related to their mission. Colleges to a great extent have started on the process of becoming more involved in the economic development of their region. It is possible to think of the involvement of these institutions ranging from minimal to extensive involvement in the rural area. At the minimal level, administrators work with city officials and help promote community economic development. Often the college, hospital, or other organization will donate some money or resources to economic development, and certain of their staff will work on the various committees.

A degree of greater involvement includes offering special classes and programs that directly contribute to the local economic development effort. College programs on small business and entrepreneurship are common, and they are often very different from the regular course work, offering the community a type of program that is very much needed. Hospitals can often help by making available computer resources, training facilities, and meeting rooms.

The most extensive level of involvement is for these organizations and institutions to actually become partners in or invest in private ventures that will create jobs in the local community (See Bradshaw, Myers and Peterson, 1987; Bradshaw 1987).

C. Integrated Government Programs. Government programs can take on the larger set of issues encompassed by the concept of integrated development in

the local community. For example, housing programs can be linked to occupational training programs in construction trades, and the county planning department can take a proactive role in helping to stimulate certain types of development that produce local jobs, perhaps offering density bonuses and quick approval. Solid waste disposal agencies can establish recycling or even energy production components that might stimulate additional industries. Along these lines, the National Association of Towns and Townships report, Growing our Own Jobs outlines 22 case studies and a long list of ideas for communities that want to diversify their agricultural base. Some examples are the development of a hydroponic greenhouse to grow lettuce in Georgia in conjunction with a high school where they will teach courses on hydroponic farming. Many governmental agencies cooperated in conceiving of the greenhouse project, securing financing, and operating it. Tourism development is another community wide effort that has been rewarding in all parts of the country.

D. Regional Development Projects. The government has established several regional development projects that are integrated in a most useful way. The Tennessee Valley Authority and the Appalachian Regional Project are the most well known. These projects have many integrated components including industrial infrastructure and social programs. I will not try to review the history or evaluate the success of these programs; efforts of a similar scale are considered unlikely today.

2.54 Assessment. As indicated earlier, local economic development efforts are used precisely because other strategies are not adequate to combine the diverse groups and resources needed to do economic development. Local economic development, however, is not an isolated technique but one

that builds on the best of the other strategies; it relies on individuals who are trained and whose basic needs are taken care of; it builds strong economies from strong communities, and makes sure that the benefits go to the local community rather than outsiders. The strength of local economic development is that it seems to work in the hard cases (Bradshaw, 1986). Moreover, vigorous independent rural economies generally have already achieved most of the goals that are sought in good local economic development projects. Good communities attentive to economic development generate good jobs. In short, there is no short cut to rural development.

Local development projects are costly and time consuming, however. They need sustained support in order to develop the leadership and the deep community roots necessary to put all the pieces together in a way that will actually generate local jobs.

Equally pressing is the fact that local economic development projects are often at the center of political conflict. To some extent this is because these projects often target otherwise unemployed persons who are outside the community powerbase, and their support within the government and chamber of commerce groups is often weak. Also, when the local projects are successful, it often creates concern about competition among the other business interests.

For these reasons and many others the Federal government has substantially reduced or eliminated funding programs that have a heavy local economic development component. For the most part the states, local governments, and private foundations have stepped in to try to revitalize local economies. Although somewhat dated, the Conference on Alternative State and Local Policies report, Putting America Back to Work: What States

and Cities Can Do, presents an integrated approach to state and local involvement in economic development. As the authors note,

America's state, county, and city governments find themselves...in a new and unique role. On the one hand, their powers and resources to do something about unemployment are far less than those of the federal government, yet in many ways their governors, their state legislatures, their mayors, and their city council members are more willing than President Reagan to act, and to act to the full extent of their power and resources. (Schweke and Webb, 1982:1)

In this and other reports it becomes clear that state and local initiatives for economic development in both rural and urban areas are characterized by innovation and creative use of limited resources. What this approach gains most is the latitude to experiment and craft policies to local needs. What is lost is the resources and leadership to effectively redistribute advantage to those who need it the most (See Bradshaw and Blakely, 1983). For example, states and local governments in predominantly rural farm states and the South simply lack resources by which development can be funded. Federal efforts, both direct and indirect, have had much larger impact in redistributing business opportunities to places where they are needed (Bradshaw and Blakely, 1988).

