UNIVERSITY OF MARYLAND AT COLLEGE PARK

INSTITUTE FOR URBAN STUDIES

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Ms. Maureen Kennedy
Aspen Institute
Suite 1070
1333 New Hampshire
Washington, D.C. 20036

Dear Maureen,

As we discussed on the phone, I am sending you the completed data analysis portion of the rural services project. While the computer analysis is complete, the presentation of the material is still in draft. This material is now in the process of being integrated with Amy Glasmeier's work. We are weaving the material together so that her analysis will present the national picture and mine will narrow in on the specific case in the six study states.

Currently I am working on the computer programming and data processing case study. I have conducted on-site interviews with rural data entry firms in the Allegheny Mountains of rural Virginia, Appalachia Kentucky, and in Western Maryland. In addition I have interviewed a number of urban data processing firms in order to understand what is unique about what goes on inside rural data processing and data entry firms. I am presently pursuing interviews with firms that moved their data entry and processing functions to third world counties.

Thank you again for your continued support. I am really excited about this work and believe it will make a major contribution to our understanding of rural economies and their role in the international marketplace. Best wishes for the new year.

Sincerely,

Marie Howland

Marie Howland

1113 LEFRAK HALL • COLLEGE PARK, MARYLAND 20742 • (301) 454-5718

Chapter 1

Introduction

Services can contribute to rural economic growth either by providing a direct-export base or by substituting local services for previously imported services. The purpose of this study is to explore the extent to which direct-export and import substituting services are currently and can realistically be expected in the future to stabilize and revitalize rural economies.

Overview of the Study

This chapter describes the data base, the general characteristics of the six study states, and the justification for their selection. Chapter two provides an overview of the composition of the rural service sectors in six states, California, Kansas, Maryland, Massachusetts, New York, and Virginia. Chapter 3 examines the export potential of rural services and extent to which direct-export services have shown a tendency to locate in rural counties. Chapter 4 explores the patterns of location and growth among rural services most likely to be import substituting. This category includes firms that supply local exporters and therefore provide indirect exports, and it includes establishments that sell directly to rural consumers. Clearly, it is easier to distinquish between direct-export and import substituting services in theory than empirically. In practice the division between exports and import substituting services is fuzzy, even at the establishment level. Many establishments sell both to markets outside their region and to local producers and consumers. Therefore, while this direct-export - import substitution model will frame this study, it will not always be possibly to be precise about how an establishment or industry is contributing to rural economic growth.

The analysis is based on the USEEM data set for six states, including California, Kansas, Maryland, Massachusetts, New York, and Virginia and case

studies of four (?) service industries. The remainder of this chapter describes the data set and the selection criteria for the six states studies.

The USEEM Data Base

The data set includes all establishments from the Small Business Adminstration's (SBA's) U.S. Establishment and Enterprise Microdata (USEEM) file in wholesaling, trade, finance, insurance and real estate, and personal, busines and health services for six states. The states include California, Kansas, Maryland, Massachusetts, New York and Virginia. The data set includes the establishments in SIC codes 40 through 89 in either 1980 and 1986.

The USEEM file was developed by the SBA to provide a detailed record of the activities of large and small American firms and establishments with employees. The Duns Market Identifiers file, from which it was constructed, focuses particularly on establishments which purchase insurance, intermediate products, or sell to other firms on credit or that borrow in private credit markets.

This chapter describes the data and discusses the its advantages and disadvantages for the study of rural economies. An awareness of this, as any, data set's shortcomings are crucial to its proper application and interpretation. The coverage of the USEEM file is compared to other federal data sources, and finally the results of local data checks and corrections are reported.

The Data Set

The USEEM file includes information on individual establishments, as opposed to firms, so that branch plant and subsidiary information are recorded separately from that of its headquarters. The variables available for each establishment are listed in Table 1-1.

Table 1-1

Variables Included in U.S. Establishment and Enterprise Microdata File

For All Establishments
Business Name

Street Address
Mailing Address
Zip Code
City Name
County Name
County Code
State Name
State Code
Telephone number
Number of Employees at that address
SIC Code at the 4-digit level
Establishment status as an independent, branch, headquarters or subsidiary

For Heaquarters Only
Year the Firm Started

For Branches and Subsidiaries Only
Name of ultimate owners
Street address of ultimate owner
Zip code of ultimate owner
City name of ultimate owner
Mailing address of ultimate owner
Number of Employees in firm (all affiliates)
Ulimate owner's SIC code at the 4-digit level
Telephone number of ultimate owners

Advantages of the USEEM File for the Study of Rural Economies

The most important advantage of the USEEM data is that it provides employment and location information on individual establishments. As a result, aggregate growth figures can be examined at fine levels of geographical and industrial detail.

There are other sources of macroeconomic data maintained by the Bureau of Census, the Bureau of Labor Statistics, and the Internal Revenue Service of the U.S. Department of Commerce. Only one source, *Enterprise Statistics*, collected by the Bureau of the Census, contains information that may be broken out by firm or enterprise. *Enterprise Statistics* does not, however, include geographical information, which limits its usefulness for studying regional growth patterns.

Because confidentiality of the establishment is not an issue in the USEEM file, as it is in all federally collected data sources, the USEEM data includes each establishment's exact address and 4-digit SIC code. This is of particular advantage in the study of rural economies. In federal data sources, such as the CBP, data are suppressed when there are few establishments in a particular industry and geographical area, and there is a possibility the data user may discern the identify of the establishment. As a result a large proportion of rural county data is suppressed even at the 2-digit SIC code level. This has made the studies of rural economies difficult and limited most previous analysis to the largest rural counties and to the 2-digit level of industrial disaggregation (see for example Kirn (1987) p. 357). Using the USEEM data file, we are able to examine the composition and employment growth of rural economies to the town level (or smaller if desired) and to the 4-digit level of industrial detail.

