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Services in the Rural Economy

Preliminary Findings

Report to the Ford Foundation
Aspen Institute
Rural Economic Policy Program

by

Amy Glasmeier
Associate Professor
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TABLE OF CONTENTS

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Amy Glasmeier

The purpose of this study is to inform policy makers about the efficacy of local and state economic development policies targeted toward service industries. In this report we present the results of analysis of the structure and recent growth of service industries in rural areas.

Background of the Issue

The past 25 years have witnessed tremendous upheaval in rural America (Lonsdale and Leinbach 1979). In the early 1970s, scholars were astounded at the historic reversal of population and employment trends. We now have evidence that manufacturing employment began decentralizing from urban to rural areas as early as the 1950s. Other sources of employment were decentralizing by the early 1960s, and population began decentralizing in the 1970s (Carlino 1985). For the first time since the turn of the century, rural areas were once again gaining population and employment, and more importantly, they were growing faster than their historically stronger counterparts--cities (Garnick 1983). So unprecedented was this change, that authors wrote effusively of a "rural renaissance" and a return to agrarian living (Bradshaw and Blakely 1979).

This unexpected shift was the result of a convergence of disparate factors. The energy boom of the 1970s, unleashed by rising oil prices, resulted in oil prices doubling twice in five years. Concomitantly, the value of other fuel sources such as coal and oil shale rose rapidly, unleashing a flurry of development projects largely in rural areas. Manufacturing industry's search for low cost production locations shifted low-skilled, low wage manufacturing employment

to rural areas, particularly in the Northeast, North Central and South (Carlino 1985). Equally important, expansion of agricultural capacity in response to rising commodity prices, accelerating inflation, and very low to negative interest rates, encouraged farmers to expand their operations.

Although these events yielded renewed growth in rural areas, they occurred in a wholly unplanned and unregulated fashion. Nevertheless they quickly became the status quo, and policy makers turned their attention from problems of persistent rural decline toward inner city redevelopment.

Just as unexpectedly as rural areas rebounded, by the early 1980s rural fortunes reversed themselves again. The OPEC oil cartel began disintegrating. Member counties broke ranks--expanding output and driving the price of oil down to ten-year lows. Within four years, the price of oil fell from $35 to $14 a barrel. Domestic energy exploration and other resource-related experimental programs came to a screeching halt. Rural areas of the West were particularly hard hit by this development, and even today domestic oil exploration remains at a post war low (The New York Times, Feb. 2, 1989).

The inflationary spiral which lured farmers to take on ever higher levels of debt collapsed as the Federal Reserve Bank raised interest rates to bring inflation down. High interest rates choked off domestic investment and diminished demand for American manufactured goods while precipitating the most serious recession of the post-war decades. Land values plummeted in America's agricultural heartland. Farmers found themselves holding notes on drastically de-valued lands. Farm debt rose astronomically, resulting in the highest farm foreclosure rates since the Great Depression.

America's manufacturing base also came under intense pressure. The dollar's high value relative to America's trading partners and perceived diminished product quality reduced the competitiveness of American manufactured goods. The nation's basic productive capacity--particularly in import-sensitive heavy industry and consumer products--painfully contracted. Third world debt further choked off demand for U.S. manufacturing. Key export markets in Latin America and Africa faltered under the weight of huge foreign debt--further diminishing demand for U.S. exports.

Added to these developments are changes occurring in U.S. manufacturing. While traditional manufacturing employment has declined, high tech industries have expanded. But the locational patterns of high tech differ significantly from those of other manufacturing industries, which have shown a tendency to filter down to America's rural communities (Glasmeier 1988b). High tech industries have a history of sending low wage work off-shore to third world countries with well-trained populations. Technical production employment that remains on-shore is staying in urban areas, while the types of jobs which had traditionally moved into America's rural areas are shipped abroad. Any tendency for decentralization is limited as the more mobile components of high tech industry are moving only to the fringes of metropolitan areas which have well-developed labor forces. Lacking critical infrastructure to support technically sophisticated industries, rural areas appear grossly inadequate to compete for this type of employment.

The convergence of these circumstances demonstrates the longstanding and recurring vulnerability of rural communities to global economic change. In an earlier era, basic sectors--agriculture and mining--were major forces in rural development. But as both industries achieved high levels of productivity, employment declined. During the post-war years, manufacturing

plant relocation once again sparked new hope for the revival of rural economies. And as a result, manufacturing became the target of rural economic development policy. But over the last 15 years, despite a short respite from persistent rural decline, the manufacturing growth rate has plunged once again. Achieving rural economic stability today will require policies even more cognizant of changes in the relationship between rural areas' health and national and international economic conditions.

The Present Policy Environment

In recent times, the linchpin of rural economic development policy has been the attraction and retention of manufacturing plants. Manufacturing employment was seen as providing the economic stability that had proved elusive for economies based on agriculture and mining (Beale and Fuguitt 1980). But while a manufacturing strategy may continue to yield small, near-term payoffs, it is not one that promises long-run vitality for rural areas. Increasingly, the U.S. is losing low-skilled manufacturing to third world countries, and many observers doubt if rural America can continue to depend on standardized assembly line manufacturing as a stable economic base (Deavers 1988). Moreover, recent trends in automation and the resulting return to a higher skilled labor force are leading to selective reconcentration of manufacturing industry away from rural areas and toward urban centers for some kinds of manufacturing (Glasmeier 1988b; Schoenberger 1987).

Some observers speculate that service-based economic development is one potential route to rural economic stability (Smith 1984; Miller and Bluestone 1988). The service industry accounts for an increasing proportion of national employment, yet state, regional, and local

development agencies lack strategies to start up, attract, or retain service jobs (Falk and Broner 1980). This may be due to a misconception that services are merely residentiary activities that can generate little additional sustained income for rural communities (Gillis 1987). There may be a general lack of understanding about which services are both export-oriented and either footloose or attractable to rural areas. Even when such export-oriented service activities are identified, development officials may not know which incentives to offer. Finally, while infrastructure investments required to attract services are cost-effective from a state or national point of view, communities alone may not be able to afford them.

The purpose of this report is to fill the gaps in our knowledge about the service sector's potential in rural areas, and to provide the basis for further research necessary for the creation of effective service-based economic development strategies for rural communities. With a better understanding of the potential for rural service employment growth, we can identify opportunities to make the necessary education and infrastructure investments that will insure rural communities' full participation in the new service economy.

Defining Service Industries

Current debate regarding the behavior, growth, and distribution of services is hampered by a lack of common definition. This is partly due to the changing nature of the service sector and the addition of new "product" services, the heterogeneity of services within industrial categories, and the lack of an over-arching theory that guides researchers in their attempts to define the nature of a service (Bailly, Boulianne, Maillat, Rey and Laurent 1987; Bailly and Maillat 1987; Daniels 1985; Gershuny and Miles 1983).

Traditional sectors are defined by the physical characteristics of their output which include the primary (natural resource products) sector, the secondary (manufactured products) sector, and the tertiary (transitory products) sector. But as services expand outside their links to traditional industries and generate tangible products in their own right, assumptions regarding the passive nature of the tertiary sector require rethinking. The starting point for this revision is the development of more precise definitions and a classification scheme that improves our understanding of rural services.

There are a number of recently developed classification schemes based on function, market, the product-production relationship, occupation, sector, and various combinations of the above (Bailly, Boulianne, Maillat, Rey and Laurent 1987; Bailly, Maillat and Coffey 1987; Daniels 1985: Beyers, Alvine and Johnson 1985). These schemes were carefully reviewed for their appropriateness for understanding rural services. In this study we use a definition of services based on SIC codes. We are aware of the limitations of an SIC-based classification scheme. For example, differentiation by nature of the production process (use of technical labor and application of information technology) would shed important light on rural service growth (much as innovative and standardized production classifications have been important for understanding manufacturing investments in rural counties). Unfortunately such occupation-specific data are not available for different geographic areas of the United States.

Growth of the Service Sector

The post-war years have witnessed a major transformation in the industrial structure of the U.S. economy. These changes are widely heralded as the advent of the service or information

economy. Employment in service activities has increased rapidly from 57 percent of U.S. employment in 1948, to 71 percent in 1986 (U.S. Bureau of Census 1988). This transformation has important implications for both the nature of work and the spatial location of employment. Producer services--especially business services--are generally considered the motherload of service growth, and most researchers expect this trend to continue (Stanback and Noyelle 1982; Morris 1988; Thurow, Billard and Gordon 1989; Buck 1988). The distinction between producer and consumer services is not academic. It bears directly on our concern about the role of services in rural economic growth. There are practical limitations to the expansion of consumer-based services (to which restaurants and retail trades are particularly vulnerable).

While there is wide agreement that services are the major source of employment growth, there is less consensus about why they are currently growing so rapidly. The literature includes a number of potential explanations. Part of services growth reflects general economic expansion. Gross National Product growth accounts for 40 percent of the expansion of producer services between 1972 and 1985 (Tschetter 1987; Moore 1987; Kirk 1987).

Growth of the world economy, increasing complexity of corporations, and expansion of foreign trade also explain some of services' growth (Dunning and Norman 1987). Financial services are particularly sensitive to world-wide economic trends--deregulation, world markets, and volatility of currency (Morries 1987). Their growth is both a reflection of the increasingly complex system of trade and a response to nation-based policies that regulate international trade (van Dinteren 1987).

Another contributing factor is the lack of potential for productivity increases to be realized in service employment. Services are considered less productive than manufacturing (Gershuny

and Miles 1983). If non-service sectors have higher per capita productivity rates, all else being equal, services will have to employ more (less productive) workers to stay even. The view on this is not unanimous. Some researchers speculate that in the future, services are likely to create fewer jobs as pressures to raise productivity result in capital-intensification of service production processes. Marshall notes that relatively low-productivity services are becoming more capital-intensive, resulting in lower employment multipliers (1987). This phenomenon is also mentioned by Enderwick, who states that the rising cost of labor results in a search for high per capita value-added investments. A recent article about the American Express Corporation in the New York Times indicates the possibilities for productivity increases. Production of American Express' monthly credit card billing once required hundreds of data entry processors. But new electronic scanning technologies have cut the size of American Express' data entry staff by as much as 90 percent in some cases.

Additional factors related to changing modes of production also account for some service employment growth. Manufacturing firms "sub out" many service requirements previously supplied in-house (Buck 1988). For example, "just-in-time" (JIT) inventory practices employed by manufacturing firms are precipitating service employment growth (Kutscher and Personick 1986, Quinn and Paquette 1989). In addition to the employment implications of JIT practices, firms are simply using more temporary employees for a wide variety of tasks. Certain kinds of activities such as janitorial, food service, landscaping are increasingly being acquired from firms classified in the service sector. An example of the increased demand for services arises from the growing specialization among manufacturers. As incomes rise, consumers are demanding higher quality and more specialized products. Manufacturers are responding by

making products for narrower market niches. This requires a more extensive demand for business services that do market analysis, advertising, and distribution services (Stanback and Noyelle 1982, Quinn and Paquette 1989). Rapid rates of technological innovation in information and goods processing are also exerting a positive impact on the growth of producer services (Gillespie and Green 1987; Hepworth, Green and Gillespie 1987; Morris 1988). As the cost of obtaining information declines, demand increases, stimulating this industry. The introduction of information-based technologies in all other forms of economic activity creates additional demand for workers in such industries as software and computer equipment consulting. Thus technological innovation contributes to the growth of service sector jobs. Finally, there are also important developments in the nature of consumer demand that are influencing the growth of services (Moore 1987). The income elasticity of demand for services exceeds that for manufactured goods. As consumers gain personal wealth, they spend proportionally more of their income on consumer services. Two-wage-earning families and the "greying" of America have resulted in increased disposable consumer income and account for some growth in trade (the trend toward convenience over price), recreation, and restaurants (Mawson 1987; Miller and Bluestone 1987).

Presently, rural communities have not captured a proportionate share of service sector growth (Beale and Fuguitt 1980; Miller and Bluestone 1987). Some services, especially consumption services (e.g., grocery stores, dry cleaners, etc.), are virtually ubiquitous. Others, such as patent lawyers and investment banking houses, are found only in the largest urban areas. For example, Stanback et. al. found that while cities with populations over 2 million had more than 79 percent of their non-agricultural employment in services, those with less than 250,000

and non-metropolitan counties had less than 74 percent (1982). Given that business services are a major portion of service growth, their metropolitan orientation diminishes the prospect that they will decentralize to rural areas.

Consumer services are clearly a function of income. A major portion of post-war rural services growth occurred in response to rising incomes of rural residents. Many rural areas are now experiencing an erosion of their traditional economic base--agriculture, mining, and manufacturing--resulting in decreased local income circulation and declining demand for consumer services. With the decline in transportation costs and the willingness of rural residents to travel further from home to shop, there is also evidence that the smallest rural commercial centers cannot compete with larger more diversified centers (Senf and Anding 1988). Moreover, only a small number of all rural counties are likely to benefit from the income-induced consumer service expansion that results from the growth in retirement, tourism, and recreation. This study examines the existing relationship between both producer and consumer services and rural economies. The analysis also explores the potential role of rural producer and consumer service growth in the future.

Services as Export Base Activities

Agriculture, mining, and manufacturing are well-recognized components of the export base of rural areas. Services have traditionally been considered residentiary or non-basic activities that may increase local incomes through import substitution. They have not been considered sources of long run economic stability and growth in the absence of other export base activities. But with the rapid expansion of the service sector, this view is obsolete. We must rethink the

conventional notion of export base and expand the range of industries considered basic. But which service industries contribute to the export base? There is presently a dearth of information identifying which service industries have the potential both to be independent generators of growth and to thrive in rural areas (Gillis 1987).

Few studies provide detailed evidence of the export-orientation of service industries across the urban-rural continuum. Those which do exist present conflicting findings. For example, Polese (1982) and Stabler and Howe (1988) found that service firms in rural Canada were significant exporters. In the latter case, export-orientation was independent of the goods-producing sector. In contrast, Smith and Pulver found only a limited tendency for rural Wisconsin service firms to export their products (1981). Export-orientation was correlated with size and ownership status of firms. It was the larger and non-locally owned firms that had a high probability to export.

The potential for services to provide export base employment is determined from international trade data. In 1980, international service trade was valued at $350 billion--about 20 percent of world trade. The most commonly traded services include consulting, telecommunications, computer services, and leasing. With approximately 12 percent of world services trade in 1980, the U.S. is the largest services exporter (Riddle 1986). Porterfield and Pulver examined service data from the upper Midwest region of the U.S. and identified industries with location quotients of greater than one as being export services. They found that 18 3- and 4-digit service-producing SICs could be considered as having export potential. Among others, these industries included advertising, mailing, reproduction and stenographic services, and computer-related services (1988). Only one of these industries (computer services) shows

potential to generate additional growth either through import-substitution or through new product creation.

Other research shows that rural areas have been particularly poor at attracting export services. For example, Stanback, Bearse, Noyelle, and Karasek consider services which are distributive (i.e. business services) or corporate activities to be export services (1981). The remaining services, including retail, consumer, non-profit, and government are classified as residentiary. Using this breakdown, they find that export services are concentrated in the largest cities. In non-metropolitan areas and cities of less than 250,000 population, only 17.4 percent of non-agricultural employment was in export services. Cities of 2 million or more population had 31.7 percent of their non-agricultural employment in export services (Stanback and Noyelle 1982). This unbalanced distribution is seen in comparisons of urban and rural shares of services employment. Henry, Drabenstott, and Gibson found that services composed only 15 percent of employment in rural areas compared with 22 percent of employment in metropolitan areas (1986).

Miller and Bluestone calculated location quotients (LQ) for the major service categories and found that the LQ for producer services was greater than 1 in the largest metropolitan areas, and less than 1 in smaller metropolitan areas and rural counties (1987). This suggests that metropolitan areas are net exporters of services, and rural areas are net importers. As expected, the LQ for consumer or residentiary services was near 1 across metropolitan and non-metropolitan counties, suggesting that cities and rural areas produce consumer services in line with local demand.

Based on their survey of service establishments, Porterfield and Pulver found export-service production to be more urban-oriented than employment in all industries (1988). However,

rural areas attracted a relatively high percentage of employment in several export-service industries. Almost 59 percent of surveyed radio and TV broadcasting establishments, and about 22 percent of security and commodity brokers were located non-adjacent to SMSA rural counties. The former's presence in rural areas reflects the widespread existence of broadcast stations serving primarily local audiences. But while these results are suggestive, the study's focus on a single state leaves open the myriad of circumstances to be found across all of America's rural areas.

The lack of rural employment in autonomous exporting service firms is suggested by recent data on rural service growth. Through the 1970s, rural services growth was far above the national average, and according to the U.S. Department of Agriculture, their fast growth was a result of expanding manufacturing. Kirn, Miller, and Bluestone demonstrate that service growth from 1958 to 1977 reflected the substitution of producer services which followed manufacturing into rural areas (Kirn 1987; Miller and Bluestone 1987).

Since the 1970s, like manufacturing, the growth of rural services has fallen off dramatically. The dismal rate of current rural service growth is attributed to the poor performance of manufacturing as well as services and other sectors. These trends underscore the dependence of most rural service growth on the goods-producing sector and incomes paid to workers in these industries. (Miller and Bluestone 1987; Beale and Fuguitt 1980).

Analogies are occasionally made between the spatial behavior of services--especially producer services--and manufacturing. According to this view, the decentralizing tendencies of service industries will mirror manufacturing jobs which shifted from urban to rural areas over the post-war era. But there is a countervailing view which suggests that service industry's need

for face-to-face, contact coupled with advances in automation, will obviate the need for service decentralization (Gillespie and Green 1987; Mawson 1987). Cappellin argues that input-output transactions of service firms are far more complex than manufacturing. Unlike manufacturing, services are more interdependent and therefore are often tied to other service firms. At least according to this view, the past experience of manufacturing will not be reflected in the future behavior of service firms.

This study answers a set of questions about the nature of services in rural areas. The spatial analysis covers counties. The time frame of the study is 1974 and 1985. This period embraces an era of both rural stability and decline. This project uses County Business Patterns data, to determine the structure of services in rural areas across the U.S. The data set was used to test a number of hypotheses about factors which appear to influence rural service industry location.