2.55 Telecommunications Opportunities. Telecommunications in local rural development present both an obstacle and an opportunity. Integrated local development projects can build on and extend the telecommunications capacity central to the first three types of projects discussed in this paper, and similarly, the integrated projects provide both the economic and organizational framework for dealing with the obstacles and opportunities posed by limits posed by inadequate rural telecommunications.

Telecommunication obstacles, at the individual level are found in the need to generally upgrade some of the most isolated communities that still

have multi-party lines, to assure that poor rural families have access to phone service, and to generally improve service capacity throughout rural areas to benefit both the individuals and to make program administration more efficient. Specific telecommunication obstacles are often found in Type II economic development programs in which business location or expansion decisions are influenced by telecommunications capacity. Community development (Type III) is a communications intensive operation, but places few sophisticated pressures on telecommunications systems and is rarely an obstacle over and above the service that industry and commercial businesses demand. From the perspective of integrated local economic development projects, the challenge is to find innovative ways to overcome the obstacles presented by a lack of telecommunications capacity when it becomes a barrier to getting something done.

Telecommunications presents many opportunities for rural communities, but these opportunities are largely specific to the actual development strategies pursued by a local community. Ample capacity in a telecommunications system will do nothing for the development of a local community unless it is exploited. The capacity to do Type IV development projects is the opportune way to exploit capacity that exists, and if in the process of doing a project a telecommunications gap is discovered, resources need to be available to install the needed capacity. Let me suggest some ways in which local development efforts might make use of telecommunications potential.

A. Telecommunications Hubs. Some rural communities are already telecommunications hubs. Because of proximity to certain types of lines and relay stations, it is conceivable that some remote places may be able to

access telecommunications networks in particularly advantageous ways. Identification of these local resources and developing a local capacity to utilize them is part of the local economic development strategy.

B. Telecommunications Industry. Other rural communities may already have a nucleus of telecommunications related industry that could be expanded. Firms that use a lot of phone capacity could provide a platform for the development of other firms in similar industries. For example, mail order retail, telephone reservations or service for 800- numbers, data processing, publishing, and other industries are possible in many rural communities with existing service levels. The industrial node provides an ample opportunity as illustrated by the EMRG company which provides software, consulting, and data processing services for college financial aid offices in the town of Kearney, Nebraska, 200 miles west of Omaha. The company often overwhelms the capacity of the local phone system, but because a large mail order catalog house is in town they provided enough total capacity to justify improvements for the community that would not have been possible if there was only one company (Fulton, 1989: 34).

In some other cases an integrated program to bring a telemarketing firm to a rural area may have large benefits if part of an overall integrated economic development project. Fulton gives another example from Kearney where the county Economic Development Council helped lure an Omaha telemarketing firm into town as part of an integrated economic development project. This firm filled an empty building downtown, helping revitalize the downtown area. It will also provide an internship program with the local college which is developing a telecommunications program, and as a consequence the communities telecommunications focus has attracted the

attention of MCI to provide competition among long distance companies (Fulton, 1989:43). Further efforts in Kearney are structured around helping other companies make better use of telecommunications capacity; governmental programs may be another opportunity.

Marketing. Innovative marketing schemes could be utilized in a local economic development project based on telecommunications. Agricultural produce could be shipped directly to specialized markets via automated ordering equipment, bypassing traditional wholesalers. This type of marketing project could easily be developed within a community based organization. Marketing is usually the major barrier to rural production firms, but individually they are usually incapable of resolving the problem. This is where community based programs become a reasonable solution because they help form a structure for broader marketing schemes. Telecommunications can often enhance the ability of individual firms to take advantage of new opportunities.

In sum, telecommunications can become a central part in some economic development programs, and a peripheral part of many others. The key to economic development is not the telecommunications capacity alone, but how this capacity is used.

III. Toward a Telecommunications development policy.

A number of policy strategies could be utilized. At the risk of oversimplifying complex issues, policy can be examined relative to the four types of development. The first involves expanding telecommunications access to individuals and the social programs that serve them. The second involves

building more capacity and infrastructure in rural areas. The third involves reinforcing the institutional and organizational framework. Finally, I will advocate an integrated approach that builds on the previous three strategies within a comprehensive policy for rural development.