A second advantage is the file includes telephone numbers for each establishment. Therefore we could easily conduct telephone surveys with establishments to cross check the data or accurancy and to gather information not available in the data set.

A third advantage of the USEEM file is that data on individual

establishments can be linked over time to gain a time-series view of establishment behavior. This permits aggregate employment growth to be subdivided into the sources of growth by startups, expansions, migration, or closures. These components of growth can be further divided by size of firm or establishment status as a branch or headquarters. *Enterprise Statistics* does not permit the linking of establishments employment over time, thus the USEEM data base is the only data that allows a researcher to determine the sources of economic growth.

Fourth, the SBA has taken on a major effort to tie the data for each establishment to data for each establishment's parent or headquarters. Thus, we can determine whether the growth (or decline) in rural service employment is coming from "home grown" firms or those with headquarters out-of-state.

A fifth advantage is that these data are collected by Dun and Bradstreet in the process of conducting credit checks on firms. Thus establishments in this case have an incentive to cooperate and to give correct information. This is not always the case for government collected data.

Dectection and Correction of Errors

Like all data sets, the USEEM file has its limitations, and these must be understood in order to assess the questions these data can appropriately address. One shortcoming of the data is that DMI may not be complete in its coverage of all establishments affiliated with some firms. Because the data are collected for credit rating purposes and data on specific branches are not important for assessing a firm's credit rating, DMI is less assiduous is collecting data on branches than on headquarters. Therefore, some large firms do not provide D&B with all the detailed information necessary to completely disaggregate their firm-wide employment into separate reports for each and every affiliated location. It is difficult to assess the extent of this problem. The SBA compared the total firm employment as reported in headquarters records with the

sum of all employees as reported in all affiliated locations. Using this method, it was estimated by the SBA that nearly half of the branch locations have not been covered in the DMI file, leaving a third of branch employment unaccounted for. However, other researchers claim that most of these unaccounted for branches are oversees operations. For example, MacDonald (1985) examined the reliability of the USEEM data for the Food and Tobacco industries and found that virtually all of the unaccounted for affiliate employment was in foreign operations.

In constructing the USEEM file, additional branch records were imputed to account for any part of each firm's reported firm-wide employment which wasn't already allocated to a particular location and industry. These "proxy" branch records are constructed by assuming the previously unaccounted for employment is in branch establishments in the same state and industry as their headquarters. This allocation probably overstates the actual employment in those states with a high proporation of headquarters, and understates it for those with a relatively low proportion of headquarters. Comparisons with the Census's ES is of little use to asses the allocation of proxy records for branch locations. The published ES have no geographic dimension, and, furthermore, show fewer branch locations in total than the unedited USEEM.

We have treated this problem by excluding the proxy branches. These observations have no location, other than a state variable. Therefore, they can not be assigned to a rural or metropolitan location.

A second bias occurs because D & B often does not recognize startups until several years after the business's inception. The SBA estimates that about 45 percent of the reported births of firms are firms which are already over two years old. Thus there is a tendency to understate the number of new firms for sectors or areas with rapidly increasing startup rates and overstate it during recessionary downturns for the national economy, when actual startups are falling. In reference to this study, we suspect there is undercounting of startups across the service categories because of this sectors rapid growth. In addition, relative to rural counties, there will be a slight downward bias in the

growth rates for urban counties, where employment growth is highest.

Similarly, the dissolution of an establishment may not be picked up promptly D & B, therefore all closures are probably not fully accounted for within any given file period. A detailed comparision of USEEM data with Unemployment Insurance data for 1980-82 for Texas, indicated that the lags in reporting births and delays in purging closing tended to offset each other, so that the stock of establishments reported to be in existence was unaffected by these lags in adding establishment startups and eliminating establishment closures (Jacobsen 1985).

MacDonald (1985, p. 180) studied the accuracy of the data for the food and tobacco industries and reported "it appears to be quite accurate and timely in recording changes due to merger, divestiture, plant closure and new plant construction."

Random Errors - Employment

Establishments in the USEEM file can be linked across time, allowing for a check of random errors. Since random errors occuring in one year are unlikely to be repeated in other years, the data can be edited relatively easily. Although we only obtained data for 1980 and 1986, the SBA maintains data for 1976, 1978, 1980, 1982, 1984, and 1986. Using all years of data, the SBA conducted edit checks to detect clerical errors in recording the number of employees. Several hundred employment figures were reduced to average or previous values each year to eliminate uncredible employment jumps from year to year in the original D & B data.

We made a further investigation of the validity of employment checks for service firms in Montgomery County, Maryland. As part of this check, all establishments with 100 employees or more and a greater than a 150% change in employment between 1980 and 1986 were contacted. There were 19 establishments in this category. Of the 19, 8 establishments were out of business or gone from the county. Of the remaining 11, employment totals were confirmed for 5 cases. In 1 case, (6% of the sample) there appeared to be a data error, and in the

remaining 5 cases either no one at the establishment was familiar with operations in 1980 and 1986 or no one would speak to us. It is interesting to note that, among the establishments that would speak to us, the large employment fluctuations were primarily due to the winning and losing of government contracts, and in one case due to a reorganization in which previous employees were now considered independent operators. In addition, of the 8 firms that had gone out of business, the employment changes reflected large employment losses. A pattern that is consistent with poor economic performance and a likely closure.

MacDonald (1985) found coding error rates of 1/2 of 1 percent of cases affecting 2 percent of employment.