This project report provides a national perspective regarding which rural counties have significant concentrations of service jobs and which grew at above-average rates between 1974 and 1985. The study identifies the relationship between rural service growth and the economic base of individual rural counties. For example, we assessed the structure of services in manufacturing versus farming-dependent counties. We tested the extent of structural interdependence using the Economic Research Service of the U.S. Department of Agriculture's (ERS) classification of rural counties' economic bases. As the ERS classification scheme is based on income, we developed profiles of service sector structures in the six different types of rural communities.

As part of explaining conditions and trends of rural service growth, we tested a number of existing theories. In this report we examined export base theory and its subsequent theoretical refinements to determine the nature and growth potential of rural service industries. In line with this theoretical perspective, we answeredquestions related to the growth potential of services. For example, we suggest when and unr what circumstances service industries function as autonomous sources of regional growth d as sources of direct exports out of the local economy. We also discuss the potential for interdustry linkages and services. We also examine the extent that services support linkages been traditional exporters (farmers, manufacturers, and miners). And we suggest the extent hich service growth is tied to residentiary activities.

The report begins by describinvelopments in the distribution of economic activity in the national economy.

Chapter two discusses the res strategy and data sources used in the completion of this study. We discuss the geographsis of the study and report the difficulties associated with using County Business Patternsfor rural research.

Chapter three outlines the exce of job growth in the nation and reviews a number of major reasons for services job gluring the study period. The chapter also introduces the experience of services growth | counties. We contrast recent developments in the manufacturing sector with the grorural services, and we identify the top services job generators in rural counties.

Chapter four examines servrs growing rapidly rural counties. In this context we raise the question of when percenge matters as an indicator of long run economic development. We examine servicin adjacent and non-adjacent counties.

Chapter five and six review the growth of services in rural counties in conjunction with the dominant economic base. Indicators of both absolute and percentage change are reviewed.

Chapter seven takes a different perspective on services growth and examines the spatial behavior of service industries. In this chapter we examine the results of entropy, location quotient and shift-share analyses.

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and Miles 1983). If non-service sectors have higher per capita productivity rates, all else being equal, services will have to employ more (less productive) workers to stay even. The view on this is not unanimous. Some researchers speculate that in the future, services are likely to create fewer jobs as pressures to raise productivity result in capital-intensification of service production processes. Marshall notes that relatively low-productivity services are becoming more capital-intensive, resulting in lower employment multipliers (1987). This phenomenon is also mentioned by Enderwick, who states that the rising cost of labor results in a search for high per capita value-added investments. A recent article about the American Express Corporation in the New York Times indicates the possibilities for productivity increases. Production of American Express' monthly credit card billing once required hundreds of data entry processors. But new electronic scanning technologies have cut the size of American Express' data entry staff by as much as 90 percent in some cases.

Additional factors related to changing modes of production also account for some service employment growth. Manufacturing firms now "sub out" many service requirements previously supplied in-house (Buck 1988). For example, "just-in-time" (JIT) inventory practices employed by manufacturing firms are precipitating service employment growth (Kutscher and Personick 1986, Quinn and Paquette 1989). In addition to the employment implications of JIT practices, firms are simply using more temporary employees for a wide variety of tasks. Certain kinds of activities such as janitorial, food service, and landscaping are increasingly being acquired from firms classified in the service sector. Another example of the increased demand for services arises from the growing specialization among manufacturers. As income rise, consumers are demanding higher quality and more specialized products. Manufacturers are responding by

making products for narrower market niches. This requires a more extensive demand for business services that do market analysis, advertising, and distribution services (Stanback and Noyelle 1982, Quinn and Paquette 1989). Rapid rates of technological innovation in information and goods processing are also exerting a positive impact on the growth of producer services (Gillespie and Green 1987; Hepworth, Green and Gillespie 1987; Morris 1988). As the cost of obtaining information declines, demand increases, stimulating this industry. The introduction of information-based technologies in all other forms of economic activity creates additional demand for workers in such industries as software and computer equipment consulting. Thus technological innovation contributes to the growth of service sector jobs. Finally, there are also important developments in the nature of consumer demand that are influencing the growth of services (Moore 1987). The income elasticity of demand for services exceeds that for manufactured goods. As consumers gain personal wealth, they spend proportionally more of their income on consumer services. Two-wage-earning families and the "greying" of America have resulted in increased disposable consumer income and account for some growth in trade (the trend toward convenience over price), recreation, and restaurants (Mawson 1987; Miller and Bluestone 1987).

Presently, rural communities have not captured a proportionate share of service sector growth (Beale and Fuguitt 1980; Miller and Bluestone 1987). Some services, especially consumption services (e.g., grocery stores, dry cleaners, etc.), are virtually ubiquitous. Others, such as patent lawyers and investment banking houses, are found only in the largest urban areas. For example, Stanback et. al. found that while cities with populations over 2 million had more than 79 percent of their non-agricultural employment in services, those with less than 250,000

and non-metropolitan counties had less than 74 percent (1982). Given that business services are a major portion of service growth, their metropolitan orientation diminishes the prospect that they will decentralize to rural areas.

Consumer services are clearly a function of income. A major portion of post-war rural services growth occurred in response to rising incomes of rural residents. Many rural areas are now experiencing an erosion of their traditional economic base--agriculture, mining, and manufacturing--resulting in decreased local income circulation and declining demand for consumer services. With the decline in transportation costs and the willingness of rural residents to travel further from home to shop, there is also evidence that the smallest rural commercial centers cannot compete with larger more diversified centers (Senf and Anding 1988). Moreover, only a small number of all rural counties are likely to benefit from the income-induced consumer service expansion that results from the growth in retirement, tourism, and recreation. This study examines the existing relationship between both producer and consumer services and rural economies. The analysis also explores the potential role of rural producer and consumer service growth in the future.

Services as Export Base Activities

Agriculture, mining, and manufacturing are well-recognized components of the export base of rural areas. Services have traditionally been considered residentiary or non-basic activities that may increase local incomes through import substitution. They have not been considered sources of long run economic stability and growth in the absence of other export base activities. But with the rapid expansion of the service sector, this view is obsolete. We must rethink the

conventional notion of export base and expand the range of industries considered basic. But which service industries contribute to the export base? There is presently a dearth of information identifying which service industries have the potential both to be independent generators of growth and to thrive in rural areas (Gillis 1987).

Few studies provide detailed evidence of the export-orientation of service industries across the urban-rural continuum. Those which do exist present conflicting findings. For example, Polese (1982) and Stabler and Howe (1988) found that service firms in rural Canada were significant exporters. In the latter case, export-orientation was independent of the goods-producing sector. In contrast, Smith and Pulver found only a limited tendency for rural Wisconsin service firms to export their products (1981). Export-orientation was correlated with size and ownership status of firms. It was the larger and non-locally owned firms that had a high probability to export.

The potential for services to provide export base employment is determined from international trade data. In 1980, international service trade was valued at $350 billion--about 20 percent of world trade. The most commonly traded services include consulting, telecommunications, computer services, and leasing. With approximately 12 percent of world services trade in 1980, the U.S. is the largest services exporter (Riddle 1986). Porterfield and Pulver examined service data from the upper Midwest region of the U.S. and identified industries with location quotients of greater than one as being export services. They found that 18 3- and 4-digit service-producing SICs could be considered as having export potential. Among others, these industries included advertising, mailing, reproduction and stenographic services, and computer-related services (1988). Only one of these industries (computer services) shows

potential to generate additional growth either through import-substitution or through new product creation.

Other research shows that rural areas have been particularly poor at attracting export services. For example, Stanback, Bearse, Noyelle, and Karasek consider services which are distributive (i.e. business services) or corporate activities to be export services (1981). The remaining services, including retail, consumer, non-profit, and government are classified as residentiary. Using this breakdown, they find that export services are concentrated in the largest cities. In non-metropolitan areas and cities of less than 250,000 population, only 17.4 percent of non-agricultural employment was in export services. Cities of 2 million or more population had 31.7 percent of their non-agricultural employment in export services (Stanback and Noyelle 1982). This unbalanced distribution is seen in comparisons of urban and rural shares of services employment. Henry, Drabenstott, and Gibson found that services composed only 15 percent of employment in rural areas compared with 22 percent of employment in metropolitan areas (1986).

Miller and Bluestone calculated location quotients (LQ) for the major service categories and found that the LQ for producer services was greater than 1 in the largest metropolitan areas, and less than 1 in smaller metropolitan areas and rural counties (1987). This suggests that metropolitan areas are net exporters of services, and rural areas are net importers. As expected, the LQ for consumer or residentiary services was near 1 across metropolitan and non-metropolitan counties, suggesting that cities and rural areas produce consumer services in line with local demand.

Based on their survey of service establishments, Porterfield and Pulver found export-service production to be more urban-oriented than employment in all industries (1988). However,

rural areas attracted a relatively high percentage of employment in several export-service industries. Almost 59 percent of surveyed radio and TV broadcasting establishments, and about 22 percent of security and commodity brokers were located non-adjacent to SMSA rural counties. The former's presence in rural areas reflects the widespread existence of broadcast stations serving primarily local audiences. But while these results are suggestive, the study's focus on a single state leaves open the myriad of circumstances to be found across all of America's rural areas.

The lack of rural employment in autonomous exporting service firms is suggested by recent data on rural service growth. Through the 1970s, rural services growth was far above the national average, and according to the U.S. Department of Agriculture, their fast growth was a result of expanding manufacturing. Kirn, Miller, and Bluestone demonstrate that service growth from 1958 to 1977 reflected the substitution of producer services which followed manufacturing into rural areas (Kirn 1987; Miller and Bluestone 1987).

Since the 1970s, like manufacturing, the growth of rural services has fallen off dramatically. The dismal rate of current rural service growth is attributed to the poor performance of manufacturing as well as services and other sectors. These trends underscore the dependence of most rural service growth on the goods-producing sector and incomes paid to workers in these industries. (Miller and Bluestone 1987; Beale and Fuguitt 1980).

Analogies are occasionally made between the spatial behavior of services--especially producer services--and manufacturing. According to this view, the decentralizing tendencies of service industries will mirror manufacturing jobs which shifted from urban to rural areas over the post-war era. But there is a countervailing view which suggests that service industry's need

for face-to-face, contact coupled with advances in automation, will obviate the need for service decentralization (Gillespie and Green 1987; Mawson 1987). Cappellin argues that input-output transactions of service firms are far more complex than manufacturing. Unlike manufacturing, services are more interdependent and therefore are often tied to other service firms. At least according to this view, the past experience of manufacturing will not be reflected in the future behavior of service firms.

This study answers a set of questions about the nature of services in rural areas. The spatial analysis covers counties. The time frame of the study is 1974 and 1985. This period embraces an era of both rural stability and decline. This project uses County Business Patterns data, to determine the structure of services in rural areas across the U.S. The data set was used to test a number of hypotheses about factors which appear to influence rural service industry location.

This project report provides a national perspective regarding which rural counties have significant concentrations of service jobs and which grew at above-average rates between 1974 and 1985. The study identifies the relationship between rural service growth and the economic base of individual rural counties. For example, we assessed the structure of services in manufacturing versus farming-dependent counties. We tested the extent of structural interdependence using the Economic Research Service of the U.S. Department of Agriculture's (ERS) classification of rural counties' economic bases. As the ERS classification scheme is based on income, we developed profiles of service sector structures in the six different types of rural communities.

As part of explaining conditions and trends of rural service growth, we tested a number of existing theories. In this report we examined export base theory and its subsequent theoretical refinements to determine the nature and growth potential of rural service industries. In line with this theoretical perspective, we answered questions related to the growth potential of services. For example, we suggest when and under what circumstances service industries function as autonomous sources of regional growth and as sources of direct exports out of the local economy. We also discuss the potential for inter-industry linkages and services. We also examine the extent that services support linkages between traditional exporters (farmers, manufacturers, and miners). And we suggest the extent to which service growth is tied to residentiary activities.

The report begins by describing developments in the distribution of economic activity in the national economy.

Chapter two discusses the research strategy and data sources used in the completion of this study. We discuss the geographic basis of the study and report the difficulties associated with using County Business Patterns data for rural research.

Chapter three outlines the experience of job growth in the nation and reviews a number of major reasons for services job growth during the study period. The chapter also introduces the experience of services growth in rural counties. We contrast recent developments in the manufacturing sector with the growth of rural services, and we identify the top services job generators in rural counties.

Chapter four examines services sectors growing rapidly rural counties. In this context we raise the question of when percentage change matters as an indicator of long run economic development. We examine service growth in adjacent and non-adjacent counties.

Chapter five and six review the growth of services in rural counties in conjunction with the dominant economic base. Indicators of both absolute and percentage change are reviewed.

Chapter seven takes a different perspective on services growth and examines the spatial behavior of service industries. In this chapter we examine the results of entropy, location quotient and shift-share analyses.

CHAPTER II

DATA SOURCES AND LIMITATIONS

The results of this study are based on analysis of a detailed 97-sector data set drawn from County Business Patterns Data. Data for 1974 and 1985 were analyzed to determine the spatial structure of service industries in rural areas. In addition to analysis of all service sectors, as defined by the SIC code book of the U.S. Department of Commerce, a subset of industries classified as producer services and manufacturing industries were also examined.

The Use of County Business Patterns Data

Spatial analysis of industry incidence using government (and most private) data sources is hampered by the lack of a complete accounting of detailed industry employment for all counties in the nation. Due to federal disclosure rules, no federal or public agency provides a complete census of establishments and employment. While the Census of Manufactures provides a computer tape listing of all plants in the country, employment figures are not included. The lack of a full employment count is particularly acute in the case of County Business Patterns (CBP). While CBP is the only annual county level industry data set, as much as 60 percent of industry employment information is suppressed. To overcome this limitation, researchers have developed a number of estimation procedures that allocate aggregate employment totals to specific counties with missing data.

In this research project, data were generously provided by Dr. William Beyers of the University of Washington, Seattle, Geography Department. Using a biproportional matrix

adjustment procedure, Dr. Beyers allocated employment totals to employment size categories using an iterative computer routine. This procedure is widely used and has been shown to produce accurate and efficient estimates. The results constitute a data file with counts of both employment and number of establishments in counties at a four-digit level of industry detail.

The Use of County Business Patterns for Rural Research

Using CBP data for rural research has a number of limitations. Perhaps the most significant problem is the exclusion of certain industries. Neither agriculture nor government industries (two important rural sectors) are included in CBP. This omission problem can be overcome by substituting information from other (comparable) sources.

Federal and local government employment can be incorporated into a data set using a number of alternative sources. In this project we used employment levels reported in the City and County Data Book, published by the U.S. Department of Commerce. County level government data are derived from the 2 and 7 year Census of Governments, while federal employment consists of employment counts updated from the decennial Census. As there are no disclosure problems, these data are accurate reflections of government employment.

One limitation of substituting data concerns reporting years. The most recent City and County Data Book reported federal government employment for 1984, while local government data were reported for 1982. We considered adjusting the data by using national rates of change for both categories of government employment. However, given the time period under study, we were concerned about the possibility of over- or under-estimating government employment. Federal employment in particular has increased dramatically due to larger defense expenditures

between 1982 and 1985. Upon further reflection, we decided against adjusting the data. This may bias the figures for government employment downward.

A more intractable problem arises in attempting to incorporate a measure of agricultural employment in the analysis. Aside from the Decennial Census and aggregate figures published by the Department of Agriculture, we were unable to locate a suitable measure of agriculture employment. This problem arises because off-farm employment is a significant supplement to farm income. To remain in agriculture, many farm families have been forced to seek alternative off-farm income sources. Consequently, it is difficult to estimate how many individuals are employed on the farm full-time. In other studies researchers have used measures of income as a surrogate for farming employment. Since we are primarily concerned with establishing the role of services as a share of total employment, no satisfactory surrogate was available for the time periods studied. Therefore, in counties where agriculture makes up a large portion of full-time, full-year employment, measures of non-farm industry specialization may be overstated.

A secondary problem associated with using CBP data to study services employment in rural areas is the possibility of under-reporting small establishments. Services are volatile sectors. Detailed analysis of other data sources (such as Dun and Bradstreet and Economic Census') identifies a high frequency of sector switching--the movement of establishments among sectors--and the high rate of business failure. Furthermore, many small service establishments are operated out of individuals' homes. Whether these organizations are incorporated into federal data bases fundamentally depends on whether the proprietor reports the business for tax purposes and employs one or more workers in the establishment. While CBP data are considered a census of establishments over 250 employees, the remaining establishments are accounted for by using

other data sources such as administrative records (e.g. Internal Revenue files).

An equally intractable problem using any government data source is establishment classification based on the SIC code system. At high levels of disaggregation, comparison of Dun & Bradstreet, Iowa sales tax records, and County Business Patterns data indicates significant differences among the number of reporting units. This variation in establishment classification results in erratic reporting of establishments by SIC code. This is a particular problem given service industries' volatility and the high frequency of sector switching. Readers should be advised that these problems are no doubt reflected in the data used in this study.

Summary

The Decennial Census still remains the most accurate publicly available data set with which to study rural industry development trends. The strength of the Census, however, is also its weakness: the Census exclusively covers individuals. Problems arise when individuals classify themselves into industries and then Bureau of Census personnel code their responses. In particular, studies show consistent variation in the reporting of occupations and counts of industry employment compared with other data sets. Furthermore, jobs are not attached to establishments.

A more frustrating problem of the Census is the aggregate level of detail provided for industry employment. Data are most commonly presented at the two-digit level of detail. A second problem with the Census is the length of time between Census'. While the Census does a satisfactory job of reporting population characteristics, it has limited usefulness for geographic/industry analysis.

Alternative data sets such as the Bureau of Economic Analysis Employment and Earnings files, while appropriate for rural research, are not publicly available at a highly disaggregated geographic level and with sufficient industry detail. With all the limitations, County Business Patterns data remain one of the few viable sources available to study industry experiences in rural counties.

Thus while CBP data have problems, they represent an annual data set with significant geographic and industry detail. Data enhancements expand the usefulness of the data set, but important rural sectors, i.e. government and agriculture, are nonetheless excluded.