3.1 Access: Making Telecommunications really available.

Universal access policies are now nearly successfully accomplished. Few rural areas within the continental US are without some phone service; probably no more than 183,000 households lack phone service due to remoteness according to the Aspen Institute study (Parker et al, 1989: 67) and in rural areas only about 7 percent of lines remain in multi-party service. Efforts to complete the rest of this process of universal access remain important. The critical problem is that many rural poor people can not afford phone service and consequently are restricted from access due to poverty. Rural people pay another penalty, since in many rural service areas long distance phone rates are charged for the most frequent calls to nearby cities (Dillman, 1988).

In terms of economic development, access to phones is increasingly necessary to obtain services. For example, a California social service agency recently installed a new telephone system that required people to enter responses to questions by a touch tone phone; the problem was that many of the people calling the number lacked this type of phone service and were thus unable to accomplish their business. These problems can be handled as they arise, however, if given proper economic and regulatory assistance. In sum, local and state agencies need to be attentive to barriers to access among the rural poor.

3.2 New Capabilities.

Many people have made the case for more capable telephone line service in rural areas and I will not enter into discussions of the extent or type of upgrading that is required, or how fast it should proceed. Parker and his colleagues present some of the best information to date on the type of upgrades still required (Parker et al, 1989). It is still an open question as far as I can see whether rural infrastructure development needs to proceed directly with a new universal standard of service for rural telecommunications or if improvements should be done in an order set by demonstrated and real need. The bottom line is that at some point soon all phone customers should be able to get service that allows FAX and some personal computer data transmission. Since many rural areas have phone service that does not meet this standard, policies to improve service are clearly needed at least for those customers who desire this service. It is not clear if meeting this goal can be handled best on a case by case basis or if it requires upgrading the entire system.

Overall system upgrading at several levels is clearly needed in rural areas, however. Some or many rural communities need to get access to the very best telecommunications lines in order to support new economic opportunities. Robert Reich in a brief article on the "rural crisis and what to do about it" has argued that agriculture policy has too long driven rural policy, and that a rural industrial diversification policy should be utilized instead of the current expensive supports for rural agriculture. He calls for increasing emphasis instead on rural transportation, communications, technology transfer, and job training. His recommendations are mainly a Type II approach, and he offers a convincing argument for the importance of

communications. His argues that the rural economy needs to shift from primary commodities to small firms in two sectors in which the growth has been the greatest—information services and small batch manufacturing.

"The striking thing about these new forms of business is that they can be undertaken almost anywhere in the country. They don't require a huge pool of labor on site, as do heavy industries. They don't need any particular natural resources. Their products don't weigh very much so transportation costs are relatively low." (Reich, 1988:5)

The problem, though, according to Reich is that fiber optic cables will be necessary to provide the type of telecommunications support rural areas need, but "fiber optics probably will reach rural areas only after the more lucrative urban markets have been saturated" (Reich 1988: 6).

In many ways we need to think of telecommunications as the interstate highways of the 21st century. Rural areas expanded in the 1970s in part because of the new access they were given by the interstate highway program which was originally designed to link major urban areas. Interstate highways had the unanticipated consequence of opening up the rural areas in between, however, and probably contributed more in this way to rural development than all explicitly rural development programs combined (Bradshaw and Blakely, 1988). Fiber optic cables connecting urban areas also must traverse vast rural reaches; will there be interchanges along the way so that rural customers can get on and off these new transmission links? Continuing the interstate analogy, access alone is no guarantee of growth and development. For example, during the 1980s many rural areas served by interstate connections failed to grow as the overall rural economy slowed. Development requires much more than the physical resources that make growth possible.

3.3 Institutional Resources.

Dillman is probably correct that the institutional, regulatory, and economic character of rural telecommunications service will be the most challenging policy issue (Dillman, 1988; also Parker et al, 1989). Solving the problems inherent in the large number of rural phone companies, and their pricing strategies, will be very important to the quality of rural service. In addition, resolution of regulatory issues such as the interconnection of phone and television service could either help or hinder rural access to the potential of modern telecommunications. It is important to make sure the rural perspective is included in the debate on these issues.