Random Errors - Miscoded SIC Codes

We also checked the Maryland data for miscoded SIC codes. In the process we discovered a large proportion of service establishments changed SIC codes between 1980 and 1986. Because of the sizable number of SIC code changers, we limited this analysis to firms that changed codes across 2-digit categories. There were 26,363 Maryland establishments in the file in both 1980 and 1986. Nearly 9 percent, 2,331 establishments, changed their SIC code at the 2-digit level. We selected a random 50 of these establishments for further checking. The major share of these businesses were coded for closely related activities. Although, it became clear that without making phone calls it is not possible to discern whether the business operates activities which are on the cusp of different SIC categories and thus are coded differently in different years, or whether the business operates two lines of business which fluctuate in terms of total business revenues.

The most suspicious 25 of the 50 SIC code changers were contacted by telephone. Eight business could not be contacted or would not provide information. Only 3 of the 25 suspect cases were clearly miscoded. (A used car dealer coded as a retail nursery). For the remaining 14 cases the codes were reasonable. For examples, one establishment was recorded as a boat dealer in 1980 (SIC 5551) and an automotive repair shop, not elsewhere classified (SIC

7539) in 1986. SIC 7539 includes boat repair, and in 1986 boat repairs provided the major share of this business' revenues. A dance business was coded 7911 in 1980, dance studios, schools, and accessory stores, and coded 5699, miscellaneous apparel and accessory stores, in 1986. The business expanded their activities from running dance classes to the sales of leotards and tights to dance studios.

Coverage

In order to examine the extent of coverage in the USEEM file, the SBA compared the USEEM data coverage with that of the Bureau of Labor Statistics (BLS) *Employment and Earnings* and Bureau of Census, *County Business Patterns* (*CBP*). Their findings are reported in Table 1-2. This table shows the USEEM employment totals to be about about 11 percent higher than that of the BLS and *CBP*, and that USEEM employment totals were higher in every major industry group except retail trade.

The most important reason that USEEM data differ from most other federal data sources is that USEEM includes many small business which do not have paid employees. Sole proprietors, unpaid family members, and active partners are all counted as employees in the DMI data file from which the USEEM was constructed. Both *CBP* and *Employment and Earnings* include only establishments which paid wages at some time during the year. In addition, because the USEEM treats owner/operators as employees of their own establishments, it shows more establishments and therefore more employment than *CBP* and BLS. This causes the greatest difference in those industries which have a greater share of business without paid employees, such as construction, trade, financial services, and other services.

Table 1-2
Ratio of USEEM Employment Data to Employment Total of Various Federal Data Sources by Industry Division: 1982
(in thousands)

	USEEM/BLS	USEEM/CBP
Mining	1.23	1.15
Construction	1.18	1.17
Manufacturing	1.23	1.18
Transport, Communication, and Public Utilities	1.14	1.23
Wholesale Trade	1.05	1.10
Retail Trade	.99	.98
Finance, Insurance, and Real Estate	1.11	1.03
Services	1.06	1.10
Total	1.12	1.11

Source: U.S. Small Business Administration "Uses and Limitations of USEEM/USELM Data", (October).

Another basic difference between the data sources is their treatment of private and public sector employment. The DMI includes many large government-owned local transportion systems, public utilities, hospitals, local school boards, and universities. It also has partial coverage of government-owned liquor stores, scientific labs and some commercial aspects of miliary bases. The large elementary and secondary schools were, however, excluded from the USEEM file during editing. Most federal data sources exclude establishments whose employees are paid by public funds.

To gain some understanding of how the USEEM file compares with other government sources across metropolitan and rural counties and in more detail across the services, we compared the USEEM employment totals with employment as measured by the CBP. The results show a very strong correspondence between the two data sets for most service industries, and show equal coverage across metropolitan, adjacent and remote rural locations.

Overall, the USEEM file contains 95 percent of service employment as measured by the CBP. The ratio of USEEM data and CBP data at the 2-digit level are shown below for Kansas, New York, and Virginia. The data for California, Maryland, and Massachusetts are reported in Appendix 1-3. Table 1-4 compares the coverage across selected metropolitan and rural counties in the states of Kansas, New York, and Virginia, and again the data for the remaining three states are repetitious and therefore left to Appendix 1-4.

In general the coverage is relatively high for Transportation, Other Public Utilities, and Wholesale Trade, and relatively low for eating and drinking places and legal services. One explanation for the lower coverage for these two later activities is that both are likely to be small operations financed solely from individual or family resources, less likely to enter private credit markets, and therefore less likely to be captured by D&B.

Tables 1-4a, b, and c show that coverage across urban to remote rural counties is consistent. There is no indication, for example, that coverage in urban counties is higher than that of rural counties. In addition, the data in these tables does highlight the shortcomings of using published federal sources.

Numerous values are suppressed in the *County Business Patterns* for least populous rural counties, even when the data is only disaggregated to the 2-digit SIC code.

Table 1-3
Comparison of Employment Total in USEEM data to County Business Patterns,
The States of Kansas, New York, and Virginia, 1980 and 1986