Geographic System used to Identify Rural Areas

The urban-rural continuum used in this study was designed by Calvin Beale of the U.S. Department of Agriculture, Economic Research Service, Economic Development Division. The criteria for designating a county as urban or rural are based on population size, commuting patterns of residents in individual counties, and the county's spatial position relative to a metropolitan area. Metropolitan status is that announced by the Office of Management and Budget in June 1983, when the current population criteria were first applied to results of the 1980 Census. Adjacency was determined by physical boundary adjacency and a finding that at least 2 percent of the employed labor force in the non-metropolitan county commuted to metropolitan central counties. This scheme has subsequently been updated to take into account the 1983 redefinition of metropolitan areas and the incorporation of formerly adjacent rural counties into metropolitan areas.

The classification scheme consists of ten urban-rural categories. Categories 0-3 identify counties that are metropolitan in nature. Metropolitan is defined as counties with populations between 50,000 and 1 million or more. Both central counties and fringe counties of a metropolitan area are separately identified.

Rural counties are classified based on population and adjacency to a metropolitan area. Categories 4-9 classify counties on the basis of population size--20,000 or more, 20,000 or less, and completely rural, and on the basis of whether they are adjacent to a metropolitan area.

Metropolitan Counties

0 Central counties of metropolitan areas of 1 million population or more.

1 Fringe counties of metropolitan areas of 1 million population or more.

2 Counties in metropolitan areas of 250,000 to 1 million population.

3 Counties in metropolitan areas of less than 250,000 population.

Non-Metropolitan Counties

4 Urban population of 20,000 or more, adjacent to a metropolitan area.

5 Urban population of 20,000 or more, not adjacent to a metropolitan area.

6 Urban population of less than 20,000 adjacent to a metropolitan area.

7 Urban population of less than 20,000 not adjacent to a metropolitan area.

8 Completely rural, adjacent to a metropolitan area.

9 Completely rural, not adjacent to a metropolitan area.

CHAPTER III

EMPLOYMENT GROWTH TRENDS: THE ROLE OF SERVICES AND MANUFACTURING IN THE NATION AND RURAL COUNTIES

The first section of this chapter sets out the growth of services in the nation. A number of comparisons are made between the national experience and the experience of non-metropolitan counties. The analysis further disaggregates geography by focussing on adjacent and non-adjacent counties and rural service industry growth. Where pertinent, we examine the experience of selected manufacturing industries and a subset of services industries, the producer services sector.

This section begins by describing national trends. On the basis of these initial observations, we analyze the experience of rural counties and the growth of services over the 1974-1985 period.

I. Employment Growth in the Nation

As stated in the introduction, over the 1974-85 decade service industries were the major job generators in the nation. Between 1974-85 the national economy added almost 18 million jobs (Table I). The service sector was responsible for 93 percent of the nation's job growth, and increased by 45 percent between 1974 and 1985. Producer services grew at a more impressive rate (68 percent), while accounting for approximately 37 percent of all new job growth, and 40 percent of all new service job growth (Table II). (Pie chart of producer services as a share of all services). Of the 97 sectors studied (58 are services), the top 27 job generators were services industries.

Table I
Growth in National Employment,
Services and Producer Services Industries 1974-1985
(absolute and percentage change)

	Absolute Change	Percentage Change
All Industries	17748976	28
Services	16459161	45
Producer Services	622208	68

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table II
Share of all Job Gains,
Services and Producer Services
for the Nation and Rural Counties, 1985

	Services Share of Job Gains	Producer Services Share of Job Gains
The Nation	93%	37%
Rural Counties	92%	28%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

I.A Manufacturing's Experience

During a period of significant import penetration due to the high value of the dollar and the undervalued currency of newly industrializing countries, U.S. manufacturing industries lost almost one million jobs. Manufacturing sectors that continued to add jobs were a handful including printing and publishing, non-electrical machinery, electronics, instruments, transportation equipment, and rubber and miscellaneous plastics (Table III). During the study period, America remained competitive in high tech sectors. The expansion of transportation equipment reflects both the renewed growth of automobile production (in part fueled by Japanese investment in the U.S.), and the rise in defense spending over the 1980-85 period. The dramatic increase in the printing and publishing industry (302,977 jobs) reflects the growth of services and the increasing importance of information technology in the national economy.

I.B Underlying Basis of Service Sector Growth: The Top Ten Job Generators

While much of the emphasis in recent writings on services focuses on the spectacular growth experience of producer services industries (see Chapter I), sectors adding the lion's share of new jobs are overwhelmingly associated with the consumer or residentiary sector. Table VI lists the top ten industries and their share of national employment growth. Of the 97 sectors studied, these ten accounted for 55 percent of job growth in the nation. Scanning the list, it is obvious that the major share of job change occurred in sectors dependent upon consumer spending. Health care and eating and drinking establishments accounted for 27 percent of the total. The composition of the top ten service sectors clearly reflects major demographic and institutional changes occurring in the national economy over the period studied.

Table III
National Manufacturing
Change in Employment 1974-1985
Two-digit Sectors
(absolute and percentage change)

Industry Name	Absolute Change	Percentage Change
Printing & Publishing (SICS 2700)	302977	27.22
Electric & Electronic Equipment (SICS 3600)	218863	11.73
Instruments & Related Products (SICS 3800)	83897	15.81
Nonelectrical Machinery (SICS 3500)	67560	3.09
Rubber & Misc. Plastics Products (SICS 3000)	66886	9.57
Transportation Equipment (SICS 3700)	45752	2.66
Furniture & Fixtures (SICS 2500)	1400	.28
Petroleum & Coal Products (SICS 2900)	-11516	-8.05
Tobacco Manufactures (SICS 2100)	-17204	-24.73
Paper & Allied Products (SICS 2600)	-28872	-4.46
Chemical & Allied Products (SICS 2800)	-33315	-3.73
Lumber & Wood Products (SICS 2400)	-53025	-7.47
Miscellaneous Manufacturing (SICS 3900)	-91872	-19.55
Fabricated Metal Products (SICS 3400)	-93759	-5.89
Leather & Leather Products (SICS 3100)	-112438	-42.22
Food & Kindred Products (SICS 2000)	-119894	-7.78
Stone, Clay & Glass (SICS 3200)	-126331	-18.79
Apparel & Other Textile Products (SICS 2300)	-255693	-18.52
Textile Mill Products (SICS 2200)	-295641	-30.32
Primary Metal Industries (SICS 3300)	-481694	-38.23
TOTAL		-933919

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table VI
National Employment
Top 10 Service Industries, 1974-1985
(absolute and percentage change)

Industry Name	Absolute Change	Percentage Change
Health Services (SICS 8000)	2646476	71.72
Eating & Drinking Places (SICS 5800)	2203830	71.15
Food Stores (SICS 5400)	765782	41.86
Social Services (SICS 8300)	708627	121.72
Wholesale Trade-Durable (SICS 5000)	702840	28.54
Educational Services (SICS 8200)	574239	60.90
Miscellaneous Retail (SICS 5900)	557880	35.41
Membership Organizations (SICS 8600)	546544	54.36
Special Trade Contractors (SICS 1700)	534729	25.83
Personnel Supply Services (SICS 7360)	506188	141.10

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

The following section highlights a number of reasons for the growth of individual service sectors.

I.C Why Services Have Grown So Fast

Health Care

The dramatic increase in health care employment is in response to developments in the medical field including new medical treatments, greater health care specializations, and the development of new health care delivery systems such as health maintenance organizations (HMOs). The dramatic rise in third party insurance payments also added to the increase in, and the demand for, health care services. The remaining eight sectors respond to similar and yet unique stimuli.

Eating and Drinking Establishments and Food Stores

Expansion of eating and drinking establishments reflects the rise of female labor force participation and the concomitant increase in consumption of prepared meals purchased outside the home. Growth of food stores also corresponds to changes in the labor force while reflecting a number of new marketing developments, including the doubling up of formally distinct activities, such as retail gas sales with small convenience stores. Consumer preference for convenient access to quick service outlets, such as 7-11s, is fueling the growth of food stores. Rising disposable incomes and consumer preference for a variety of consumables such as specialty foods, fresh produce, prepared meats, and ethnic foods have contributed to the growth of food stores.

A major factor in the nation's population growth over the 1980s decade was international immigration. The growth of food stores may reflect the establishment of small local grocery stores which are a common means for immigrants to establish businesses in ethnic enclaves. Part-time employment is an important attribute of these sectors. Both these sectors have contributed to the rise in low-wage jobs in the national economy. Cliches about Americans becoming a nation of "hamburger flippers" arise in response to this obvious trend.

As Chapter I points out, the growth of service industries occurred in response to a multitude of changes in the national and international economies. The U.S. remains one of the richest nations in the world. The population enjoys large living spaces, sophisticated health care, and high per capita incomes. In addition, the nation is the home base of some of the world's largest corporations and enjoys an enviable capacity to create industrial innovations. The growth of services contributes to and is a direct result of changes in the way firms and individuals conduct daily business.

Social Services

The growth of social services reflects the decreasing participation of the federal government in social services provision, and the expansion of services to provide for the needs of the nation's working population. Starting with the Nixon presidency, the federal government began shifting social service responsibilities onto state and local governments. While over the decade studied, federal government employment continued to grow, major cut-backs occurred in health and human services, community development, and consumer protection programs (Ginsberg and Sheftler 1990). (Politics by Other Means: The Declining Importance of Elections

in America, B. Ginsberg & M. Shefter, Basic Books 1990, New York). States were forced to take up the slack. The private sector has also absorbed some of the responsibility for social services provision. And in some cases community-based organizations have grown to fill the gap. The growth of social services also reflects the development of new services and the rise in demand for child care. Together these developments have contributed to the dramatic growth of social services employment.

Durable Wholesaling

Expansion of the durable goods wholesale sector corresponds with increases in consumer spending for dishwashers and other large household expenditures, and with the needs of industry for increasingly tailored input packaging and delivery. Wholesaling services have been growing unabated since the late 1940s. The rate of increase in new wholesale establishments has consistently outperformed manufacturing establishment growth. Reasons for continued expansion of wholesaling relate to longstanding policies governing the organization of firms. Corporations use outside sales forces to distribute goods. In addition, the disintegration of sectors, the rising specialization in the manufacture of goods, rapid change in product technology, and the cost pressures associated with the internationalization of the economy, have contributed to the expansion of the wholesaling sector.

A popular misconception about manufacturing is that firms predominantly use internal sales and delivery services to distribute goods. Recent research by Glasmeier (1990) confirms that the majority of manufacturers use mixed distribution channels to sell and distribute products. The use of external distributors has been rising because of the high cost of maintaining an

internal sales force, the cost of carrying inventory, the expansion of geographic markets, and the need for firms to simultaneously manage the sale of old and new products. Simply on a management basis alone, wholesaling performs a vital function in the operation of national manufacturing.

Furthermore, the expansion of markets and the increasing demand for specialized and highly tailored goods have contributed to a growing division of labor in American manufacturing. The manufacture of user-specific products increases the number of transactions in the national economy. Firms use wholesalers to reduce the number of contractual obligations required to manufacture a product.

The growth of wholesaling is also a response to developments in new technologies and rising costs of production. Accelerated product life cycles (the constant introduction of new product generations) have forced firms to bring new products to market faster while still providing services for earlier product models. Product specialization has added to delivery and service pressures, and firms have found it increasingly cost effective to sell new products through distributors to help stimulate markets and provide service to long standing clientele. The cost of maintaining and servicing multiple products is prohibitive. Increasingly firms are choosing to contract with distributors to perform functions formerly conducted in-house.

As the importance of rapid delivery of reliable parts has increased, manufacturers have increasingly used distributors to provide pre-manufacturing services such as sorting and testing. With the development of just-in-time inventory management practices, it has become imperative that inputs arrive at the production line ready for assembly. Distributors provide the necessary support services to accomplish defect-free manufacturing.

Finally, since the mid-1970s, American firms have come under increasing cost pressure associated with international competition. Costs associated with late deliveries, poor quality inputs, and inadequate substitutes have forced many firms to rely upon distributors to manage pre and post-manufacturing services.

Educational Services

The growth of educational services is associated with the development of an increasingly complex division of labor in the national economy. Demographic trends (the tail-end of the baby boom generation's demand for education) and the inability of public institutions to respond rapidly to the need for training in new fields have led to the creation of for-profit educational services. Today there are national business chains offering legal, medical, secretarial, technical, and personal hygiene education and training. The profitability of such ventures is related to liberal student loan programs providing borrowed funds for tuition, and the creation of new lines of work in fields such as electronics. While public provision of training has also increased in response to new occupational developments, the demand for new occupations such as electronic technicians, outstripped immediate supply, thus providing a new business opportunity in for-profit education.

Personnel Services

Of the remaining four service sector job generators, growth in personnel services reflects a new trend in the national economy: the maintenance or reduction in the number of full-time covered employees, supplemented by temporary personnel. Traditionally, firms have used "temps" to fill-in for sick or vacationing employees and whenever an up-surge in demand created momentary bottle-necks in business operations. In the 1980s, the use of temporary personnel

became a common strategy to momentarily expand the capacity of firms while limiting long term expansion of the workforce. Firms were replacing full-time workers (with pensions and benefits) with uncovered temporary personnel. This strategy reduces short term labor costs because firms do not pay benefits, and it provides longer term flexibility in instances when a firm wishes to quickly reduce work force size in response to changes in the economy.

Scholars and labor leaders have criticized this approach to labor relations arguing that hiring temporary personnel erodes the postwar social contract between management and labor. But firms also employ temporary personnel for new services not previously performed in-house. The number of contract employees providing sector-specific services, such as software engineering and systems management, has grown in response to the introduction of new technologies (computers) and the intermittent need to make adjustments in hardware and software.

The widespread use of temporary personnel may be tapering off (NYT 1990, Oct. 16, p. C1b). Anecdotal evidence indicates firms are reducing demand for temporary personnel and up-skilling permanent workers. The benefits of using temporary personnel revolved around the flexibility firms achieved in work force management. The down side, however, was the lack of employee commitment and the expense of training workers only to lose them to other employers. It appears that firms are once again investing in work place skills and hiring employees in full-time, covered positions. Interestingly, wages are not increasing at a rate commensurate with increased job skills. This new development may have serious long term-consequences for the national economy. It certainly breaks with longstanding trends of increased education being rewarded with higher compensation levels.

Summary

The purpose of this discussion is to review a few of the many reasons for service sector expansion, and to highlight the underlying and varied basis of service sector growth during the study period. As discussed in the introduction, the growth of services stems from numerous changes occurring in the national economy. From an economic development perspective, it is essential to delineate reasons for differences in service sector growth. This is particularly important given that service sectors are becoming targets of local economic development strategies. While growth in health care is important to the condition of the nation's residents and its working population, health care's expansion is also tied to the base population and is rarely an independent source of income generation. In contrast, wholesaling is tied to both the residentiary and the basic manufacturing sectors and therefore holds promise to contribute to long run income growth in a rural community. The local economic development implications of these two sources of services growth differs fundamentally.

With these introductory comments in mind, the next section reviews the growth experience of services employment in rural counties.

II. Rural Trends

The growth of employment in rural areas was similar to the nation, with important exceptions. During the 1974-85, period although rural counties added 2,471,530 new jobs, job growth was below the national average (23 percent vs. 28 percent) (Table V).

While the service sector in rural areas expanded at a healthy rate (41 percent), this was still three percentage points below the national rate (bar chart of all employment and service

Table V
Growth in Rural Employment,
Services and Producer Services Sectors 1974-1985
(absolute and percentage change)

	Absolute Change	Percentage Change
Job Growth	2471530	23
Services	2267129	41
Producer Services	696505	70

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

employment for national and rural areas). Comparing service job growth as a share of all employment change indicates that rural areas' experience was slightly below the nation's (92 percent vs. 93 percent of all job growth). In contrast, producer services growth was slightly above the national average (70 percent vs. 68 percent). In spite of higher than average growth in producer services, rural counties still lagged in share of producer services to total employment and to service job growth compared with the nation (Table VI). (A bar chart here of percent of total job growth in services and producer services, urban and rural.)

II.A The Growth of Services In Rural Counties

The composition of service job growth in rural counties is similar to that of the nation. Although the sectoral composition is largely the same, the share of total job change attributable to the top 10 sectors is much larger (66 vs. 53 percent) (Table VII). Four sectors, health services, eating and drinking establishments, food stores and social services, account for 44 percent of all job gains during the study period.

Deviations from the national pattern include larger gains in banking, unclassified employment, and electrical gas and sanitary services. The degree of sectoral variation suggests there is no single explanation for rural services growth. For example, the sector employment not elsewhere classified (n.e.c.) often comprises job growth in a panoply of industries, some of which are too new and unstable to classify accurately. The growth of banking reflects the impact of deregulation. Finally the growth in electrical, gas, and sanitary services no doubt reflects the solidification and maturation of rural communities that experienced population growth during the

Table VI
Share of Service Job Gains
in Producer Services, 1985

The Nation	40%
Rural Counties	31%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table VII
Rural Employment
Top 10 Service Industries, 1974-1985
(absolute and percentage change)

Industry Name	Absolute Change	Percentage Change
Health Services (SICS 8000)	417461	68.00
Eating & Drinking Places (SICS 5800)	372201	70.63
Food Stores (SICS 5400)	184579	48.13
Social Services (SICS 8300)	121604	105.91
Miscellaneous Retail (SICS 5900)	99507	36.31
Employment NEC (SICS 99--)	97697	66.67
Membership Organizations (SICS 8600)	96571	66.75
Banking (SICS 6000)	79432	39.50
Educational Services (SICS 8200)	75805	74.92
Electric, Gas & Sanitary (SICS 4900)	74204	68.53

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

1970s-1980s decade. The expansion of this sector is partly due to the growth in private development and the creation of single purpose districts--a trend arising as population growth exceeded capacity limits of existing community infrastructure. Rather than taking on new debt, communities allowed developers to build services and tax local residents.

With the exception of banking and educational services, large rural services sector job gains occurred in industries tied to consumer spending and the residentiary sector. The accentuated concentration of job growth in just four sectors reflects the limited diversity of services growth in rural areas. That 26 percent of total job gains occurred in medical services reflects the growing concentration of elderly in rural areas. With more than 12 percent of the population in rural areas of retirement age (55 and over), the growth of medical services mirrors changing demographics and the aging of rural America's population. The economic turbulence of the 1974-85 decade saw rural areas lose population and jobs during the study period. The most mobile, educated, and younger members of rural communities moved in search of better opportunity.