3.4 Integrated Development Strategies.

Integrated telecommunications development for rural areas is an exciting rural economic development possibility. Perhaps working through state regulatory agencies, a program funded by both phone company contributions and government funds could give greater attention to the potentials of rural telecommunications development. In the sections on Type IV development strategies above I have given examples of how telecommunications can be used in rural development.

- Expand capacity to utilize telecommunications in hub communities.
- Develop community support to assist in the expansion of existing industries that are heavy telecommunications users or producers.
- Expand marketing networks.

The critical fact is that the Federal government has gotten out of the business of supporting and encouraging local development strategies, but the Federal role is essential in providing the funding necessary for the support

of essential programs in the most rural areas. Evidence of this concern is the annual budget threats to the Small Cities Community Development Block Grants. The block grants may have administrative problems, but they helped many small cities.

Special targeted programs that include projects using telecommunications would make a lot of sense. The Department of Agriculture in its Farmers Home programs could take a lead in promoting community development programs with a telecommunications emphasis, but they have not been particularly innovative in the past; perhaps this could be a turning point for them to start doing more integrated local development. Extension programs in community development could also become attentive to telecommunications potential. Special earmarked funds could be set aside for these purposes.

The essential policy foundation for telecommunications policy, regardless of the overall thrust of federal funding for rural development, must be to build on existing integrated economic development projects and efforts rather than on ill conceived infrastructure expansions that promise to attract outside industry.

In policy utilizing Type IV local development strategies it is important that the limitations of this type of effort be understood. The key element is leadership, and leadership is very difficult to buy. It must be nurtured over a long period of time, often through disappointments and failures before success comes. Agencies often want quick successes and fail to invest properly in the social infrastructure that is needed to utilize the physical infrastructure.

3.5 Summary

As rural telecommunications needs and capacity are evaluated, the important thing is for rural areas to be assured of access to the quality of communication needed by the people who already have a use for increased capacity. Similarly, rural economic and community development projects should be enhanced to have increased capability to utilize telecommunications capacity in local projects and to build on existing telecommunications resources. The responsibility for these decisions is shared by the federal government and state and local regulators. The federal role is to enforce standards of access and to make financial resources available through the REA and other existing programs. On the other hand, state regulators need to push telephone service providers to invest in rural areas and to keep their rates reasonable.

It is important to remember that telecommunications infrastructure is like any other investment in that it has a benefit that varies according to the use to which it is put. By itself telecommunications capacity will not generate economic activity, but it is an increasingly necessary component to all economic growth. The problem is not whether to expand telecommunications capacity in rural areas but how to do it most efficiently. Policy should be attentive to alternative scenarios and their pay off for rural communities.

Along this line, a theme introduced above is that existing telecommunications infrastructure is not being fully utilized in rural areas and it needs to be catalogued and targeted for economic development projects. It may be that rural development would be best furthered by exploiting the telecommunications capacity that already exists in rural areas first, and then later looking for new capacity for which there are immediate uses. The

pressing telecommunications policy issue for rural development is to promote communities that are as capable as the new technologies that are available, communities that can make use of their global linkage through imaginative new ways of overcoming the penalty of distance.