SIC CODE	MAJOR INDUSTRY GROUP	Kansas 1980	Kansas 1986	New York 1980	New York 1986	Virginia 1980	Virginia 1986
TRANSPORTATION AND OTHER PUBLIC UTILITIES							
41	LOCAL AND INTERURBAN PASSENGER TRANSIT	0.74	1.18	1.22	1.53	0.88	1.07
42	TRUCKING AND WAREHOUSING	1.12	1.23	1.03	1.03	1.02	1.00
44	WATER TRANSPORTATION	1.48	0.72	0.97	0.96[b]	0.61	3.03[b]
45	TRANSPORTATION BY AIR	0.46	0.55	0.46	0.74	0.13	0.19
46	PIPE LINES, EXCEPT NATURAL GAS	0.88	1.42	3.02	1.56[b]	3.58[b]	1.70[b]
47	TRANSPORTATION SERVICES	1.07	1.00	1.27	1.17	1.08[b]	0.85
48	COMMUNICATION	0.49	0.87	0.45	0.49	0.67	0.87
49	ELECTRIC, GAS, AND SANITARY SERVICES	0.88	1.01	0.84	0.84	0.76	0.68
AVERAGE		0.89	1.00	1.16	1.04	1.09	1.17
WHOLESALE TRADE							
50	WHOLESALE TRADE -DURABLE GOODS	1.11	1.10	1.23	1.18	0.92	0.99
51	WHOLESALE TRADE- NONDURABLE GOODS	1.02	1.04	1.11	1.07	0.99	0.95
AVERAGE		1.06	1.07	1.17	1.17	0.96	0.96
RETAIL TRADE							
52	BUILDING MATERIALS AND GARDEN SUPPLIES	1.13	1.04	1.11	0.99	0.99	1.03
53	GENERAL MERCHANDISE STORES	0.51	1.16	0.64	0.99	0.71	1.17
54	FOOD STORES	0.69	0.71	1.18	0.63	0.51	0.52
55	AUTOMOTIVE DEALERS AND SERVICE STATION	0.93	0.89	1.05	0.85	0.86	0.77
56	APPAREL AND ACCESSORY STORES	0.74	0.83	0.92	0.84	0.59	0.59
57	FURNITURE AND HOME FURNISHING STORES	1.17	1.00	1.15	1.06	1.13	0.95
58	EATING AND DRINKING PLACES	0.62	0.52	0.76	0.71	0.55	0.57
59	MISCELLANEOUS SERVICES	0.78	0.85	0.97	0.92	0.90	0.87
AVERAGE		0.82	0.88	0.97	0.88	0.78	0.81
FINANCE, INSURANCE, AND REAL ESTATE							
60	BANKING	0.95	0.89	0.56	0.79	1.17	1.10
61	CREDIT AGENCIES OTHER THAN BANKS	0.53	0.64	0.55	0.63	0.53	0.71
62	SECURITY, COMMODITY BROKERS AND SERVICES	0.99	0.92	0.96	1.15	0.94	1.08
63	INSURANCE CARRIERS	0.57	1.03	0.93	1.05	0.50	0.88
64	INSURANCE AGENTS, BROKERS AND SERVICES	1.24	1.10	1.21	1.03	1.04	1.15
65	REAL ESTATE	1.42	1.06	0.87	0.90	1.35	1.29
66	COMBINED REAL ESTATE,INSURANCE, ETC	0.15	0.09	0.41	0.48	0.51	0.67

67 HOLDING AND OTHER INVESTMENT OFFICES	1.00	0.46	1.30	0.56	0.83	0.49
AVERAGE	0.86	0.77	0.85	0.82	0.86	0.98
SERVICES						
70 HOTELS AND OTHER LOGGING PLACES	0.93	0.85	0.89	1.04	0.98	0.86
72 PERSONAL SERVICES	0.67	0.60	0.78	0.71	0.58	0.46
73 BUSINESS SERVICES	1.05	1.11	0.98	1.06	1.04	1.13
75 AUTO REPAIR, SERVICES, AND GARAGES	1.11	0.94	0.94	0.92	0.86	0.78
76 MISCELLANEOUS REPAIR SERVICES	1.50	1.47	1.16	1.16	1.33	1.12
78 MOTION PICTURES	0.42	0.62	0.73	0.78	0.76	1.08
79 AMUSEMENT ANS RECREATION	0.96	0.96	0.88	0.85	0.92	0.86
80 HEALTH SERVICES	0.99	0.98	0.95	0.85	0.85	0.83
81 LEGAL SERVICES	0.31	0.49	0.76	0.83	0.56	0.59
82 EDUCATIONAL SERVICES	2.66	3.61	0.96	0.97	2.01	1.54
83 SOCIAL SERVICES	0.42	0.52	0.49	0.56	0.49	0.52
84 MUSEUMS, BOTANICAL, ZOOLOGICAL GARDENS	2.31	0.64	0.71	0.66	2.13	1.23
86 MEMBERSHIP ORGANIZATIONS	0.33	0.43	1.01	0.67	1.02	0.65
89 MISCELLANEOUS SERVICES	0.93	0.77	1.00	0.81	1.03	0.89
AVERAGE	1.04	1.00	0.87	0.85	1.04	0.90
TOTAL AVERAGE	0.93	0.93	0.96	0.90	0.96	0.94
VARIANCE	0.26	0.29	0.21	0.11	0.33	0.23

SOURCE: USEEM data base, 1980 and 1986, COUNTY BUSINESS PATTERNS-1980 and 1986.
b: Figure represents the midpoint of County Business Pattern's number.

Table 1-4a

Comparison of Employment Total in USEEM Data to *County Business Patterns*
Employment for Selected Industries in Selected Metro and Non-Metro Counties