II.B The Experience Of Manufacturing

Services growth was an important offset to job loss in manufacturing. By 1985, rural America had lost two percent of its 1974 manufacturing base. Traditional rural sectors such as textiles, apparel, shoes and timber lost more than 312,000 jobs over the decade (Table VIII). This job loss was partly offset by expansion in eight manufacturing sectors such as non-electrical machinery, printing and publishing, and transportation equipment. These three sectors were responsible for 66 percent of manufacturing job gains in rural areas. Three of the eight

manufacturing growth sectors can be classified as high tech. Thus manufacturing job growth in rural areas followed national manufacturing trends. As previous research points out, more detailed industrial analysis suggests job gains occurred in the most labor intensive and mature sectors within high technology industries. In rural areas, electronics--the boom sector of the 1970-80s decade--actually lost jobs over the 1974-85 study period.

ILC Summary

Job gains in services helped offset declines in manufacturing. Traditional rural manufacturing sectors continued to lose jobs, reflecting the worsening competitive position of trade sensitive sectors. Services job growth, while healthy, remained below the national average. And although producer services grew rapidly, their growth was insufficient to offset rural areas' continued dependency on service sectors associated with resident population.

The next section presents a different perspective on rural services growth--percentage change in employment. Examination of this measure reveals the extent that service sector job growth is accelerating relative to national trends. Tempering the significance of this measure are the twin problems associated with a measure of percentage change which accentuates alterations in the original economic base of rural communities.

Table VIII
Rural Manufacturing
Change in Employment 1974-1985
Two-digit Sectors
(absolute and percentage change)

Industry Name	Absolute Change	Percentage Change
Nonelectrical Machinery (SICS 3500)	58791	15.39
Printing & Publishing (SICS 2700)	56418	42.50
Transportation Equipment (SICS 3700)	39707	24.78
Rubber & Misc. Plastics Products (SICS 3000)	32415	20.52
Food & Kindred Products (SICS 2000)	21928	5.56
Fabricated Metal Products (SICS 3400)	18061	7.72
Paper & Allied Products (SICS 2600)	4134	2.48
Instruments & Related Products (SICS 3800)	3091	5.48
Petroleum & Coal Products (SICS 2900)	-73	-.36
Tobacco Manufactures (SICS 2100)	-1914	-23.62
Chemical & Allied Products (SICS 2800)	-3568	-2.45
Electric & Electronic Equipment (SICS 3600)	-4906	-1.63
Furniture & Fixtures (SICS 2500)	-7319	-4.68
Miscellaneous Manufacturing (SICS 3900)	-16424	-21.84
Primary Metal Industries (SICS 3300)	-23032	-13.03
Stone, Clay & Glass (SICS 3200)	-30930	-16.95
Lumber & Wood Products (SICS 2400)	-41099	-10.12
Leather & Leather Products (SICS 3100)	-43252	-44.54
Apparel & Other Textile Products (SICS 2300)	-59818	-13.30
Textile Mill Products (SICS 2200)	-80531	-20.29
TOTAL		-78321

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

CHAPTER IV

THE MEANING OF PERCENTAGE CHANGE

The use of "percentage change" as an indicator of economic trends has always been a matter of controversy. On the surface, rapid rates of change are commonly interpreted as signifying the relative competitiveness of a geographic area for the receipt of highly variable (in this instance growth) sectors. The proverbial problem remains "when does percentage change matter?" In other words, when does the measure accurately reflect long-term economic trends? Research on rural development is riddled with reports of large percentage changes in various indicators such as population and employment. Too often, however, authors fail to point out the initial base (usually very small). More importantly, little concern is expressed about whether change in employment (or population) reflects short term adjustments in response to immediate economic events or whether it is an indicator of longer term and more permanent change. For example, employment increases reflect one of three tendencies in corporate planning: 1) an absolute increase in employment and the establishment of new facilities; 2) the momentary re-deployment of production schedules to contend with short term demand fluctuations; 3) the shift of employment--often through consolidation--to a target facility accompanied by the closure of others. Only in the first case are new jobs permanently created. The latter two conditions reflect momentary adjustments in employment resulting from corporate planning. Thus the importance of percentage change must be tempered by an understanding of historic industry trends.

Publicly available data bases are too coarse to distinguish among these different developments. Most data reflect a single point in time and fail to clarify between short and long term trends. The only viable means of determining the importance of percentage change is to

incorporate more detailed understanding of individual sectoral developments. To the extent possible, the following discussion incorporates insights about industry growth experiences.

III.A Percentage Change In Services at the National Level

The transformation of the national economy from goods production to services has been underway since the turn of the century. Over the last 20 years the process has accelerated. Services now provide the majority of jobs for America's working population.

In the previous section we examined the structure of the service base noting that the majority of jobs were associated with sectors providing services to the population. Over the study period, sectors that experienced the largest percentage change reflected the unalterable transformation of the national economy toward a dependence upon advanced information technology and the growth of intermediate services to business.

The top ten growth sectors experienced dramatic gains over the decade both in terms of absolute and percentage change (Table VI). The composition of sectors in this group fall into three largely unrelated categories. The first group of sectors can be classified as a subset of producer services. The growth of these sectors constitutes the expansion of existing, as well as the development of entirely new sectors, catering to the needs of an increasingly global business environment, and the proliferation of financial services associated with the creation of new debt instruments and other financing schemes. The explosive growth of Wall Street during the 1980s reflected a new wave of financial restructuring as buy-outs (through junk bonds) and the break up of conglomerates (many formed in the late 1970s to boost corporate profit levels largely through paper transactions) became common events. The expansion of other sectors, such as

equipment leasing more appropriately reflects changes in the Federal tax structure (favorable tax treatment) and gains in flexibility from the use of leased vs. owned capital equipment. As noted earlier, expansion of personnel services reflects firms' goals to reduce short term costs while maintaining long term flexibility. A portion of this growth is also attributable to new skills needed to manage information technology.

Over the decade studied, American business came under intensified international competition. In response, firms sought short term profits and needed flexibility to manage a period of uncertain economic change. It was in this decade that the term "hollow corporation" was coined to describe the increasing tendency of American firms to contract out for almost everything. By the mid-1980s the "firm" constituted little more than a shell in which far-flung transactions came together and were completed.

Two distinct sectors, agricultural services and social services, also experienced large changes in employment. Reasons for social services job gains were discussed earlier. The growth of agricultural services is attributable to many factors. The agricultural crisis of the early 1980s saw the average farm size increase as many small, marginal farmers were forced out of business. There has been concomitantly a shift in farming from owner-operated to absentee and corporate farming operations. In addition to this obvious explanation, growth of agricultural services reflects differential changes in the industries that make up the industry group. The category agricultural services is quite broad and includes veterinarian, animal, crop, farm, labor and management, as well as horticultural and landscape services. Thus the growth of this sector is stimulated by traditional rural industry growth such as agriculture and more urban services such as horticulture.

Examination of percentage change in services growth at the national level illustrates the growing importance of business services in an increasingly international economy. Some of the growth was associated with corporate restructuring and government deregulation of the financial sector. But an important component of business service growth is the creation of new service products made possible by the development of information technology. Other components of growth respond to the increasingly specialized nature of consumer spending and the possibility of vertical disintegration of functions formerly performed within business establishments.

III.B Percentage Growth of Services in Rural Areas

The composition of rapidly growing service sectors in rural areas exhibits modest similarities with national trends. The top ten percentage gainers are a diverse group including both producer services, such as computers and data processing, commodity brokers, and management services, and others (more appropriately classified as general industrial services) such as industrial labs, and consumer/recreation services such as museums (Table X). In contrast with national trends, the ten fastest growing sectors contributed only four percent to total rural services job growth, whereas the comparable group of ten industries was responsible for 17 percent of all national employment growth (Table XI). Thus for rural areas, fast rates of growth did not translate into large real job gains. In contrast, social services doubled, growing from 60,000 to more than 120,000 jobs. This increase was singularly greater than the change in the top ten fastest growing service sectors (by more than 30 percent).

Taken as a whole, rapid growth sectors (those experiencing a 100 percent change in base employment) are tied to the slow incorporation of rural areas into the information economy, and

Table X
Top Ten Service Sectors
Experiencing the Largest Percentage Gains
in Rural Areas, 1974-1985

Industry Name	Absolute Change	Percentage Change
Services, NEC (SICS 8990)	15370	1349.43
News Syndicates (SICS 7350)	262	1247.62
Computer & Data Processing (SICS 7370)	11163	270.68
Equipment Rental & Leasing (SICS 7394)	17333	267.44
Management & Public Relations (SICS 7392)	18403	251.82
Detective & Protection (SICS 7393)	13069	242.15
Security Commodity Brokers (SICS 6200)	5945	198.63
Commercial Testing Labs (SICS 7397)	3072	182.64
Museums, Botanical Gdns & Zoos (SICS 8400)	1950	169.57
Research & Development Labs (SICS 7391)	6254	148.76

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XI
Top Ten Service Sectors
Experiencing the Largest Percentage Change
The Nation and Rural Areas, 1974-1985

The Nation	17%
Rural Counties	4%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

secondarily to structural changes occurring in traditional rural sectors such as agriculture and mining. Rural areas' attractiveness to an aging and more mobile, leisure-seeking population also contributed to fast-growing service sectors.

In the introduction of this section we raised the question of when "percentage change mattered." From the evidence just reported, rapid gains in service jobs are slowly adding to the employment base of rural areas. Does the rapid growth of services such as data-processing, management and public relations, accounting and commodity brokers signify a pending transformation of rural economies to producer service centers? The results reported here suggest this possibility is doubtful. Over the period studied, the vast majority of employment change occurred in income-dependent sectors. While the growth of business services no doubt portends some potential for decentralization of industrial activity, the trend is not conclusive. The growth of producer services in rural areas more appropriately reflects the incorporation of these activities into existing businesses rather than constituting the creation of autonomous growth sectors.

IV. The Experience of Employment Growth in Adjacent and Non-Adjacent Rural Counties

America's rural communities are a varied lot. And their growth experience is intimately tied to their geographic location relative to urban areas. Calvin Beale's urban rural continuum takes into account this important distinction. The next section builds upon the Beale classification scheme and highlights important differences among rural areas based upon their geographic proximity to metropolitan areas.

VI. A. The Geographic Connection Between Urban and Rural Areas

Adjacency to a metropolitan county exerts a number of countervailing influences on rural economies. Rural counties adjacent to metropolitan areas have the highest potential of spill-over effects as industry and business shift employment to rural areas, where labor and land are cheaper. Dampening this potential benefit is the possibility that rural areas' residentiary sector will be underdeveloped because residents can easily travel to a nearby city to purchase goods and services.

Dual development possibilities also exist for non-adjacent counties. On one hand, a remote location may simply be too small and isolated to support a diverse set of economic activities (many economic activities require a threshold population). On the other hand, remote locations present business opportunities due to a lack of geographic competition. Firms do not have to worry about demand leakage to more prosperous communities and charge higher than average prices for goods and services. Admittedly these distinctions are quite subtle, and they may tend to cancel each other out in the long run. To evaluate differences associated with geographic proximity, we now turn to an examination of the service structure of adjacent and non-adjacent rural counties. We then proceed to discuss the growth of services in different types of rural counties.

IV.A Adjacent Counties

Over the decade, employment in adjacent rural counties increased by 22 percent. This is slightly below the non-metropolitan average (23 vs. 22 percent). The service sector posted healthier gains with job growth of 44 percent (Table XII). This was slightly below the national

average (45 percent) yet slightly above the average for all rural counties. In line with national services growth trends, services accounted for 93 percent of all job gains. Producer services grew more rapidly than both overall national and rural job growth rates. (Bar graph national service and producer services growth and total employment and percentage change; bar chart of share of all jobs in services and producer services)

IV.A.1 Top 10 Service Job Gainers

The top ten service sectors that gained large numbers of new jobs in adjacent rural counties complement the national experience (Table XIII). Together these industries accounted for 68 percent of all jobs and 74 percent of all services job gains in adjacent rural counties. Like the nation, health services topped the list, adding more than 200,000 jobs. In composition, the list of sectors is quite similar to that for all rural areas. Most of these sectors are dependent upon consumer spending, with only educational services constituting a viable export sector.

IV.A.2 Manufacturing Job Gain in Adjacent Rural Counties

Adjacent rural counties experienced a significant decline in manufacturing jobs over the 1974-85 decade. More than 164,000 jobs were lost, only partially offset by gains of 114,000 jobs (Table XIV). The largest losses occurred in traditional rural industries such as textiles, apparel, leather goods, primary metal products, and stone, clay, and glass. The largest gains occurred in printing and publishing, non-electrical machinery, and transportation equipment.

TABLE XII
Employment Growth in Adjacent Rural Counties, Services and Producer Services Industries 1974-1985 (absolute and percentage change)

	Absolute Change	Percentage Change
Employment	1200401	22
Services	1112337	44
Producer Services	308481	72

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XIII
Top Ten Service Sectors
Experiencing the Largest Absolute Gains
in Rural Adjacent Counties, 1974-1985

Industry Name	Absolute Change	Percentage Change
Health Services (SICS 8000)	201867	68.83
Eating & Drinking Places (SICS 5800)	178471	71.22
Food Stores (SICS 5400)	92087	49.11
Social Services (SICS 8300)	65072	124.00
Membership Organizations (SICS 8600)	50818	72.40
Educational Services (SICS 8200)	50353	87.91
Employment NEC (SICS 99--)	48262	72.30
Miscellaneous Retail (SICS 5900)	47211	36.10
Electric, Gas & Sanitary (SICS 4900)	43405	86.74
Special Trade Contractors (SICS 1700)	35457	28.70

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XIV
Adjacent Rural Counties
Change in Manufacturing Employment, 1974-1985
Two-digit Sectors
(absolute and percentage change)

Industry Name	Absolute Change	Percentage Change
Printing & Publishing (SICS 2700)	-25803	36.55
Transportation Equipment (SICS 3700)	+25511	28.73
Nonelectrical Machinery (SICS 3500)	-23003	10.10
Rubber & Misc. Plastics Products (SICS 3000)	-16650	17.45
Fabricated Metal Products (SICS 3400)	+11940	8.71
Food & Kindred Products (SICS 2000)	-9139	4.92
Instruments & Related Products (SICS 3800)	1959	5.49
Petroleum & Coal Products (SICS 2900)	852	10.26
Paper & Allied Products (SICS 2600)	-527	-.58
Tobacco Manufactures (SICS 2100)	-1583	-34.14
Electric & Electronic Equipment (SICS 3600)	-3658	-2.01
Chemical & Allied Products (SICS 2800)	-3972	-4.51
Furniture & Fixtures (SICS 2500)	-5531	-5.87
Lumber & Wood Products (SICS 2400)	-6537	-4.15
Miscellaneous Manufacturing (SICS 3900)	-8580	-21.68
Stone, Clay & Glass (SICS 3200)	-18602	-17.44
Primary Metal Industries (SICS 3300)	-18727	-15.18
Leather & Leather Products (SICS 3100)	-21075	-46.59
Apparel & Other Textile Products (SICS 2300)	-26603	-12.17
Textile Mill Products (SICS 2200)	-48939	-19.84
TOTAL	-49477	

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Compared with non-adjacent counties, rural communities adjacent to metropolitan areas experienced 52 percent of total rural manufacturing job loss, considerably in excess of the base share of these counties' population (48 percent). The excessive job loss in manufacturing results from the fact that rural manufacturing is concentrated in these counties.

Summary

The growth experience of adjacent rural counties was comparable to that of all non-metropolitan areas where job change was below the national average for total employment and services, and producer services jobs grew faster than the national average. Large losses in manufacturing employment are responsible for the slowing of growth in rural areas. Heavy losses were sustained in traditional rural manufacturing industry, and they were only partially offset by increases in more dynamic sectors.

IV.B The Experience of Non-Adjacent Counties

The experiences of service sector job growth in non-adjacent counties, though similar to industry-wide trends, show a number of important differences. Total job change in non-adjacent counties mirrored the experience of adjacent rural areas. In contrast, in non-adjacent counties services grew below both the national and metropolitan areas' adjacent rural averages (Table XV). Similarly, producer services growth was substantially below rural and adjacent county averages. Although services were a smaller share of total job change in non-adjacent counties, two sectors, health services and eating and drinking establishments, were responsible for 35 percent of all services job growth.

Table XV
Employment Growth in Non-Adjacent Rural Counties, Services and Producer Services Industries 1974-1985 (absolute and percentage change)

	Absolute Change	Percentage Change
Employment	1271129	23
Services	1154792	40
Producer Services	317683	67

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

The array of service industries posting large gains varied between adjacent and non-adjacent counties (Table XVI). While seven of the ten sectors were the same, non-adjacent counties gained jobs in hotels, banks, and oil and gas exploration services. These results reflect the underlying economic structure of rural economies (the longstanding importance of oil exploration) and highlight the growing role of tourism in rural areas.

IV.B.2 The Manufacturing Experience in Non-Adjacent Counties

Non-adjacent counties also experienced job loss in manufacturing industries. Losses were smaller in size compared with adjacent counties (150,000 vs. 164,000) (Table XVII). Job gains were similarly larger in non-adjacent vs. adjacent counties. This reflects the fact that non-adjacent counties account for a greater share of total rural population. Heavy job losses occurred in traditional rural manufacturing industries such as textiles, apparel, and timber. Job gains occurred in sectors growing at the national level, such as non-electrical machinery, transportation equipment, and printing and publishing.