References

- Belzer, Dena and Cynthia Kroll, New Jobs for the Timber Region: Economic Diversification for Northern California, (Berkeley, University of California, Institute of Governmental Studies, 1986)
- Bender, Lloyd D., et al, "The Diverse Social and Economic Structure of Nonmetropolitan America" (Washington DC, USDA, Economic Research Service, Rural Development Research Report No. 49, September 1985)
- Bergman, Edward M., Economic Development in Job Loss Communities: Planning Guide for Community Professionals and Public Officials, (Chapel Hill, University of North Carolina, Center for Urban and Regional Studies, 1983)
- Blakely, Edward J., Planning Local Economic Development: Theory and Practice, (Newbury Park: Sage, 1989)
- Blakely, Edward J., Ted K. Bradshaw, Phil Shapira, and Nancey Leigh-Preston, New Challenges for Rural Economic Development (Berkeley, Institute of Urban and Regional Development, Working Paper 400, January, 1983)
- Bradshaw, Ted K. "Economic Development in Rural America: The Hard Case" Looking Ahead (Washington DC, National Planning Association) Vol 9, No 2, Spring 1986, pp 1-5.
- Bradshaw, Ted K., "Trends in Rural Economic Development" California Hospitals, (July- August, 1987)
- Bradshaw, Ted K. "The Elusiveness of Rural Development Theory and Practice: Domestic and Third World Perspectives Joined" (Berkeley, University of California, Institute of Governmental Studies, Working Paper 89-22: 1989) (forthcoming in Sociological Practice)
- Bradshaw, Ted K. and Edward J. Blakely, Rural Communities in Advanced Industrial Society: Development and Developers, (New York, Praeger, 1979)
- Bradshaw, Ted K. and Edward J. Blakely, "New Challenges and Opportunities for Rural Development," The Rural Sociologist, Vol 3, No 3, 1983.
- Bradshaw, Ted K. and Edward J. Blakely, "Unanticipated Consequences of Government Programs on Rural Economic Development" in David L. Brown, et al, eds, Rural Economic Development in the 1980's: Prospects for the Future, (Washington DC, US Department of Agriculture, Economic Research Service, Rural Development Research Report No. 69, September 1988)
- Bradshaw, Ted K., Bill Myers, and Gary Peterson, "Community colleges are Job Creation Vehicles in Small Towns" Small Town (May-June 1987: pp 26-28)

- Carr, A. Barry, "Agricultural Information and Technology: A Continuum of Change" in M. Ann Tutwiler, ed, U.S. Agriculture in a Global Setting: An Agenda for the Future, (Washington DC, National Center for Food and Agricultural Policy, Resources for the Future, 1988)
- Chambers, Robert, "Project Selection for Poverty Focused Rural Development: Simple is Optimal", World Development, pp 200-210.
- Christenson, James A. and Jerry W. Robinson, Jr, eds, Community Development in America, (Ames, Iowa State University Pres, 1980)
- Davis, Thomas F., "Persistent Low-Income Counties in Nonmetro America" (Washington DC, USDA, Economics, Statistics, and Cooperative Service, Rural Development Research Report No. 12, 1979)
- Deavers, Kenneth L., "Choosing a Rural Policy for the 1980's and '90's" in David L. Brown, et al, eds, Rural Economic Development in the 1980's: Prospects for the Future (Washington DC, USDA, Economic Research Service, Rural Development Research Report No. 69: September 1988, pp 377-395)
- DeWitt, John, Sandra S. Batie, and Kim Norris, A Brighter Future for Rural America? Strategies for Communities and States, (Washington DC, National Governor's Association, Center for Policy Research, 1988)
- Dillman, Don A. and Donald M. Beck, "Information Technologies and Rural Development in the 1990s" The Journal of State Government (February 1988, pp 29-38)
- Evans, Peter B., and John D. Stephens, "Development and the World Economy", in Neil J. Smelser and Ronald S. Burt (eds.) Handbook of Sociology, (Beverly Hills: Sage). working paper no. 8/9. March 1987.
- Fulton, William, "Getting the Wire to the Sticks," Governing (2:11, August 1989, pp 34-43)
- General Accounting Office, Rural Development: Federal Programs that Focus on Rural America and its Economic Development, (Washington DC: General Accounting Office report RCED 89-56BR, January 1989)
- Habersfeld, Steven, "Economic Planning in Economically Distressed Communities: the Need to take a Partisan Perspective," Economic Development and Law Center Report (October/December, 1981: pp 7-16)
- Hester, Randolph and Marcia McNally, "Manteo, North Carolina, Avoids the Perils of Boom-or-Bust Tourism," Small Town (Nov-Dec 1983: 4-11)
- Hester, Randolph T., "The Sacred Structure in Small Towns: A Return to Manteo, North Carolina," Small Town, January-February 1990, pp 5-21.