KANSAS, 1986

SIC	INDUSTRY	1 WYANDOTTE [968]	2 BUTLER [095]	3 RENO [725]	4 FINNEY 275]	MEAN	VARIANCE
42	Trucking and warehousing	1.10	1.16	1.05	0.91	1.06	0.01
48	Communication	0.96	20/a	0.25	0.56	0.59	0.08
50	Wholesale trade-durable goods	1.07	1.64	0.77	0.81	1.07	0.12
51	Wholesale trade-nondurable goods	1.68[b]	0.84[b]	0.60[b]	1.00	1.03	0.16
54	Food stores	0.67	0.62	1.42	0.26	0.74	0.18
55	Automotive dealers and service stations	0.83	0.76	1.23	1.05	0.97	0.03
58	Eating and drinking places	0.57	0.47	0.53	0.49	0.52	0.00
60	Banking	0.74	1.07	0.81	0.80	0.86	0.02
64	Insurance agents, brokers and services	0.74	0.70	0.77	48/a	0.74	0.00
65	Real estate	1.85	0.94	1.64	1.91	1.59	0.15
70	Hotels and other lodging places	0.61	0.42	1.87	0.59[b]	0.87	0.34
73	Business Services	0.98	0.83	1.16	0.74	0.41	0.03
75	Auto repair, services and garages	1.55	69/a	1.10	0.83	1.16	0.09
80	Health services	1.71	0.64	0.93	0.72	1.00	0.18
81	Legal services	0.64	22/a	0.25	0.07	0.32	0.06
82	Educational services	2.13	618/a	6.21	148/a	4.17	4.16
	MEAN	1.11	0.84	1.29	0.77		
	VARIANCE	0.24	0.10	1.81	0.17		

Notes: a) County Business Patterns does not report data.
b) County Business Patters reports a range of numbers. We selected the midpoint.
Source: USEEM file obtained from the U.S. Small Business Administration (1986), and
County Business Patterns (1986) [number of employees for week including March 12].

Table 1-4b
Comparison of Employment Totals in USEEM Data to *County Business Patterns*
Employment for Selected Industries in Selected Metro and Non-Metro Counties

NEW YORK, 1986

SIC	INDUSTRY NAME	1 ALBANY [042]	2 WESTCHESTER [927]	3 GENESEE [312]	4 CLINTON [177]	MEAN	VARIANCE
42	Trucking and warehousing	0.85	1.44	1.25	1.40	1.23	0.05
48	Communication	0.32	0.23[b]	0.68[b]	0.65	0.47	0.04
50	Wholesale trade-durable goods	0.86	0.98	0.90	1.25	1.00	0.02
51	Wholesale trade-nondurable goods	0.91[b]	0.61[b]	0.85[b]	0.66[b]	0.76	0.02
54	Food stores	0.49	0.70	0.68	0.19	0.52	0.04
55	Automotive dealers and service stations	0.80	0.90	0.59	0.94	0.81	0.02
58	Eating and drinking places	0.77	0.67	0.66	0.56	0.67	0.01
60	Banking	0.90	1.45	0.98	0.65	1.00	0.08
64	Insurance agents, brokers and services	1.99	1.20	0.91	1.10	1.30	0.17
65	Real estate	0.92	1.16	0.93	0.79	0.95	0.02
70	Hotels and other lodging places	1.21	0.78	1.68	0.84	1.13	0.13
73	Business Services	0.76	1.31	2.29	2.37	1.68	0.46
75	Auto repair, services and garages	0.80	1.02	0.89	0.89	0.90	0.01
80	Health services	0.99	0.89	1.28	0.79	0.99	0.03
81	Legal services	0.60	0.71	0.30	0.34	0.49	0.03
82	Educational services	0.80	1.12	493/a	28.79[c]	10.24	172.13
	MEAN	0.87	0.92	0.89	2.72		
	VARIANCE	0.12	0.10	0.25	45.83		

Notes: a) County Business Patterns does not report data.
b) County Business Patterns reports a range of numbers. We selected the midpoint.
c) Large number is due to a very small employment number in CBP (9) and the inclusions of a public facility in the USEEM file.

Source: USEEM files obtained from the U.S. Small Business Administration (1986), and County Business Patterns (1986) [number of employees for week including March 12].

Table 1-4c

Comparison of Employment Totals in USEEM Data to County Business Patterns
Employment for Selected Industries in Selected Metro and Non-Metro Counties

VIRGINIA, 1986

SIC	INDUSTRY	1 NORFOLK [585]	2 BATETOURT [108]	3 BRUNSWICK [117]	4 HIGHLAND [414]	MEAN	VARIANCE
42	Trucking and warehousing	1.89	2.83[b]	16/a	6/a	2.36	0.22
48	Communication	0.47	56/a	1.00	9/a	0.47	0.07
50	Wholesale trade-durable goods	1.37	0.77	32/a	2/a	1.07	0.09
51	Wholesale trade-nondurable goods	1.08[b]	1.09	90/a	17/a	1.09	0.00
54	Food stores	0.91	0.83	0.87	2/a	0.87	0.00
55	Automotive dealers and service stations	1.31	0.56	0.81	16/a	0.89	0.10
58	Eating and drinking places	0.83	0.25	1.47	18/a	0.85	0.25
60	Banking	0.65	0.58	48/a	15/a	0.62	0.00
64	Insurance agents, brokers and services	1.16	1.00	9/a	3/a	1.08	0.01
65	Real estate	1.03	6/a	8/a	1.00	1.02	0.00
70	Hotels and other lodging places	1.44	0.50	0/60	1.00	1.22	0.05
73	Business Services	1.42	30/a	3/a	1.25[b]	1.34	0.01
75	Auto repair, services and garages	1.42	9/a	11/a	1.00	1.21	0.04
80	Health services	1.80	0.35	11/a	1.00	1.05	0.35
81	Legal services	0.93	1.00	2/a	1.00	0.97	0.00
82	Educational services	2.65	1.00	0.35[b]	1.00	1.25	0.72
MEAN		1.27	0.90	0.90	1.04		
VARIANCE		0.26	0.41	0.13	0.01		

Notes: a) County Business Patterns does not report data.
b) County Business Patterns reports a range of numbers. We selected the midpoint.

Source: USEEM files obtained from the U.S. Small Business Administration (1986), and
County Business Patterns (1986) [number of employees for week including March 12].