Summary

Results of more disaggregated analysis indicate that there are distinctions among rural areas based on their proximity to metropolitan areas. Adjacency brings with it a greater potential for rural county exposure to national economic trends. Adjacent rural counties therefore are affected by both the up and the down sides of urban areas' growth experience. Indeed it is increasingly evident that rural economies respond to economy-wide trends. Nonetheless, remote rural areas have not escaped the vicissitudes of national economic events. Non-adjacent non-

Table XVI
Top Ten Service Industries
Experiencing the Largest Employment Gains
in Non-Adjacent Rural Counties, 1974-1985

Industry Name	Absolute Change	Percentage Change
Health Services (SICS 8000)	215594	67.24
Eating & Drinking Places (SICS 5800)	193730	70.10
Food Stores (SICS 5400)	92492	47.20
Social Services (SICS 8300)	56532	90.67
Miscellaneous Retail (SICS 5900)	52296	36.50
Employment NEC (SICS 99--)	49435	61.96
Membership Organizations (SICS 8600)	45753	61.43
Hotels & Other Lodging Places (SICS 7000)	45750	44.40
Banking (SICS 6000)	44540	42.54
Nonelectrical Machinery (SICS 3500)	35788	23.20

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XVII
Non-Adjacent Rural Counties,
Change in Manufacturing Employment, 1974-1985
Two-digit Sectors
(absolute and percentage change)

Industry Name	Absolute Change	Percentage Change
Nonelectrical Machinery (SICS 3500)	35788	23.20
Printing & Publishing (SICS 2700)	30615	49.26
Rubber & Misc. Plastics Products (SICS 3000)	15765	25.20
Transportation Equipment (SICS 3700)	14196	19.87
Food & Kindred Products (SICS 2000)	12789	6.13
Fabricated Metal Products (SICS 3400)	6121	6.32
Paper & Allied Products (SICS 2600)	4661	6.15
Instruments & Related Products (SICS 3800)	1132	5.46
Chemical & Allied Products (SICS 2800)	404	.70
Tobacco Manufactures (SICS 2100)	-331	-9.54
Petroleum & Coal Products (SICS 2900)	-925	-7.68
Electric & Electronic Equipment (SICS 3600)	-1248	-1.05
Furniture & Fixtures (SICS 2500)	-1788	-2.87
Primary Metal Industries (SICS 3300)	-4305	-8.06
Miscellaneous Manufacturing (SICS 3900)	-7844	-22.01
Stone, Clay & Glass (SICS 3200)	-12328	-16.27
Leather & Leather Products (SICS 3100)	-22177	-42.76
Textile Mill Products (SICS 2200)	-31592	-21.01
Apparel & Other Textile Products (SICS 2300)	-33215	-14.36
Lumber & Wood Products (SICS 2400)	-34562	-13.91
TOTAL	-28844	

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

metropolitan areas may be more dependent on traditional sectors compared to their adjacent counterparts.

IV.C Summary of Rural Job Changes Across the Urban Rural Continuum

To summarize previous sections, rural areas grew below the national average for all job change (Table XVIII). With the exception of small non-urbanized adjacent counties, growth rates in rural communities were below national levels. Rates of service job growth were also below the national average, except in the largest and the smallest adjacent counties that grew at slightly above the national average. Rural counties performed better in terms of producer services growth. Adjacent counties' growth exceeded the national average. But only the largest non-adjacent counties experienced producer services job growth rates above the national average.

Table XVIII
Percentage Change in All Employment and Services and Producer Services Sectors Across the Rural Continuum, 1974-1985

	4	5	6	7	8	9
All Industries	20%	26%	24%	22%	29%	21%
Services	45%	43%	42%	38%	46%	34%
Producer Services	76%	73%	72%	66%	76%	48%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

CHAPTER V

THE GROWTH OF SERVICES IN SELECTED RURAL ECONOMIES

Since the late 1970s, research on rural economic performance has highlighted the diverse nature of rural economies. In the past, rural economies were characterized as largely dependent upon resource-extractive sectors such as agriculture, timber, and mining. Nonetheless, the structure of rural economies has been changing since the beginning of this century. Decentralization of labor-intensive manufacturing assembly to rural areas has been underway since the 1920s (Barkley 1990). This trend accelerated after the Second World War. The 1970s' rural economic turnaround was in large part attributed to rapid growth in manufacturing. Alongside this more obvious change in rural economic fortunes was the growing importance of retirement income as a source of economic growth, and secondarily, the long standing but little recognized role of government and federal lands ownership in rural areas.

Recognizing the divergent experiences of rural communities, in 1985 the Economic Research Service of the U.S. Department of Agriculture developed a typology of rural economies to summarize the variety of economic experiences of rural areas. This typology characterized rural economies on the basis of their underlying economic dependence on specific sectors. The resulting typology identified seven distinct rural economic bases. Four of the seven rural county types recognized economic specializations, while three others focused on unique population and socio-demographic characteristics of the resident rural population. The first four rural county groups were based on dominant sources of income attributable to specific sectors. The remaining three county groups were classified based on social and institutional characteristics of local

residents and the economy. The original typology has recently been updated to account for changes that occurred in rural economies between 1979 (the year the typology was constructed) and 1986.

The original typology was not without flaws. The designation of agriculture, mining, manufacturing, and government counties was based on income shares that captured only a portion of total income, never exceeding 30 percent. In each case, dominant conditions determined county allocation to a group. Thresholds used to categorize county types were based on the largest share of income derived from a specific sector. Therefore, there was potential for multiple income sources and overlap among counties. In most cases, county classification was mutually exclusive; on the basis of underlying economic conditions, counties were allocated to a single group. However, there was potential for overlap and multiple economic dependencies not captured in the classification scheme. The same problem was true for the three groupings based on population and institutional characteristics. Additionally, there was a large number of counties that remained unclassified.

The danger in creating a typology is that it fails to provide fine-grained level of definition necessary to distinguish among the multi-fold and complex experiences of rural areas. At the same time, given the role of income multipliers in a local economy, some grouping is appropriate. Depending on industry structure, for many communities a dominant industry supports the majority of secondary and tertiary jobs in a local economy. Thus while there are no doubt limitations to the original classification scheme, the intent was laudatory and appropriate given the distinct experiences of rural counties.

The Construction of the Typology

The original typology was constructed using statistical procedures that allow researchers to identify groups of counties with similar income structures. The classification procedure used to construct the typology is commonly known as Cluster Analysis. The method allows researchers to summarize a rectangular data matrix through statistical procedures that identify groups of cases (in this instance counties) that exhibit some similarity (the share of income attributable to a particular sector). The classification of the seven county groups is based on the following characteristics:

1) Farm dependent counties--farming contributed a weighted annual average of 20 percent or more of total labor and proprietor income over the period 1975-1979. 702 counties were classified as agriculture-dependent.

2) Manufacturing counties--manufacturing contributed 30 percent or more of labor and proprietor income in 1979. 678 counties were classified as manufacturing-dependent.

3) Mining dependent counties--mining contributed more than 20 percent of labor and proprietor income in 1979. 200 counties were classified as mining dependent.

4) Specialized government counties--government contributed more than 25 percent of total labor and proprietor income in 1979. 315 counties were classified as specialized government counties.

5) Persistent poverty counties--per capita family income in a county was in the lowest quartile in each of the years 1950, 1959, 1969 and 1979. 242 counties were designated as persistent poverty counties.

6) Federal lands counties--in these counties, federal lands were 33 percent or more of all land area in 1977. 247 counties were classified as federal lands counties.

7) Destination retirement counties--between 1970 and 1980 net migration rates of people over 60 were more than 15 percent above expected levels given the resident population over 60 years old in 1980. 515 counties were designated retirement counties.

The county typology classifies all but 370 of 2443 rural counties. Although overlaps are evident, nonetheless, 57 percent of all counties belonged exclusively to one group. An additional 22 percent were members of two groups, with only six percent in three or more groups. Ungrouped counties comprised 15 percent of the total (370).

The resulting classification of counties was then subjected to further analysis to describe social, economic, and institutional characteristics of county groups. For our purposes it is useful to summarize the results of the second analysis.

Agricultural Counties

Agricultural counties comprised 27 percent of all rural counties but accounted for only

13 percent of total rural population. More than a third of labor and proprietor income was derived from employment in agriculture. These counties are geographically concentrated in the nation's traditional agricultural region of the Northern Great Plains, along with selected states in the Southeast and South Central regions. Agricultural counties are remote from population centers, suffered large population losses in the 1960s, and experienced slow population growth in the 1970s. Income distribution was highly uneven with high per capita and low family incomes. Slightly lower shares of income were received from services relative to rural averages. The population was older on average, with a higher proportion of persons over 65 years old. There was evidence of a significant dependence on transfer income.

Manufacturing Counties

Manufacturing is a major component of rural economies. Manufacturing-dependent counties comprise 28 percent of all rural counties and contain 39 percent of total rural population. These counties are more often contiguous to metropolitan areas. More than half of these counties are located in the Southeast while another one-third are located in the Midwest. Few manufacturing counties are located in the Northeast and West (combined 15 percent). Manufacturing counties are larger and more urbanized, experienced greater than average population increases in the 1960s, and average population increases in the 1970s. Reflecting their regional concentration, manufacturing counties have a larger than average share of African Americans in the population. The service sector contributed below average shares of income compared with all rural income shares attributable to services.

Mining Counties

Mining counties accounted for a very small share of total rural population (six percent). These counties are concentrated in the coal regions of Appalachia and the Midwest, the oil regions of the Southwest, and selected counties in Northern Great Plains states. Mining counties are remote from populated centers, yet they are somewhat urbanized. Recent population growth was high and attributable to increased demand for energy resources. These counties have high per capita and family incomes, and the service sector provides a lower share of total income compared with the rural average.

Specialized Government Counties

State and local governments are major contributors to total income (12 percent) for all rural counties. In many communities government jobs provide the largest source of income. Federal government income payments raise the share of total rural income attributable to government to 17 percent. The location of government counties is dispersed among the nation's regions and is based on political decisions rather than market forces. These counties derive income from a variety of government activities including military bases, Indian reservations, state capitals and county seats, parks and forest lands, penal institutions, and educational institutions. Government counties are on average more urbanized and experienced population growth over the 1970-1980 period. Income levels are below average in spite of rapid population growth and high relative levels of urbanization. Jobs tend to be in low wage industries, and income from the service sector makes up a considerable share of all income. Government counties exhibit

significant levels of economic diversity, and therefore two-thirds of these counties fall into one or more group.

Poverty Counties

Poverty counties show a chronic incapacity of the local economy to provide a reasonable livelihood for rural residents. These 242 counties have remained below the poverty line for almost four decades. Despite higher than average levels of economic diversity (signified by membership in more than one county group), these counties exhibit a persistent pattern of economic stagnation. Poverty counties are geographically concentrated in the Southeast and are secondarily scattered throughout the Southwest and Northern Great Plains states.

The population in poverty counties is sparsely settled and remote from urban centers. A large portion of poverty counties' populations are members of minority groups. While African-Americans are disproportionately concentrated in poverty counties, still the poverty rate among whites is five percentage points above the rural average.

Residents of these counties disproportionately exhibit physical disadvantages that reduce their employability. Residents of poverty counties exhibit high levels of physical disability and low levels of basic education. The persistence of poverty derives from low levels of productivity in the population due to labor force characteristics and concomitant low wages paid in industry. Although many residents in poverty counties are unable to work, work force participation is characterized by high levels of underemployment rather than simply high levels of total unemployment. Residents of poverty counties work in gainful economic activities, but unfortunately they are either not employed full-time or they receive low wages for their labor.

Yet despite these dismal conditions, per capita transfer payments in poverty counties are lower than the rural average. But because of very low payments from other income sources, the share of total income in poverty counties derived from transfer payments is the highest of all rural counties.

Federal Lands Counties

Most federal lands counties are concentrated in the western U.S., with scattered locations in Appalachia, and the upper Midwest. These counties are distant from population centers, but residents reside in small towns rather than being geographically disbursed. Federal lands counties experienced rapid population increases over the 1970-80 decade, while income derived from the service sector was high. These counties are the home of large farms and ranches. Federal lands counties are characterized by low population densities and relatively high family incomes. Despite high median family incomes, per capita income is low and poverty levels are high, reflecting a highly unequal income distribution.

Retirement Counties

Twenty-one percent of all non-metropolitan counties were classified as destination retirement counties. In these counties, 15 percent or more of the population is over the age of 60. This is three percentage points above the rural average. Retirement counties are dispersed throughout the nation with geographic concentrations in the Southwest, Florida, and the Upper Great Lakes states. Isolated concentrations of retirement counties are also found in California and Oregon. Retirement counties grew rapidly in the 1960s and 1970s. They tend to be remote

from population centers and receive large shares of total income through transfer payments. Income levels are in line with rural averages. The service sector also is larger in retirement communities compared to the rural average. The labor force in retirement counties grew rapidly as younger people moved in to take jobs created by export income derived from the savings and transfer payments of older residents.

Summary

This quick review of rural economic performance over the 1970-80 decade illustrates the economic diversity of America's rural communities. Table XIX summarizes some key characteristics of these counties. We refer back to this table in later sections when we review the structure and growth of services in the seven county types.

Adjustments Made to the Original Typology

In response to dramatic changes in national and regional economies since 1980, the Economic Research Service of the U.S. Department of Agriculture updated the typology of rural counties. Although subsequent analysis in this report uses the original classification, it is important to briefly review changes that have occurred in county classifications since 1980.

Revisions to the Rural Typology

In updating the original classification, the Economic Research Service reconstructed only four of the seven county types--agricultural, mining, manufacturing, and government. Non-metropolitan status, as defined in 1970 was maintained. A county was considered rural based

Table XIX
Summary Table
of Base Line County Characteristics
1979-80

	% All Counties	% Rural Population	Geographic Concentr.	Proximity to Cities	Pop. Growth 1960-1970
Agriculture	29	13	Midwest & South	Remote	Large Losses
Manufacturing	28	39	Midwest & South	Adjacent	High Increases
Mining	8	6	Midsouth & West	Remote Urbanized	Decreases
Government	13		Scattered	Mixed Urban	High
Poverty	10	6	Southwest & South	Non-urban Remote	
Federal Lands	8	9	Midwest & West	Remote	
Retirement	21	24	Scattered	Remote	High
Unclassified	16				

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XIX
Summary Table
of Base Line County Characteristics
Date???

	Pop. Grth. 1970-1980	Income Level	Share Per Capita Family	Services Employment	Age	Transfer Payments
Agriculture	Slow Growth	Uneven & High	Per Capital Family Above	Slightly Lower Than Average	Older	High
Manufacturing	Average Growth	Even but Average	Amout Same	Below Average	Less	
Mining	Increased	Highest	Both High	Low		Low
Government	High	Low & Uneven	Family Higher	High	Young	
Poverty		Low & Even	Family Higher	Low	Older	High
Federal Lands	High	High & Uneven	Family High	Average		
Retirement	High	High & Uneven	Family High	High	15% of Pop.	High
	Low	High & Even	Similar	High		

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

on its population characteristics in 1970. Therefore the typology does not reflect the incorporation of formally adjacent rural counties into metropolitan areas. On the basis of recent changes, a number of important alterations in the circumstances of rural areas are apparent.

Agriculture Counties

The twin recessions in agriculture and manufacturing of the early 1980s created serious problems for rural areas. The number of agricultural counties declined significantly. More than 200 counties left the agricultural county classification. Most of these counties moved into the unclassified group, while a small number were reclassified as government-dependent counties. Because agricultural counties were concentrated in the Midwest and Southeast, the effect of the recession in agriculture was regionally concentrated. Greater than average losses occurred in Iowa, Illinois, Missouri, and Arkansas. While movement from the agricultural group was primarily due to declines in agriculture, shifts to other groups also occurred in instances where other sectors grew faster than agriculture. In other words, while some counties left the agricultural category because of a decline in farming, other counties shifted to new classifications because of higher than average increases in other sectors.

Government Counties

The number of specialized government counties increased significantly from 233 to 358. Because government as a share of all rural employment declined, counties moving into this group shifted in response to a decline in other dominant sectors. A portion of the shift to government dependent status also occurred in response to increases in federal government spending for defense.

Manufacturing Counties

Manufacturing, once considered a viable basis for rural economic diversification, fell sharply during the 1979-86 period. Almost 400,000 jobs were lost during the seven years. The number of manufacturing counties also declined from 621 to 577. Losses were regionally concentrated in the Southeast and Midwest. Losses in the Midwest reduced the region's share of rural manufacturing counties. The South now contains 69 percent of all rural manufacturing counties. Former manufacturing counties primarily moved into the unclassified category, and losses were more likely to reflect declines in manufacturing than excess growth in other sectors.

Mining Counties

The mining sector also lost jobs over the study period. Most of the reclassified mining counties became unclassified, while a small share moved into the federal lands category. The decline of mining counties reflects the reorientation of national energy policy toward developing alternative energy sources, and the decline in oil prices that diminished the competitive advantage of other energy sources such as coal and synthetic fuels.

Unclassified Counties

Shifts from the four basic groups resulted in a sharp increase in the number of unclassified counties. More than half of the new unclassified counties were formerly agricultural counties. The growth of unclassified counties resulted from either an increase in the diversity of rural counties, or more likely, a decline in the original economic base. The magnitude of the

shift has precipitated a reevaluation of the original classification scheme constructed by Economic Research Service personnel.

Implications of recent changes in the economic base of rural areas depend upon the initial interpretation of "diversity" in a rural context. While rural areas are no longer strictly dependent upon resource extractive sectors, nonetheless, greater economic diversity in rural areas obscures the persistent sectoral dependence of rural communities on a limited number of sectors.

Over the last 30 years, increasing rural economic diversity has not diminished the sectoral dependence of specific rural communities. The dramatic rise in the number of unclassified counties implies that no other sector grew to fill in the gap left by declines in traditional sectors. Overall there has been a weakening of the traditional rural economic base. While for cities, services have been an important antidote to manufacturing decline, rural areas have not shared in this transformation.

With this introduction to rural county economies, we now examine the structure of services in seven rural county types. On the basis of the preceding analysis, we expect to find that services in rural areas are not a major independent source of economic growth, but rather are related to population size and level of income in rural communities.

A second interpretation of these findings suggests the period of rural diversification is over. Counties whose economic base seriously deteriorated over the 1979-86 period have had little to fall back on--witnessed by the large number of counties that moved into the unclassified category. Our interpretation of changes occurring in rural economies is pessimistic. The decline of traditional economic bases of rural communities signals the increasingly precarious condition of rural economies. Counties that changed classification have historically exhibited relatively

weak service sectors. Our analysis should show a lack of service sector diversity and a dependence on income-dependent service sectors in counties where the service sector has traditionally been underdeveloped. In contrast, counties in which government or retirement income make up a large share of total income should demonstrate stronger growth in services compared with others. Rural service performance should be linked to the existing base of rural economies.