- Hudson, Heather E. "Ending the Tyranny of Distance: The Impact of New Communications Technologies in Rural North America," in J. Schement and L. Lilevrouw, Competing Visions, Complex Realities: Social Aspects of the Information Society, (Norwood, NJ: Ablex, 1988)
- Kale, Steven R. and Richard E. Lonsdale, "Factors Encouraging and Discouraging Plant Location in Nonmetropolitan Areas," Chapter 6 in Lonsdale and Seyler, (1979) pp 47-56.
- Korten, David C., "Community Organization and Rural Development: A Learning Process Approach", Public Administration Review, September/October 1980, pp 480-511.
- Landau, Martin, "Development Administration and Decision Theory", Development Administration in Asia, Edward W. Weidner, ed., 1970, pp. 73 - 103.
- Landau, Martin, "Development Theory: Some Methodological Problems," Chapter 6 in Political Theory and Political Science, (New Jersey: Humanities Press, 1972) pp. 147 - 176.
- Levitan, Sar, "Helping People with Labor Market Problems: An Overview of Key Policies." Policy Studies Review (Vol 6, no 4) May 1987 pp 712-21.
- Lonsdale, Richard E. and H. L. Seyler, eds, Nonmetropolitan Industrialization, (Washington DC: Winston, 1979)
- Moriarty, Barry M., "Industrial Location and the Theory of the Urban Labor Market" (Chapel Hill, University of North Carolina, Department of Geography, mimeo, 1982)
- National Association of Towns and Townships, Growing Our Own Jobs: A Small Town Guide to Creating Jobs through Agricultural Diversification (Washington D.C. 1988)
- National Association of Towns and Townships, Harvesting Hometown Jobs: A Small Town Guide to Local Economic Development, (Washington DC, 1985)
- Parker, Edwin B., Heather E. Hudson, Don A. Dillman, and Andrew D. Roscoe, Rural America in the Information Age: Telecommunications Policy for Rural Development, (Lanham, MD, The Aspen Institute and University Press of America, 1989)
- Phifer, Bryan M., "History of community Development in America," Chapter 2 in James A. Christenson and Jerry W. Robinson, Jr., Community Development in America. (Ames: Iowa State University Press, 1980)
- Rasmussen, Wayne D., "90 Years of Rural Development Programs", Rural Development Perspectives, October 1985 pp. 2 - 9.

- Reich, Robert B., "The Rural Crisis and What to Do About It", Economic Development Quarterly, (Vol 2, no 1, February 1988, pp 3-8)
- Roberts, Benson F., with Robert O. Zdenik and William E. Bivens, III, Community Development Corporations and State Development Policy: Potential for Partnership, (Washington DC, National Congress for Community Economic Development, December 1980)
- Ross, Peggy J. "The Changing Landscape of Rural America: Implications for Policy and Planning", Looking Ahead, (Spring 1986) pp 6-11.
- Schweke, William and Lee Webb, Putting America Back to Work: What States and Cities Can Do, (Washington, Conference on Alternative State and Local Policies, 1982)
- Seers, Dudley, "The Meaning of Development," in David Lehmann, ed, Development Theory: Four Critical Case Studies, (London, Frank Cass, 1979, pp 9-30)
- Sher, Jonathan P., Education in Rural America: A Reassessment of Conventional Wisdom, (Boulder: Westview, 1977)
- Smelser, Neil J., Social Change in the Industrial Revolution, (Chicago, University of Chicago Press, 1959)
- Smith, Hubert L. with Susan Hudson-Wilson and Heath Paley, Non-agricultural Rural Development: Four Case Studies, (Boston University, Institute on Employment Policy, August 1980)
- Smith, Steven M. and Glen C. Pulver, "Characteristics of Nonmanufacturing Businesses in Nonmetropolitan Wisconsin" (Madison: University of Wisconsin Research Bulletin, R2879, 1980)
- Strange, Marty, Family Farming: A new Economic Vision, (Lincoln, University of Nebraska Press, 1988)
- Stuart, Frances and Paul Streeten, "New Strategies for Development: Poverty, Income Distribution, and Growth," in Charles K. Wilber, ed, The Political Economy of Development and Underdevelopment (New York: Random House, 1984)
- Summers, Gene F., "Rural Industrialization" The Rural Sociologist. (6:3 May 1986) pp 181-186.
- Thomas, Margaret G., Profiles in Rural Economic Development (Kansas City, Midwest Research Institute, (Prepared for U.S. Department of Commerce) April 1988)