Merger of USEEM file and County City Data Book

The USEEM data set was merged with the County City Data Book, published by the U.S. Bureau of Census. This merger permitted us to identify the characteristics of the county, city, and town where each service establishment was located. These two data sets were combined with a third variable that noted whether each county was metropolitan, rural and adjacent to a metropolitan area, or rural and not adjacent to a metropolitan area.

Summary

As with any data set, the USEEM file has its weaknesses. However, a solid understanding of the data's advantages and shortcomings can insure its applications are appropriate for scientific enquiry, can assist in the recognititon of biased outcomes, and promote the correct interpretation of results. The major advantages of the data are that it is the only data set that permits an analysis of changes in local economies and the sources of economic growth at fine levels of industrial and geographical detail.

Selection of States

Initially four states were selected for analysis, including California, Kansas, New York, and Virginia. The selection criteria included regional representation, variation in the percent of state population in metropolitan versus rural counties, and differences the size of the state's major city or cities. Regional representation was important because decentralization patterns vary by region of the country, with the Northeast experiencing some decentralization of employment and the remaining three regions, including the Midwest, South and West all exhibiting faster urban than rural employment growth (U.S. Department of Agriculture, 1989). The variation in the urban-rural population distribution was important for testing hypotheses about rural growth trends in already urbanized states versus rural states. Variety in city size of

the major cities permitted a test of the hypothesis that and corporate services tend to decentralize from the major corporate service centers such as New York City, Los Angeles, and San Franciso into rural areas close to headquarters. In contrast, we expected to find less service decentralization in the states without headquarters cities.

Examination of these four states indicated that population and employment was centralizing in three of the four cases. In the fourth state, California, rural population grew more rapidly in adjacent rural counties than in either urban or non-adjacent rural counties, but the state is highly urbanized with a very small proportion of population in rural counties. To examine patterns in other states where population is decentralizing, two additional states, Maryland and Massachusetts, were added to the sample. In both states population grew faster in both types of rural than urban counties in the 1980 to 1986 period (See Table 1-6).

Population decentralization in Kansas, New York, and Virginia are due to migration patterns that favor metropolitan counties. In Kansas, migration was positive in the urban counties and negative in rural counties. In New York, migration was negative in all types of counties, but the losses where greater in the rural counties. In Virginia, growth was positive in all counties, but greater in the metropolitan counties. The decentralization of population of Massachusetts and Maryland is shown with greater rates of in-migration in rural than urban counties in both states (See Table 1-7).

A sample of 6 states, as opposed to the universe of all states, was analyzed for several reasons. First, this data set is extremely large and quickly becomes unweildy and costly in terms of computer time. The total number of service establishments in the USEEM file for the whole United States is approximately 5 million. The number of establishments in each of the six study states is shown in Table 1-8. In addition, because these data were not collected for research, a substantial amount of checking and validating the data is necessary. This very quickly becomes an cumbersome task when additional states are added to the analysis.

Table 1-6

Population Growth Across Metropolitan and Adjacent and Nonadjacent Rural Counties, 1980 to 1986

	Calif.	Kansas	Mass.	Maryland	New York	Virginia
Metro	13.8	8.0	1.2	5.8	1.3	10.4
Rural-Adjacent	20.6	-.1	11.9	6.6	.1	3.7
Rural-Nonadj.	5.4	.2	17.9	6.4	-.5	1.8

Source: U.S. Department of Commerce, *County City Data Book, 1988.*

Table 1-7

Population Migration Rate Across Metropolitan and Adjacent and Nonadjacent Rural Counties, 1980 to 1986

(Percent)

	Calif.	Kansas	Mass.	Maryland	New York	Virginia
Metro	6.7	2.0	-1.3	1.4	-1.5	4.7
Rural-Adjacent	13.7	-2.1	10.4	2.4	-2.6	1.2
Rural-Nonadj.	.2	-4.4	14.4	4.7	-5.2	.3

Source: U.S. Department of Commerce, *County City Data Book, 1988.*

Table 1-8

Number of Establishment in USEEM FIle

SIC Codes 40 to 89

	1980	1986
California	346482	389325
Kansas	36577	38941
Maryland	48250	56279
Massachusetts	77347	82154
New York	261142	274619
Virginia	59231	68323

Source: USEEM data base, 1980 and 1986

The remainder of this chapter describes the urban-rural patterns, incomes, and economies of the study states. Table 1-9 shows the percent of population in each state in metropolitan statistical areas (MSAs), rural counties adjacent to a MSA, and rural counties not adjacent to a MSA. Kansas is the least urbanized state with only 52 percent of its population in MSAs and 48.1 percent of its population in rural counties. Virginia is the next least urbanized of the six states with nearly 72 percent of its 1986 population in MSAs and 28.1 percent of its population in rural areas. New York, Massachusetts, Maryland, and California are all highly urbanized with over 90 percent of their populations in urban areas. Because these statistics are presented on a county basis, they can at times be misleading. Urban counties can contain rural areas, and urban counties can include urban areas. For example, California counties are large by national comparison. Although a part of a MSA, several California counties contain large rural populations. For example, San Bernadino is a metropolitan county with a density of only 56.8 people per sq. mile. For comparison, the average density in New York's and Virginia's metropolitan counties is 4843 and 325 respectively.

Table 1-9

Population Share in Metropolitan and Adjacent and Nonadjacent Rural Counties, 1986 (Percent)

	Calif.	Kansas	Mass.	Maryland	New York	Virginia
Metro	95.7	52.0	95.7	92.9	90.1	71.9
Rural-Adjacent	3.8	16.3	4.2	3.6	8.8	18.1
Rural-Nonadj.	.5	31.8	.1	3.5	.7	10.0
Total	100.	100.	100.	100.	100.	100.