In the next section we answer the question--what is the structure of rural services? We examine the share of services compared with total employment, and we analyze the growth of services compared with national and rural averages. We review the composition of rural services sectors and comment on their association with consumer spending. We also consider the extent that services growth offsets losses in other sectors. We examine the share of producer services compared with all services, and the growth rates of producer services in different rural economies. While overall, the service sector in rural counties posted significant gains over the study period, nonetheless our research shows that rural counties exhibit an undeveloped service sector relative to national service averages.

Table XVIII
Services as a Share of All Employment
in Rural County Types, 1985

County Type	Services Share
Agriculture	68
Manufacturing	49
Mining	55
Government	68
Federal Lands	76
Retirement	68
Poverty	55
National Average	68
Rural Average	63

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

CHAPTER V

OVERVIEW OF COUNTY EXPERIENCES: THE SEVEN COUNTY TYPES

Based on our data, four of the seven county types experienced job increases in excess of the rural average: federal lands, specialized government, and retirement counties grew substantially above the rural average. Poverty counties grew modestly above the comparable rural aggregate. Agriculture, mining, and manufacturing counties performed considerably below the average.

Among all rural counties, growth in services mirrored changes in total employment. That is, growth in total employment (or loss) was met with above (or below) average growth in services. However, only three county types exceeded the rural services growth rate--federal lands, government, and retirement counties, while mining was slightly below the average. Similar trends were evident when comparing county service growth with the national average. Producer service growth followed the pattern of all services, with the same three county types posting gains in excess of national and rural averages. Poverty counties fell significantly below all comparable statistics of employment change.

The dependence of rural counties on service jobs varies considerably and is associated with the economic base of individual communities. In general, the share of service jobs to total employment is lower in rural areas compared with the nation (63 vs. 65 percent) (Table XVIII). This illustrates many of the shortcomings of rural economies which set them apart from urban economies. Rural manufacturing industry, for example, has traditionally been concentrated in slow growth sectors paying low wages. Disposable income levels are therefore lower in rural areas compared with their urban counterparts. Because a large share of rural manufacturing jobs

are in branch plants of firms headquartered in urban areas, local demand for business services is low. Finally, service jobs are concentrated in low wage activities. Thus the lower share of services to total rural employment is indicative of the underdevelopment that characterizes rural economies.

Four county types, agriculture, federal lands, government and retirement counties all exceed the rural average in terms of service dependence. In part this reflects the importance of transfer payments and government-related subsidies that are only partially related to the competitive structure of the underlying economic base. For example, in agriculture counties, although employment in agriculture declined overall, federal farm subsidy policies were still paying farmers to reduce planted acreage. In many cases, subsidies compensated for lost wages. A community could maintain reasonable levels of consumer spending in the face of agriculture employment decline. Given the income structure of agriculture counties (high per capita and low family income), these results may be reasonable. They may also reflect the attempt by farm families to sustain a farm lifestyle through the generation of off-farm income. Traditionally, service jobs have been part-time and low paying. Under these conditions, jobs may be relatively abundant, yet fail to pay a living wage.

The large relative base of service jobs in federal lands, government, and retirement counties exists for reasons different from agriculture counties. These counties share a distinct quality--the income base is not directly influenced by the market. Counties with a large concentration of federal lands are sparsely inhabited. Higher levels of services reflect the absence of other economic activity. Although it is difficult to establish exactly why services as a share of employment is high, in these counties family incomes are above the rural average, perhaps

providing the basis for a more articulated service sector. Given that service jobs are often low paying and part-time, a high family income can sustain large numbers of jobs in services while contributing low average levels of income to the community. More likely, the varied nature of the economic base in federal lands counties (taking into account manufacturing, mining, timber, government, and recreation activities) may encourage the development of service industries. Later sections examining the detailed structure of services in federal lands counties suggest this latter hypothesis may be true.

Specialized government counties also exhibit higher than average shares of services to total employment. Given the diversity of activities that occur in these counties, we might expect to find a varied service sector. State and local government political centers are places where citizens engage in business related to government administration. Legal and financial services, and services associated with land claims, tax records, and business licenses, create opportunities for service businesses such as photocopying, law offices, and technical advisory services. Furthermore, state-serving corporations, such as public utilities and telecommunications corporations, often find it advantageous to be located near state capitals. This is particularly the case because these industries are regulated by government, thus they must often make petitions to the government for changes in service distribution.

Share of all jobs in services are also high in retirement counties. In important respects retirement communities represent a classic service economy. Income from outside (in the form of government transfer and industry pension payments) support the local economic base. Retired persons also have considerable disposable income (given that their families are already raised) And therefore may have more funds to spend on a variety of service activities. The service

sector is large because the resident population brings income into the community without demanding jobs in return.

County Types With Below Average Share of Services to Total Employment

In urban economics, numerous authors argue that services and manufacturing are tightly linked. This linkage in part reflects firms' tendency to contract out for services previously undertaken in-house. Another major stimulus linking manufacturing and services is the development of new technology and distinct service products directed toward manufacturing. Still another set of service activities supports manufacturing transactions such as after sales service. Thus researchers find a high correlation (but by no means a causal relation) between services and manufacturing.

To the extent that these results are true, they do not carry over into rural manufacturing communities. Manufacturing communities exhibit the lowest ratio of services to all jobs. These results reflect a number of unique factors associated with rural manufacturing. Rural manufacturing-dependent communities tend on average to be adjacent to urban counties. Rural manufacturing counties have an equitable income distribution, yet this has not contributed to the development of a large service sector. Expenditures for services may therefore occur in metropolitan-adjacent counties where diverse goods and services can be found.

An equally powerful influence relates to the organizational structure of rural manufacturing and the presence of branch plants. Over the post-war period, rural communities were the recipient of branch plants of firms headquartered in America's cities. These establishments typically exhibit few local linkages and rely on the parent corporation for needed

business services. These establishments require few high level business services such as accounting, legal, and financial activities. And because manufacturing establishments often dominate local economies, business services demand tends to be low. Because of the dominance of manufacturing and the existence of distinct alternatives given proximity to urban markets, manufacturing counties do not exhibit high shares of service jobs to total.

The service-manufacturing link observed in urban areas does not appear to hold in rural manufacturing dominated counties. This schism highlights the difficulty faced by small non-branch manufacturing plants attempting to establish successful operations in rural counties. Some evidence suggests remotely situated firms face few difficulties in accessing services in metropolitan areas. Therefore small rural firms are not particularly disadvantaged. Nonetheless the lack of services reflects the limited market found in most rural areas. Service firms also must find a market for their product. Therefore service firms are dependent upon urban areas where markets are large, varied, and well developed.

Mining counties also have service sectors smaller than rural and national averages. Mining is increasingly capital-intensive with few small operators. Most mining activity in the U.S. is now orchestrated, if not owned outright, by large mining firms. Mining service functions occur in centers of corporate headquarters. An interesting paradox evident in mining counties is their remote location, yet urban population concentration. Given high incomes, residents must choose to spend their income elsewhere. A significant segment of mining community populations consists of individuals who earn income locally but have families that reside in other locations. This may help explain the relatively underdeveloped service sector.

Poverty Counties

The low proportion of services to total employment in poverty counties is a result of unique characteristics of the resident population. In mining and manufacturing counties, alternative consumption centers and a unique industrial structure explain below average shares of service jobs to total employment. In contrast, poverty counties' low service levels are a result of chronic underemployment. And despite a large share of residents over the age of 60, their spending capacity differs fundamentally from destination retirement communities' populations.

Poverty counties embrace considerable manufacturing employment. But manufacturing wages are low, thus disposable incomes are limited. Rural poverty communities exhibit very low levels of producer services, further suggesting that although sources of economic activity such as manufacturing are evident, this has not facilitated the formation of business service activities. As the following section points out, rural services are driven by income and residentiary-related expenditures. Rural communities deviating from this pattern are more dependent on a few sectors, including services, for their economic base.

A Detailed Examination of the Service Sector in Rural Counties

The previous section noted that counties with service sector shares in line with or above rural and national averages were those with the highest probability of service sector dominance. Agriculture, federal lands, government, and retirement counties have service sector shares above the average and reflect the absence of other economic activities. Federal lands counties exemplify this trend--they are remote, sparsely settled, with a highly uneven income distribution.

Services in these four county types cannot be interpreted as representing an "export base service sector" but rather reflect the expenditure of income by local residents.

The next section examines the structure of services in rural counties. In this analysis we study the top ten service sectors' share of all jobs. We note the high degree of similarity between the structure of services employment and rural county types.

Comparison of Rural Services Structure Across Seven County Types

The structure of the service sector in rural counties indicates surprising similarity across county types. Deviations from the dominant pattern are attributable to unique characteristics of the underlying economic base. Table XIX summarizes the results reported in more detailed tables XX A-G. Regardless of county type, top job gains occurred in three sectors: health services, eating and drinking establishments, and food stores. These were the leading sectors in all but two county types, federal lands and government. The top three service sector rankings mirror the national pattern. The major stimuli of service job gains were policies that contributed to the expansion of health care, and secondarily changes in consumer spending and lifestyle preferences.

The residual variation evident in different counties is primarily associated with the dominant economic base. Agriculture and manufacturing counties gained jobs in educational services. This development represents local land grant institutions and state community colleges located in agriculture communities, and the spill-over effect of educational services located in adjacent rural counties. Mining counties exhibited services growth in mining services and wholesaling. Federal lands counties gained service jobs related to tourism and amusement

Table XIX
Ranking of Top 10 Industries for Rural County Types (absolute employment)

SIC	Agric.	Manufct.	Mining	Federal Lands	Governt.	Poverty	Retirmnt.
80	1	1	1	3	2	1	2
58	2	2	2	1	1	2	1
54	3	3	3	6	4	3	3
60	4		8		10		
83	5	4		9	5		4
99	6	8	10	10		10	8
86	7	5	9		8		10
59	8	7		7	6		6
49	9		7			4	
27	10	10					
82		6					
42		9					
13			4			5	
149			5				
50			6				
70				2			7
65				4			
79				5			
17				7		8	5
7391				8			
35					3	7	9
36					7		
37					9		
34						6	
26						9	

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XXa
Rural Employment in Agriculture-dominated Counties
Change in Employment 1974-1985
Top Ten Industries
Two-digit Sectors
(absolute and percentage change)

Industry Name	Rural Employment in 1985	Absolute Change	Percentage Change
Health Services (SICS 8000)	86856	25351	41.22%
Eating & Drinking Places (SICS 5800)	59821	10424	21.10%
Food Stores (SICS 5400)	43569	8208	23.21%
Banking (SICS 6000)	31630	8104	34.45%
Social Services (SICS 8300)	17207	7737	81.70%
Employment NEC (SICS 99--)	20944	7412	54.77%
Membership Organizations (SICS 8600)	19251	6965	56.69%
Miscellaneous Retail (SICS 5900)	27064	6127	29.26%
Electric, Gas & San. Serv. (SICS 4900)	13310	4582	52.50%
Printing & Publishing (SICS 2700)	15776	4454	39.34%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XXb
Rural Employment in Manufacturing-dominated Counties
Change in Employment 1974-1985
Top Ten Industries
Two-digit Sectors
(absolute and percentage change)

Industry Name	Rural Employment in 1985	Absolute Change	Percentage Change
Health Services (SICS 8000)	306451	121857	66.01%
Eating & Drinking Places (SICS 5800)	241802	93734	63.31%
Food Stores (SICS 5400)	155159	41177	36.13%
Social Services (SICS 8300)	68850	35698	107.68%
Membership Organizations (SICS 8600)	77627	27808	55.82%
Educational Services (SICS 8200)	56627	23698	71.69%
Miscellaneous Retail (SICS 5900)	105487	22283	26.78%
Employment NEC (SICS 99--)	60339	20522	51.54%
Trucking & Warehousing (SICS 4200)	73022	20421	38.82%
Printing & Publishing (SICS 2700)	66763	17003	34.17%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XXc
Rural Employment in Mining-dominated Counties
Change in Employment 1974-1985
Top Ten Industries
Two-digit Sectors
(absolute and percentage change)

Industry Name	Rural Employment in 1985	Absolute Change	Percentage Change
Health Services (SICS 8000)	42634	14269	50.31%
Eating & Drinking Places (SICS 5800)	32170	12795	66.04%
Food Stores (SICS 5400)	27323	8902	48.33%
Oil & Gas Extraction (SICS 1300)	53792	8184	17.94%
Admin. & Auxiliary (SICS 149/)	10295	6958	208.51%
Wholesale-Trade-Durable (SICS 5000)	325	5494	43.39%
Electric, Gas & San. Serv. (SICS 5000)	11155	5053	82.81%
Banking (SICS 6000)	13400	4850	56.73%
Membership Organizations (SICS 8600)	10377	4386	73.21%
Employment NEC (SICS 99--)	10906	4256	64.00%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XXd
Rural Employment in Federal Lands-dominated Counties
Change in Employment 1974-1985
Top Ten Industries
Two-digit Sectors
(absolute and percentage change)

Industry Name	Rural Employment in 1985	Absolute Change	Percentage Change
Eating & Drinking Places (SICS 5800)	25998	11653	81.23%
Hotels (SICS 7000)	18106	7737	74.62%
Health Services (SICS 8000)	16931	7045	71.26%
Real Estate (SICS 6500)	7776	5180	199.54%
Amusement & Recreation (SICS 7900)	10583	5007	89.80%
Food Stores (SICS 5400)	9805	4052	70.43%
Miscellaneous Retail (SICS 5900)	9590	3892	68.31%
Special Trade Contractors (SICS 1700)	7629	3487	84.19%
Research & Development Labs (SICS 7391)	4023	3026	303.51%
Social Services (SICS 8300)	3837	2858	291.93%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XXe
Rural Employment in Government-dominated Counties
Change in Employment 1974-1985
Top Ten Industries
Two-digit Sectors
(absolute and percentage change)

Industry Name	Rural Employment in 1985	Absolute Change	Percentage Change
Eating & Drinking Places (SICS 5800)	60201	25705	74.52%
Health Services (SICS 8000)	54931	18227	49.66%
Non-Electrical Machinery (SICS 3500)	22442	16735	293.24%
Food Stores (SICS 5400)	31718	10754	51.30%
Social Services (SICS 8300)	16924	10139	149.43%
Miscellaneous Retail (SICS 5900)	24505	8390	52.06%
Electric & Electronic Equip. (SICS 3600)	14051	6664	90.21%
Membership Organizations (SICS 8600)	15631	6514	71.45%
Transportation Equipment (SICS 3700)	8970	4481	99.82%
Banking (SICS 6000)	15367	4055	35.85%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XXf
Rural Employment in Poverty-dominated Counties
Change in Employment 1974-1985
Top Ten Industries
Two-digit Sectors
(absolute and percentage change)

Industry Name	Rural Employment in 1985	Absolute Change	Percentage Change
Health Services (SICS 8000)	8496	4087	92.70%
Eating & Drinking Places (SICS 5800)	5794	2853	97.01%
Food Stores (SICS 5400)	6353	2517	65.62%
Electric, Gas & San. Serv. (SICS 4900)	3529	2483	237.38%
Oil & Gas Extraction (SICS 1300)	3600	2220	160.87%
Fabricated Metal Products (SICS 3400)	4056	1807	80.35%
Non-Electrical Machinery (SICS 3500)	2415	1801	293.32%
Special Trade Contractors (SICS 1700)	3874	1451	59.88%
Paper & Allied Products (SICS 2600)	1448	1124	346.91%
Employment NEC (SICS 99--)	2736	1124	69.73%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

Table XXg
Rural Employment in Retirement-dominated Counties
Change in Employment 1974-1985
Top Ten Industries
Two-digit Sectors
(absolute and percentage change)

Industry Name	Rural Employment in 1985	Absolute Change	Percentage Change
Eating & Drinking Places (SICS 5800)	94176	51789	122.18%
Health Servicecs (SICS 8000)	98162	45910	87.86%
Food Stores (SICS 5400)	52634	23093	78.17%
ocial Services (SICS 8300)	23653	15861	203.56%
Special Trade Contractors (SICS 1700)	39172	14036	55.84%
Miscellaneous Retail (SICS 5900)	36955	13796	59.57%
Hotels (SICS 7000)	39025	13175	50.97%
Employment NEC (SICS 99--)	26383	12833	94.71%
Non-Electrical Machinery (SICS 3500)	21307	12283	136.12%
Membership Organizations (SICS 8600)	18007	10153	129.27%

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

activities. These counties also experienced job growth in specialty contracting, a sector related to population growth. Service job growth in government counties similarly grew in sectors related to population growth. Employment growth took place in non-electrical machinery. We suspect this expansion occurred because the size of the resident population in government counties is large enough to support manufacturing. Furthermore, this sector is highly diversified and therefore it is conceivable that small finishing and assembly operations would find it conducive to operate in state and county capitals selling to firms located in urban areas. No doubt this growth also reflects the importance of military outposts as magnets for government contractors. Variations in the experience of poverty and retirement counties are similarly explained on the basis of the underlying economic base.

The degree of homogeneity in sectors that gained large numbers of new jobs illustrates the dependence of rural service sectors on population levels. Absent are the service sectors considered growth-oriented. In an important respect, services growing in rural areas exhibit only modest potential to function as export-base alternatives to dependence on traditional sectors such as agriculture and mining.

Rate of Growth Tells a Different Story

As previous sections point out, another important facet of the rural services story is the service sectors that experienced large percentage changes in their original employment base. Reflecting upon earlier discussions of percentage change measures, we now examine the experience of rapidly growing service sectors in rural counties.

Service sectors growing rapidly in America's rural communities were quite varied. On average, 23 industries experienced more than a 100 percent increase in employment. Across the seven county types, the ten fastest growing industries constituted approximately 10 percent of all

new job growth. Across rural county types the range was quite varied, with the top ten industries in agricultural counties accounting for four percent of all job gains while the top ten service industries in poverty counties accounted for 23 percent of all job growth.

Comparison of rural county types indicates 29 of the 97 sectors studied were members of the top service growth industries. Twelve of the 29 were producer service sectors. A number of researchers suggest these industries can act as export sectors. Our results provide evidence that rural communities are gaining employment in the more technical and innovative service industries. Nonetheless, the significance of these results requires further verification. For example, research suggests that like manufacturing, producer service firms are creating spatial divisions of labor by locating labor-intensive mass production operations remote from corporate business centers. These processing facilities are not responsible for new product development. Instead they are more representative of branch plant manufacturing facilities where standardized functions are performed. Rarely do ancillary services follow such establishments, and thus the full economic impact of producer services growth may be stunted.

Summarizing the ranking of the top industries illustrates a variety of experiences in the growth of rural services (Table XXI). Two industry groups, management services and employment, n.e.c., were consistent job generators in different rural counties. The significance of employment gains in employment n.e.c., is difficult to determine as the sector is a large residual category. The SIC code book treats this type of employment as a highly varied groupof unstable operations. Thus growth in this category may signal ephemeral operations too new to accurately classify.

Detective services also grew rapidly in six of the seven county types, excluding federal lands counties. The rapid growth of this sector reflects both the increasing tendency of firms to

Table XXI
Ranking of Top 10 Industries for Rural County Types (absolute employment)

SIC	Agric.	Manufct.	Mining	Federal Lands	Governt.	Poverty	Rural Retirnmt	U.S.
89	1	2	1	1	1	2	1	1
7394	2	10				9		4
3770	3	4		5	4		6	3
62	4		7	7			8	6
7392	5	8	4	4	9	7	4	5
519	6							
47	7					3		
7397	8		8	2				7
8930	9							
7393	10	9	2		7	1	10	
7359		1						2
149		3	9					
7360		5			3	6		
84		6			5			9
679		7	3	10	6			
7395			5					
7391			6				2	10
7396			10		2			
497				3			3	
892				6	8			
36				8				
67				9				
38					10			
26						4		
35						5		
49						8		
46						10	5	
599							7	
12								

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

contract out for protective services, and the growing concern of the general public about rising crime and the desire to protect personal property.

Consistent across four of the seven counties was the growth of computer and data processing services. More detailed analysis suggests this sector represents both large bulk processing centers and small operations serving single customers. Many of these establishments are in metropolitan-adjacent rural communities and provide services to firms located in cities. Computer services failed to rank in the top ten in mining and poverty counties (computers ranked 28 in mining counties and 20 in poverty counties). In four of the seven county groups, securities brokers, and holding and other investment administrative offices were listed in the top ten. In manufacturing, government, and poverty counties securities brokers failed to rank in the top ten. Personnel services and equipment leasing operations ranked in the top ten in three county types. Equipment rental grew rapidly in agriculture, manufacturing, and poverty counties while personnel services were important growth industries in manufacturing, government, and poverty counties. The latter finding is not surprising given national industry trends toward the use of temporary personnel.

Finally, industries ranked in the top ten for just two county types are a varied lot and include metals administrative offices in manufacturing and mining counties museums in manufacturing and government counties, and R & D labs in mining and retirement counties. Additionally, stamp trading services (such as S & H green stamps stores) grew rapidly in mining and government counties', electrical and gas administrative offices posted rapid job gains in federal lands and retirement counties', and non-commercial R & D labs grew rapidly in federal lands and government counties. Table 16 summarizes the sectors' rankings.

Summary and Conclusions of Part I

These results suggest the experience of rural services growth is complex and rapidly changing. Growth rates for all industries were lower than the national average and were also lower for service industries. As a share of all employment change, services made up a slightly smaller share in rural areas compared with the national average. In contrast, producer services grew slightly above the national average (70 vs. 68 percent), indicating that non-metropolitan communities have benefitted from the explosive growth of financial and business service industries. Nonetheless, producer services make up a smaller share of all service sector growth in rural versus urban areas (28 vs. 31 percent).

The rapid growth of producer services in the last 20 years has gained the attention of academics, policy makers, and economic development practitioners. And it should. But it would be misleading to ignore the more dominant trend in the growth of services in rural areas. Rising income levels and changing consumption patterns have resulted in large absolute increases in eating and drinking establishments, the expansion of social services such as child care, and the explosion in health care supply and demand. These findings reflect a duality in services growth with the creation of vast numbers of skilled and unskilled jobs. The society is more affluent and therefore can buy more health care. Yet the growth in eating and drinking establishments signifies the exchange of labor in the home with consumption in the private sector (meals eaten out) as more women have entered the labor force.

In absolute numbers, the growth of services in rural areas mirrors the national experience with some important exceptions. In general, job growth was more sectorally concentrated with health care and eating and drinking establishments comprising almost half (44 percent) of all job gains compared with less than a third at the national level (27 percent).

Service industry growth has been an important antidote to the nation's job loss in manufacturing. The nation lost almost one-million manufacturing jobs, a third of which were in traditional rural manufacturing industries. Rural areas lost almost 80,000 manufacturing jobs between 1974-1985. Nationally, manufacturing lost approximately five percent of the 1974 base while rural areas fared better, losing only two percent of their 1974 manufacturing employment base.

The share of all jobs in services is lower in rural counties compared with the nation (58 vs. 65 percent). Four county types, agriculture, federal lands, government, and retirement exceeded the average. These results reflect two divergent trends. In agricultural counties service sector growth occurred in the absence of other sectoral change. The other three county types reflect more complicated trends including destination resort activity, large shares of non-working age residents with significant disposable incomes, and administrative functions of state and local government that attract service functions associated with regulatory operations. Counties with below average levels of services reflect the dominance of traditional sectors, and in the case of poverty counties, the lack of disposable income for the purchase of services.

The composition of dominant service sectors is similar across rural service types. Health services, eating and drinking establishments, and food stores dominate the service base of rural communities. Residual variation among county types is associated with the traditional economic base. In some counties, base economic activity such as government creates a large local labor pool capable of supporting manufacturing operations.

While the service industry base reveals a significant dependence on consumer spending, rural areas are also attracting industries that are growing rapidly at the national level. These industries are thought to act as export sectors selling services to firms located in other counties.

All rural counties experienced rapid growth in employment n.e.c. Computer and data-processing services were present in four counties, suggesting that labor-intensive service activities are decentralizing to rural areas. A number of rural county groups also illustrated the growing importance of financial services. The growth of these industries reflects the existence of investment incomes of retirement populations.

CHAPTER VI

THE SPATIAL BEHAVIOR OF SERVICE INDUSTRIES

This section explores the roles of services in rural areas from the perspective of industry. Given that the base of services is income-dependent, yet fast growing sectors comprise industries that are considered to have significant export potential, we examine three interrelated indicators of industry location trends. We begin by examining measures of industry decentralization based on the entropy index. The index measures the extent that employment in an industry is becoming more evenly distributed among America's counties. The second step in the analysis calculates location quotients measuring industry specialization within an area. This measure reveals instances in which the level of employment in an industry in a county is in excess of the industry's share of total national employment. The final measure, shift-share analysis (using a collapsed set of industry groupings), indicates instances in which rural growth is in excess of national trends. Shift-share also measures the extent of rural industry specialization and identifies rural communities that have experienced above average growth rates due to better than average experiences in rapid growth sectors.

Industry Decentralization

The entropy index is a measure of spatial decentralization. It calculates the extent that employment in industries is becoming more evenly distributed among America's counties. It identifies instances in which total industry employment is distributed more (or less) evenly across the base unit of analysis, in this case counties. The measure does not indicate how employment is distributed among more and less developed areas, but rather indicates the extent that

employment is spread evenly among counties. For example, employment in the initial period may have been concentrated in the largest central city county and begun to shift among less densely populated but still urban counties rather than shifting from urban to rural counties.

The calculation of the entropy index was conducted in two stages. In the first stage, we computed the index for all counties in the country. We made no distinction between counties with larger and smaller populations. In the second stage we grouped counties into two classes, urban and rural. We then recomputed the entropy index to determine whether spatial decentralization was occurring among urban and rural counties. The first section describes the behavior of industries across all counties. We then compare these results with a second entropy calculation that compares the spatial distribution of industry employment among urban and rural counties.

Industry Decentralization Across Counties

In 1985 the entropy index analysis indicated that employment in most industries was relatively decentralized (table). As expected, sectors dependent on base population such as building materials, auto dealers, food stores, and real estate offices, were highly decentralized. Thus as population spreads across the country, growth of these sectors follows. In contrast, sectors that are highly spatially concentrated reflect the unique circumstances of individual industries such as securities brokers, R&D labs, museums, and computer data processing.

The change in the entropy index between 1974 and 1985 indicates that during the decade industry location decisions resulted in general decentralization across counties. Only 20 industries experienced further concentration, and this highly varied group reflected dual tendencies of services such as hotels that have been intensifying operations in urban centers, and

concomitantly the declining ubiquity of some services such as auto dealerships that have been closing remote locations and concentrating activities in regional population centers.

Industry Decentralization Among Urban and Rural Counties

Based on the second entropy index computation, industries were generally becoming more unevenly distributed among urban and rural counties. More than half of the 97 sectors experienced a decline in spatial concentration between 1974 and 1985. Sectors exhibiting the highest degree of spatial concentration include miscellaneous manufacturing administrative offices, air transportation, transportation services, securities brokers, and non-commercial R&D organizations. Within the broad category of business services, eleven of the fifteen four-digit industries were highly spatially concentrated. Nonetheless, a number of these industries appeared to be dispersing among urban and rural counties over time.

Almost one-third of all sectors increased their level of spatial inequality over the 1974-1985 period. Sectors that became more spatially concentrated included traditional rural sectors such as forestry, mining, coal, textiles, lumber, and wood. In addition, two manufacturing industries, scientific instruments and miscellaneous manufacturing, became more spatially concentrated. Several producer service sectors also became increasingly concentrated spatially (advertising, engineering, and non-commercial research organizations). Consumer sectors that became more unevenly distributed over the study period included eating and drinking establishments, miscellaneous retail, apparel and clothing stores, and miscellaneous and automobile repair.

As stated in the introduction of this section, one limitation of the entropy index is that it does not indicate in which direction industry change is occurring. Although the second entropy calculation shows that most industries were becoming more unevenly distributed spatially, we cannot discern the direction of concentration. Based on other evidence, we surmise that traditional rural sectors such as mining, coal, textiles, lumber, and wood are continuing to concentrate in rural counties. In contrast, sectors such as advertising, engineering services, and non-commercial R&D organizations are more likely to be concentrating in urban areas where effective markets are found.

Location Quotient Analysis

As stated earlier, an entropy index only measures whether employment is more (or less) evenly distributed across counties. It does not distinguish among different types of places. Thus in the next section we examine another measure of spatial specialization, the location quotient. The location quotient identifies instances when employment in a county exceeds employment in an industry relative to its share of national employment. Researchers regularly use location quotients to identify industries that represent export base activity.

Services have traditionally been considered dependent upon the income paid to workers in export industries. Today, however, the majority of the nation's jobs are in service sectors. Therefore we must consider anew the importance of the origin of income that is at the base of an industry's presence in a locality. Location quotients reflect this underlying concept. In a rural community it is quite possible that many sectors (formally considered non-basic or

dependent on income from export industries) exhibit high levels of specialization. For example, medical services are a major component of rural services job growth. In this instance the financial resources that support this sector constitute transfer payments from federal and state medical insurance programs. The resulting income enters the community from outside. Although the presence of health services in rural areas is a function of external income, it is still tied to the residentiary sector and thus is a function of a community's population base.

Another group of service industries are "true" export sectors. Industries such as computer software and data processing, business services, and insurance produce and sell products destined for a broad geographic market. These "traded services" are part of a community's export base. We can more directly trace the economic effect of these services on the creation of wealth in a community. The distinction between services for local consumption--dependent on local population levels--and those produced for export is particularly relevant to rural communities. Whereas population-based services are dependent upon the size of a local community, services producing for the external economy are influenced by national and international events. These latter services are more likely to produce income growth in a community.

With these prefatory comments in mind, we now turn to a discussion of service industries in which rural communities exhibit a numerical specialization. Industries are primarily classified at the two-digit level. Because other research suggests that producer services industries have a high propensity to export, we further disaggregated the producer services sector to the four-digit level. We also examined sectoral specialization across the urban-rural continuum. This allows us to identify sectors that are present in rural communities with varying population levels.

Table XXII
Differences of Entropy Index
Between 1974 and 1985
For Each Industry
(In Ascending Order of Differences)

SIC	1974	1985	Change
8900	3.70	2.17	-1.53
4600	4.86	3.45	-1.41
098/	6.43	5.07	-1.36
7396	4.88	3.89	-.99
4735	5.52	4.58	-.94
179/	4.53	3.90	-.63
4700	3.38	2.78	-.60
8400	3.82	3.23	-.59
6700	3.34	2.81	-.53
4400	3.95	3.45	-.50
7395	3.23	2.74	-.49
6200	4.69	4.20	-.49
0800	3.12	2.67	-.45
4900	2.11	1.66	-.45
7393	3.21	2.77	-.44
497/	3.92	3.50	-.42
1200	3.51	3.10	-.41
679/	3.90	3.49	-.41
4100	2.63	2.23	-.40
7392	3.26	2.86	-.40
6300	3.09	2.71	-.38
4500	3.99	3.63	-.36
899/	3.52	3.16	-.36
3300	2.70	2.35	-.35
7330	3.44	3.10	-.34
3000	2.26	1.93	-.33
7340	2.75	2.43	-.32
7310	3.95	3.63	-.32
7360	3.19	2.88	-.31
7397	3.07	2.78	-.29
599/	3.19	2.93	-.26
3800	3.25	2.99	-.26
8920	4.10	3.84	-.26
7394	2.53	2.27	-.26
8930	2.53	2.28	-.25
519/	3.25	3.00	-.25
8600	2.00	1.76	-.24

SIC	1974	1985	Change
3400	2.35	2.11	-.24
4200	2.02	1.78	-.24
2700	2.40	2.17	-.23
1600	2.18	1.95	-.23
2900	3.31	3.09	-.22
7370	3.25	3.05	-.20
7391	3.77	3.59	-.18
5300	1.86	1.68	-.18
399/	3.19	3.02	-.17
3900	2.69	2.53	-.16
6400	2.23	2.09	-.14
3500	2.23	2.08	-.14
3200	1.75	1.62	-.13
2600	2.19	2.06	-.13
1000	4.10	3.98	-.12
8300	1.83	1.71	-.12
7399	2.81	2.70	-.11
6500	2.62	2.51	-.11
5400	1.46	1.36	-.10
2800	2.40	2.30	-.10
5800	1.72	1.63	-.09
3700	3.00	2.92	-.08
8000	1.82	1.73	-.08
5900	1.71	1.63	-.08
7600	2.01	1.93	-.08
2000	1.70	1.63	-.07
8200	2.58	2.51	-.07
7500	2.00	1.93	-.07
4800	2.21	2.15	-.06
7900	2.11	2.05	-.06
6000	2.03	1.98	-.05
5000	2.22	2.20	-.02
2400	1.20	1.18	-.02
7320	2.29	2.27	-.02
6100	2.21	2.19	-.02
2300	2.10	2.08	-.02
1700	1.89	1.88	-.01
8910	2.58	2.58	.00
5600	1.77	1.76	.00
99--	1.39	1.39	.00
7200	1.78	1.79	.00
3600	2.48	2.49	.01
6600	1.54	1.55	.01

SIC	1974	1985	Change
5100	1.80	1.82	.02
2500	2.36	2.38	.02
1300	2.60	2.63	.03
2200	2.47	2.50	.03
1500	1.65	1.72	.07
0700	1.68	1.76	.08
5500	1.27	1.35	.08
3100	2.54	2.63	.09
5700	1.61	1.71	.10
8100	2.36	2.48	.12
5200	1.12	1.26	.14
0900	3.40	3.54	.14
149/	4.10	4.24	.14
1400	1.45	1.62	.17
7000	1.91	2.13	.22
2100	4.85	5.10	.25
7800	2.91	3.94	1.03

Table XXIII
Entropy Index Expressing the Degree of Spatial Spread of Industry Employment Among Urban & Rural Counties, 1974 and 1985

SIC	1974	1985	Change
+0700	.14	.19	.05
-0800	.00	.02	.02
+0900	.10	.13	.03
-098/	.06	.49	.43
-1000	.05	.05	.00
-1200	.14	.18	.04
+1300	.00	.02	.02
+1400	.00	.00	.00
+149/	.26	.25	-.01
+1500	.22	.23	.01
-1600	.25	.20	-.05
-1700	.32	.32	.00
-179/	.58	.57	-.01
-2000	.12	.09	-.03
+2100	.33	.33	.00
+2200	.02	.00	-.02
-2300	.06	.05	-.01
-2400	.01	.01	.00
+2500	.07	.08	.01
-2600	.12	.10	-.02
-2700	.33	.30	-.03
-2800	.25	.24	-.01
-2900	.28	.26	-.02
-3000	.16	.13	-.03
+3100	.04	.05	.01
-3200	.11	.10	-.01
-3300	.29	.20	-.09
-3400	.28	.24	-.04
-3500	.23	.20	-.03
+3600	.25	.28	.03
-3700	.38	.34	-.04
-3800	.35	.38	.03
-3900	.25	.26	.01
-399/	.45	.50	.05
-4100	.38	.31	-.07
-4200	.28	.23	-.05
-4400	.41	.35	-.06
-4500	.57	.54	-.03

SIC	1974	1985	Change
-4600	.32	.15	-.17
-4700	.46	.44	-.02
-4800	.32	.33	.01
-4900	.24	.16	-.08
-497/	.55	.52	-.03
-5000	.35	.37	.02
+5100	.19	.21	.02
-519/	.51	.44	-.07
+5200	.09	.13	.04
-5300	.30	.27	-.03
-5400	.18	.17	-.01
+5500	.13	.16	.03
-5600	.24	.25	.01
+5700	.22	.26	.04
-5800	.24	.24	.00
-5900	.23	.23	.00
-599/	.51	.51	.00
-6000	.24	.23	-.01
-6100	.32	.35	.03
-6200	.61	.57	-.04
-6300	.52	.49	-.03
-6400	.30	.31	.01
-6500	.40	.40	.00
+6600	.08	.08	.00
-6700	.43	.42	-.01
-679/	.51	.53	.02
+7000	.18	.21	.03
+7200	.26	.29	.03
-7310	.55	.55	.00
-7320	.32	.30	-.02
-7330	.51	.50	-.01
-7340	.47	.45	-.02
-7350	.67	.53	-.14
-7360	.55	.56	.01
-7370	.57	.56	-.01
-7391	.46	.43	-.03
-7392	.52	.49	-.03
-7393	.59	.51	-.08
-7394	.40	.35	-.05
-7395	.45	.42	-.03
-7396	.36	.21	-.15
-7397	.45	.34	-.11
-7399	.44	.46	.02

SIC	1974	1985	Change
-7500	.31	.32	.01
-7600	.29	.29	.00
+7800	.30	.41	.11
-7900	.29	.27	-.02
-8000	.24	.25	.01
+8100	.32	.37	.05
-8200	.35	.33	-.02
-8300	.20	.22	.02
-8400	.48	.40	-.08
-8600	.28	.26	-.02
-8910	.44	.46	.02
-8920	.47	.48	.01
-8930	.32	.31	-.01
-8990	.41	.34	-.07
-899/	.48	.54	.06
+99--	.13	.15	.02

Of the 97 industries in this analysis, 14 indicate some level of specialization in rural counties. Across all rural county types, these 14 industries consistently exhibited some level of specialization (Table XXIV).