Source: U.S. Department of Commerce, *County City Data Book, 1988.*

The states are diverse in terms of their per capita incomes across metro and rural counties (see Table 1-10). Not surprisingly, in most states average county per capita income is higher in the metropolitan counties. There are exceptions, however. In Kansas average per capita income in non-adjacent rural counties is higher than in Metro and adjacent rural counties. A review of the raw data indicates the high non-adjacent average is due to the inclusion of Witchita County with a per capita income of more than $20,000. The high rural non-adjacent average in Massachusetts is due to the inclusion of Nantucket county. A high income resort area.

The states also differ in their rural dependence on manufacturing (see Table 1-11). Maryland, New York and Virginia all have close to one-third of their rural employment in manufacturing. The percentages in the agricultural states of California and Kansas is much lower. Again, the low value for rural non-adjacent counties in Massachusetts reflects Nantucket Island, a resort economy. Although both the populations of Maryland and Massachusetts are decentralizing, the economic bases of their rural economies are quite different in terms of a dependence on

manufacturing.

There are only small differences in the percent of metropolitan and rural counties' population of working age (see Table 1-12).

Table 1-10

Average Personal Income Per Capita for Metropolitan, Adjacent, and Nonadjacent Rural Counties, 1985

	Calif.	Kansas	Mass.	Maryland	New York	Virginia
Metro	13,737	12,756	13,963	13,701	13,151	12,977
Rural-Adjacent	10,593	11,215	13,467	11,312	10,155	10,342
Rural-Nonadj.	10,280	13,917	16,309	11,129	9,042	9,993

Source: U.S. Department of Commerce, *County City Data Book, 1988.*

Table 1-11

Average Share of Employment in Manufacturing Across Metropolitan, Adjacent, and Nonadjacent Rural Counties, 1985
(Percent)

	Calif.	Kansas	Mass.	Maryland	New York	Virginia
Metro	17.0	21.0	27.6	17.6	28.0	20.0
Rural-Adjacent	16.2	17.9	13.2	20.5	30.9	32.0
Rural-Nonadj.	15.7	11.0	2.1	30.5	22.7	34.0

Source: U.S. Department of Commerce, *County City Data Book, 1988.*

Table 1-12

Average Share of Population of Working Age Across Metropolitan, Adjacent, and Nonadjacent Rural Counties, 1985

	Calif.	Kansas	Mass.	Maryland	New York	Virginia
Metro	50.8	48.5	49.0	52.0	49.5	51.4
Rural-Adjacent	50.4	46.8	49.1	49.8	47.1	50.0
Rural-Nonadj.	52.3	45.0	na	50.1	46.8	48.9

Source: U.S. Department of Commerce, *County City Data Book, 1988.*

Bibliography

Kirn, Thomas J. (1987) "Growth and Change in the Service Sector of the U.S.: A Spatial Perspective", *Annals of the Association of American Geographers*, 77, 3. pp. 353-372.

Jacobsen, Louis (1985) "Analysis of the Accuracy of SBA's Small Business Data Base," prepared by the hudson Institute of the Center for Naval nalysis under contract for the Office of Advocacy, Small Business Administration, August.

MacDonald, James M. (1985) "Dun and Bradstreet Business Microdata, Research Applications, the the Dectection and Correction of Errors", *Journal of Economic and Social Measurement*, 13: 173-185.

Majchrowics, Alexander T. *Patterns of Change in the Rural Economy, 1969-86*, United States Department of Agriculture, Economic Research Service, Rural Development Research Report, Number 73.

Phillips, Bruce D. "Birth and Death Rates of Small and Large Firms: 1976-1986", Paper presented at the American Economic Association Meetings, December 28-30, 1988, New York.

U.S. Small Business Administration (1988) "Uses and Limitations of USEEM/USELM Data", October.

Appendix 1-3

Comparison of Employment Total in USEEM data to COUNTY BUSINESS PATTERNS
The States of California, Maryland, and Massachusetts, 1980 and 1986.

SIC CODE	MAJOR INDUSTRY GROUP	CALIFORNIA 1980	CALIFORNIA 1986	MARYLAND 1980	MARYLAND 1986	MASSACHUSETTS 1980	MASSACHUSETTS 1986
	TRANSPORTATION AND OTHER PUBLIC UTILITIES						
41	LOCAL AND INTERURBAN PASSENGER TRANSIT	1.03	1.38	1.37	1.92[b]	0.97	0.91
42	TRUCKING AND WAREHOUSING	0.19	1.17	1.19	1.06	1.12	1.13
44	WATER TRANSPORTATION	0.70	0.70	0.51	0.66	0.83	0.51
45	TRANSPORTATION BY AIR	0.60	0.62	1.16	0.97	0.62	0.44
46	PIPE LINES, EXCEPT NATURAL GAS	0.44	1.13	0.82[b]	0.64[b]	2.84[b]	0.42
47	TRANSPORTATION SERVICES	1.39	1.20	1.35	0.95	0.97	0.94
48	COMMUNICATION	0.29	0.42	0.30	0.59	0.30	1.96
49	ELECTRIC, GAS, AND SANITARY SERVICES	0.82	1.28	0.36	0.43	0.89	1.17
	AVERAGE	0.68	0.99	0.88	0.90	1.07	0.93
	WHOLESALE TRADE						
50	WHOLESALE TRADE -DURABLE GOODS	1.01	1.04	0.89	0.91	0.96	1.04
51	WHOLESALE TRADE- NONDURABLE GOODS	0.97	1.08	0.99	0.90	0.98	0.94
	AVERAGE	0.99	1.06	0.94	0.90	0.97	0.99
	RETAIL TRADE						
52	BUILDING MATERIALS AND GARDEN SUPPLIES	1.04	0.88	0.95	0.99	1.14	1.24
53	GENERAL MERCHANDISE STORES	0.80	1.08	0.50	0.85	0.70	0.93
54	FOOD STORES	0.56	0.66	0.62	0.56	0.53	0.58
55	AUTOMOTIVE DEALERS AND SERVICE STATIONS	0.81	0.79	0.83	0.78	0.90	0.75
56	APPAREL AND ACCESSORY STORES	0.73	0.77	0.71	0.68	0.84	0.89
57	FURNITURE AND HOME FURNISHING STORES	1.08	0.96	0.97	0.88	1.14	1.01
58	EATING AND DRINKING PLACES	0.58	0.58	0.66	0.64	0.68	0.62
59	MISCELLANEOUS SERVICES	0.94	0.98	0.93	0.87	0.90	0.81
	AVERAGE	0.82	0.84	0.77	0.78	0.85	0.85
	FINANCE, INSURANCE, AND REAL ESTATE						
60	BANKING	0.58	0.76	0.85	0.99	1.06	1.18
61	CREDIT AGENCIES OTHER THAN BANKS	0.60	0.96	0.62	0.87	0.39	0.53
62	SECURITY, COMMODITY BROKERS AND SERVICES	0.90	0.94	0.90	1.56	1.24	1.31
63	INSURANCE CARRIERS	0.70	1.15	0.47	0.78	0.77	1.01
64	INSURANCE AGENTS, BROKERS AND SERVICES	1.09	1.11	1.75	1.62	1.13	0.94
65	REAL ESTATE	1.07	1.11	1.20	1.21	1.28	1.15
66	COMBINED REAL ESTATE,INSURANCE, ETC	0.49	0.33	0.43	0.32	0.50	0.49