The group of 14 industries can be classified according to the component of the economy they serve. The first group of industries provides basic infrastructure. Rural specialization includes pipe lines, no doubt associated with oil and gas pipelines accompanying resource exploitation. Rural areas also specialize in water supplies. These services are associated with both population and industry growth, particularly agriculture. Finally, employment in electrical services further shows a high level of specialization. Again, these services are supplying both population and industry.

The second set of industries in which rural areas specialize are related to population size and income expenditures. These include building supply, food stores, and auto dealerships. The mix of demand for these services is both industry and population-based. In rural communities, auto dealerships often represent agricultural implements and general equipment manufacturers. A high level of specialization in these sectors is apparent across both large and small, adjacent and non-adjacent rural counties. Building supply businesses also serve a dual role providing materials for home construction and repair, as well as for activity on the farm and in industry.

Food stores are the life blood of many rural communities. The grocery store not only provides immediately consumable goods, but equally important, local grocers often extend credit to patrons. This is a vital service for rural residents who operate businesses in which cash flow varies dramatically across the year (in association with rural business cycles in agriculture,

Table XX
Service Sectors with Location Quotients
Greater than 1.2 by Type of Rural Areas
1985

SIC	4	5	6	7	8	9
41						
42						
44		x				
45						
46		x		x	x	x
47						
48						
49			x		x	
50						
51				x		x
52	x	x	x	x	x	x
53						
54			x	x	x	x
55	x	x	x	x	x	x
56						
57						
58						
59						
60					x	x
61						
62						
63						
64						
65						
66	x	x	x	x	x	x
67						
70		x		x	x	x
72						
731						
732						

Table XX (cont.)
Service Sectors with Location Quotients Greater than 1.2 by Type of Rural Areas
1985

SIC	4	5	6	7	8	9
733						
734						
735						
736						
737						
7391		x				
7392						
7393						
394						
395						
396		x				
397		x				
399						
75						
76						
78						
79						x
80						
81						
82						
83						
84						
86						
891						
92						
93						
99						
Local Govt.			x	x	x	x
Fed. Empl.						

Source: County Business Patterns 1974 and 1985 enhanced data, University of Washington, Seattle, Geography Department.

mining, and timber industries). These three sectors exhibit high specialization levels across all rural counties and are a part of the basic business infrastructure of rural communities.

A third level of specialization in rural communities is the provision of banking services. However, this sector is most prominent in the smallest rural counties. This may reflect the indivisibility of many population-dependent services such as banking. There is a minimum threshold in banking services regardless of the base population size. Given that banking services are labor-intensive and have a minimum size of establishment, rural specialization may simply reflect the indivisibility of establishment size to provide basic services.

A fourth group of services exhibiting levels of specialization in rural areas reflects the emergence of both retirement and tourism as components of rural economies. Real estate offices and hotels are over-represented in rural counties relative to base employment. Specialization in real estate reflects the multi-functional nature of real estate firms in rural communities. For example, in many rural communities there are numerous land markets including agriculture, commercial, residential, and property management. Firms may specialize in individual activities. Over the last 15 years, rural residents have found it increasingly difficult, if not impossible, to sell homes and property. To retain the equity in their real estate, many rural residents have had to turn to the rental market to preserve their financial investment. Real estate firms often also provide a bundle of services. For example, many of the documents required in transactions associated with land sales necessitate a Notary of the Public. For many rural communities, real estate offices expand and contract in response to business cycles and the increased splintering of the rural land market.

The concentration of hotels in rural communities is a direct response to demographic and economic changes in society. More people have money to spend on vacations. And many rural areas have become destination resorts. For other rural communities, the increasing mobility of the working population and extended commutes have created a demand for lodging services. Both real estate and hotels exhibit specialization across all rural counties.

For some rural communities, recreational services are an important stimulus to local economic growth. Destination resorts are viewed as potential options for economic development efforts. But their importance is only evident in the most remote rural communities. This may reflect the absence of other economic activities rather than indicating future growth trends. Moreover, places most likely to benefit from this type of development are graced with an attractive physical setting, and usually some type of unique asset that is not transferrable to other locations.

With the exception of sectors classified in the last two groups, rural services specialization depends on population-induced income growth. Thus no matter how much is made of the potential for rural services job creation, sectoral specialization is tied to the size of rural communities and reflects the indivisibility of certain service functions.

R&D labs and general laboratories are specializations for non-adjacent but still urbanized rural counties. The presence of these human capital-intensive establishments may reflect government placement of labs outside metropolitan areas. More likely these facilities are associated with population-induced health care needs such as pathology labs serving hospitals and livestock-related facilities such as veterinary clinics. Their singular presence in urbanized but non-adjacent rural communities suggests that a threshold effect may govern lab location. These

establishments can operate as regional centers serving a wide area.

The lack of specialization in certain sectors is important in understanding rural services development potential. For example, given the importance of manufacturing, it is troubling that durable wholesaling is under-represented in rural areas. Durable wholesaling takes into account establishments providing inputs to manufacturing. Branch plant dominance of rural manufacturing establishments may explain the under-development of wholesaling services. Wholesalers are vital suppliers for small establishments and their under-representation obviously affects the ease with which local entrepreneurs can establish small scale manufacturing. Recent interest in industrial districts as an antidote to large firm manufacturing overlooks rural areas' limited ability to support small scale manufacturing in the absence of durable goods wholesaling. Recent developments in manufacturing (such as just-in-time inventory control practices and manufacturing for increasingly variable consumer preferences) are dependent upon the existence of a vibrant wholesaling sector. Increasingly, firms are engaging wholesalers as the primary source of sales and distribution. Thus rural counties are deficient in a vital component of manufacturing infrastructure.

Also troubling is the lack of rural specialization in the more innovative and export-oriented producer services. The urban development literature points out that maximum benefits in producer services require spatial proximity among producers and consumers of these sectors. Evidence from Denmark suggests that remotely situated firms experience only minimal difficulty in searching out service suppliers in urban areas (Hansen 1990). Equally compelling evidence shows that remote regions are handicapped by the absence of local producer services. Clearly

the lack of information and ready access to new industrial developments in the national and international economy can only further restrict small firms' ability to operate in remote regions.

Shift Share Analysis

Shift share analysis is a technique used to disaggregate regional job growth into three parts--the change in the region relative to the change in national employment, the mix of both fast and slow growth industries in a region, and regional employment share in sectors growing rapidly at the national level. This accounting technique allows a researcher to decompose industrial/employment growth in a region.

Considerable controversy exists concerning the interpretation of the third, or regional growth effect in shift-share analysis. Some researchers treat this measure as an indicator of regional competitiveness. The assumption is that a region experiencing a more than proportionate increase in industries expanding rapidly at the national level is more competitive relative to other regions. Others argue that shift-share analysis provides no theoretical explanation of the competitive effect and therefore should not be interpreted as normatively suggesting a particular path for future development. The method further suffers from problems of aggregation. Shift share analysis is also static (cross sectional comparisons of two points in time). In this report, shift share analysis is employed as a descriptive tool to decompose the individual growth experience of rural areas. No inferences are made regarding why particular results are evident, and we cannot account for the specific changes in industry mix.

The analysis consists of several stages. The first stage examines the experience of all counties in accordance with their membership in the ten geographic units of the Beale urban-rural

continuum. We then proceed to examine the rural experience in industry aggregates of consumer, retail, producer services, non-profit services, and distribution services. The final stage of the analysis considers the 97 industries, noting services sectors that experienced share increases relative to the nation, and sectors in which rural growth rates were higher than those predicted based on national growth rates for all industry.

Composite Grouping of Industries

Consumer Industries

Across the urban rural spectrum, all counties, regardless of size, experienced growth in consumer service industries in excess of the national average for all industries (Table XXV). In other words, consumer service industries were fast growing relative to employment change in the national economy. In contrast, only suburban counties and non-urbanized rural adjacent counties experienced compositional changes bolstering their share of all employment in consumer service industries.

Retail Industries

All counties (with the exception of core metropolitan counties) experienced growth in retail services above the national employment growth rate for all industries (Table XXVI). Differences were particularly pronounced in suburban counties, where on average retail growth exceeded the national growth effect by 60 percent. Rural counties also enjoyed retail growth rates in excess of national growth, but the differences were small, with the largest adjacent non-metropolitan counties exhibiting by far the most significant deviation from national growth rates.

Table XXV
Shift-Share Analysis
Employment and Component of Employment Change
for the Mainly Consumer Service Industry
in each Urban Rural Area (RU=0,...,9)
Between 1974 and 1985

Urban-Rural Code	Employment in 1974	Employment in 1985	Absolute Change	National Growth Effect	Industry Mix Effect	Regional Shares Effect
0	998,442	1,292,740	294,298	279,168.38	95,559.38	-80,429.75
1	324,443	533,889	209,446	90,715.56	31,051.96	87,678.50
2	614,253	879,632	265,379	171,747.63	58,789.24	34,842.16
3	229,486	322,753	93,267	64,165.20	21,963.76	7,138.04
4	87,062	108,328	21,266	24,342.88	8,332.57	-11,409.46
5	91,490	116,953	25,463	25,580.97	8,756.37	-8,874.34
6	87,346	105,813	18,467	24,422.29	8,359.75	-14,315.05
7	123,905	155,202	31,297	34,644.33	11,858.76	-15,206.10
8	11,178	16,315	5,137	3,125.41	1,069.83	941.76
9	23,926	32,540	8,614	6,689.80	2,289.92	-365.73

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1985, 1974.

Table XXVI
Shift-Share Analysis
Employment and Component of Employment Change
for the Retail Service Industry
in each Urban Rural Area (RU=0,...,9)
Between 1974 and 1985

Urban-Rural Code	Employment in 1974	Employment in 1985	Absolute Change	National Growth Effect	Industry Mix Effect	Regional Shares Effect
0	3,832,334	4,753,383	921,049	1,071536.00	272,768.69	-423,255.63
1	1,948,095	2,931,106	983,011	544,695.13	138,656.88	299,659.00
2	2,771,542	3,809,569	1,038,027	774,934.25	197,266.19	65,826.56
3	1,135,877	1,622,574	486,697	317,595.75	80,846.75	88,254.50
4	483,376	658,760	175,384	135,153.88	34,404.58	5,825.55
5	420,846	585,119	164,273	117,670.25	29,953.97	16,648.80
6	508,272	676,794	168,522	142,114.88	36,176.57	-9,769.45
7	626,377	812,953	186,576	175,137.50	44,582.76	-33,144.28
8	60,458	78,316	17,858	16,904.30	4,303.14	-3,349.43
9	113,663	146,838	33,175	31,780.63	8,090.03	-6,695.66

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1985, 1974.

Suburban counties and the largest adjacent rural counties gained industry shares in retailing in excess of national trends. Retail growth concentrated in counties marked by their relative level of urbanization.

Complex Producer Services

All county types experienced dramatic growth in producer services relative to total job change at the national level (Table XXVII). Across the urban-rural spectrum, producer service jobs grew rapidly. As with the previous sector grouping, there is a definite hierarchy, with suburban counties experiencing growth in excess of 300 percent. Rural counties were also beneficiaries of producer services growth. Without exception, producer services were concentrated in suburban counties. The largest non-adjacent rural counties also gained shares in these industries relative to the nation. This finding verifies earlier sections in which we noted that rural communities are experiencing growth in advanced producer services. All county types (including core metropolitan counties) experienced growth rates in non profit sectors in excess of the national industry growth experience (Table XXVIII). Excesses were as dramatic as those experienced in the three sector groupings previously mentioned. And again a definite hierarchy exists, with the greatest gains occurring in suburban counties. While employment growth in non-profit services grew rapidly across all county types, suburban and larger adjacent rural counties experienced the greatest increases in shares of employment in the non-profit sector.

Table XXVII
Shift-Share Analysis
Employment and Component of Employment Change
for the Complex Corporate Activities Service Industry
in each Urban Rural Area (RU=0,...,9)
Between 1974 and 1985

Urban-Rural Code	Employment in 1974	Employment in 1985	Absolute Change	National Growth Effect	Industry Mix Effect	Regional Shares Effect
0	5,619,501	8,147,673	2,528,172	1,571,235.00	1,927,871.00	-970,934.31
1	1,507,022	3,135,253	1,628,231	421,369.38	517,011.13	689,850.50
2	2,269,965	3,870,498	1,600,533	634,691.31	778,752.50	187,089.19
3	671,105	1,169,116	498,011	187,643.63	230,234.69	80,132.69
4	253,657	404,556	150,899	70,923.50	87,021.63	-7,046.13
5	198,564	337,981	139,417	55,519.29	68,120.94	15,776.75
6	221,585	370,052	148,467	61,956.05	76,018.75	10,492.21
7	270,924	439,065	168,141	75,751.44	92,945.38	-555.81
8	26,158	43,904	17,746	7,313.88	8,973.97	1,458.14
9	52,675	79,211	26,536	14,728.14	18,071.11	-6,263.25

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1985, 1974.

Table XXVIII
Shift-Share Analysis
Employment and Component of Employment Change
for the Nonprofit Service Industry
in each Urban Rural Area (RU=0,...,9)
Between 1974 and 1985

Urban-Rural Code	Employment in 1974	Employment in 1985	Absolute Change	National Growth Effect	Industry Mix Effect	Regional Shares Effect
0	2,621,108	4,055,113	1,434,005	732,872.31	880,116.31	-178,983.56
1	1,016,872	1,794,245	777,373	284,321.50	341,445.56	151,606.00
2	1,558,425	2,585,766	1,027,341	435,741.88	523,288.31	68,310.81
3	613,922	1,025,348	411,426	171,655.06	206,142.88	33,628.07
4	256,906	419,356	162,450	71,831.94	86,263.94	4,354.09
5	212,817	335,023	122,206	59,504.48	71,459.75	-8,758.23
6	274,443	415,185	140,742	76,735.38	92,152.56	-28,145.90
7	324,586	491,669	167,083	90,755.56	108,989.56	-32,662.11
8	28,903	46,661	17,758	8,081.39	9,705.05	-28.45
9	61,145	89,452	28,307	17,096.39	20,531.29	-9,320.67

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1985, 1974.

Non-Profit Sectors

All County types (including core metropolitan counties) experienced growth rates in non-profit sectors in excess of the national industry growth experience (Table XXVII). Excesses were as dramatic as those experienced in the three sector groupings previously mentioned. And again a definite hierarchy exists, with the greatest gains occurring in suburban counties. While employment growth in non-profit services grew rapidly across all county types, suburban and larger adjacent rural counties experienced the greatest increases in shares of employment in the non-profit sector.

Distribution Services

Across all county types (except the largest urban counties and the least urbanized rural counties), distributive services grew more slowly than the national rate of total job change (Table IXXX). However, in suburban counties and the least urbanized adjacent rural counties, employment growth in the distribution sector still increased in excess of the original base.

Summary

This first view of industry composition effects for five aggregate industry groups suggests two countervailing tendencies. Rural areas experienced growth in excess of the national average in all but distributive services, and certain rural areas appear competitive in attracting producer service industries.

The aggregate nature of the groupings obscures important detail concerning individual sector experiences among urban and rural counties. As seen earlier, the entropy index of spatial

Table IXXX
Shift-Share Analysis
Employment and Component of Employment Change
for the Distributive Service Industry
in each Urban Rural Area (RU=0,...,9)
Between 1974 and 1985

Urban-Rural Code	Employment in 1974	Employment in 1985	Absolute Change	National Growth Effect	Industry Mix Effect	Regional Shares Effect
0	3,631,560	3,974,217	342,657	1,015,398.69	-226,342.44	-446,399.25
1	988,664	1,615,641	626,977	276,434.44	-61,619.97	412,162.56
2	1,784,723	2,208,387	423,664	499,015.69	-111,235.56	35,883.86
3	663,744	793,765	130,021	185,585.50	-41,368.84	-14,195.63
4	214,298	259,982	45,684	59,918.58	-13,356.45	-878.13
5	226,528	274,004	47,476	63,338.14	-14,118.70	-1,743.44
6	248,551	317,681	69,130	69,495.88	-15,491.32	15,125.46
7	323,576	395,227	71,651	90,473.13	-20,167.36	1,345.22
8	31,762	42,712	10,950	8,880.78	-1,979.61	4,048.83
9	63,833	72,353	8,520	17,847.96	-3,978.49	-5,349.47

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1985, 1974.

decentralization indicated widespread industry decentralization. Location quotients, in contrast, suggested that with the exception of consumer and population-dependent sectors, rural shares of service industry employment were deficient. And within producer service industries, only computer and data processing hinted of rural specialization. Therefore, the final analysis examines shift-share analysis of all 97 sectors and evaluates rural performance on the basis of growth in excess of total national employment change, and identifies sectors in which employment in rural areas was increasing compared to the areas' share of total national employment.