67 HOLDING AND OTHER INVESTMENT OFFICES	2.31	0.75	1.00	0.58	1.77	1.34
AVERAGE	0.97	0.89	0.90	0.99	1.02	0.99
SERVICES						
70 HOTELS AND OTHER LOGGING PLACES	0.82	0.89	0.85	0.69	1.12	1.08
72 PERSONAL SERVICES	0.68	0.66	1.28	0.56	0.63	0.56
73 BUSINESS SERVICES	1.05	0.99	1.22	1.04	0.95	0.91
75 AUTO REPAIR, SERVICES, AND GARAGES	0.94	0.65	1.04	0.77	0.93	0.76
76 MISCELLANEOUS REPAIR SERVICES	1.19	2.16	1.15	0.99	1.29	1.03
78 MOTION PICTURES	0.61	0.53	0.54	0.93	0.52	1.48
79 AMUSEMENT ANS RECREATION	0.85	0.71	0.85	0.90	1.07	0.86
80 HEALTH SERVICES	0.87	0.86	0.85	0.82	0.81	0.94
81 LEGAL SERVICES	0.63	0.68	0.52	0.60	0.62	0.68
82 EDUCATIONAL SERVICES	1.64	1.70	1.06	1.35	0.57	0.57
83 SOCIAL SERVICES	0.63	0.48	0.60	0.60	0.49	0.57
84 MUSEUMS, BOTANICAL, ZOOLOLOGICAL GARDENS	1.19	1.18	1.59	0.97	1.29	1.47
86 MEMBERSHIP ORGANIZATIONS	0.82	0.66	0.77	0.68	0.67	0.51
89 MISCELLANEOUS SERVICES	1.14	0.89	0.63	0.74	1.22	0.64
AVERAGE	0.93	0.93	0.93	0.83	0.87	0.86
AVERAGE	0.87	0.92	0.88	0.87	0.94	0.91
VARIANCE	0.17	0.16	0.15	0.14	0.22	0.15

SOURCE: USEEM Data, 1980 and 1986 AND COUNTY BUSINESS PATTERNS, 1980 and 1986.
b The CBP reports a range of numbers only and we selected the mid-point.

Appendix 1-4a

Comparison of Employment Totals in USEEM Data to County Business Patterns Data
Employment for Selected Industries in Selected Metro and Non-Metro Counties

CALIFORNIA, 1986

SIC	Industry	1 SAN FRAN. [636]	2 ORANGE [508]	3 INYO [252]	4 DEL NORTE [156]	MEAN	VARIANCE
42	Trucking and warehousing	0.90	1.13	1.30	112/a	1.11	0.03
48	Communication	0.64	0.33	1.43[b]	1.63	1.01	0.29
50	Wholesale trade-durable goods	1.01	1.09	1.17	1.27	1.14	0.01
51	Wholesale trade-nondurable goods	0.90	1.28[b]	221/a	1.63	1.27	0.09
54	Food stores	0.75	0.76	0.91	1.11	0.88	0.02
55	Automotive dealers and service stations	0.62	0.77	0.90	1.68	0.99	0.17
58	Eating and drinking places	0.67	0.63	0.61	0.77	0.67	0.00
60	Banking	0.54	0.72	1.17	33/a	0.81	0.07
64	Insurance agents, brokers and services	0.66	1.31	9/a	1.00	0.99	0.07
65	Real estate	0.87	1.13	1.02	0.67	0.92	0.03
70	Hotels and other lodging places	0.72	0.85	1.40	0.69	0.91	0.08
73	Business Services	0.82	1.00	63/a	17/a	0.91	0.01
75	Auto repair, services and garages	0.68	0.97	65/a	0.21	0.62	0.10
80	Health services	1.27	0.77	1.54	0.72	1.08	0.12
81	Legal services	0.84	0.59	13/a	11/a	0.72	0.02
82	Educational services	1.34	1.29	1/a	24/a	1.32	0.00
	MEAN	0.83	0.91	1.15	1.03		
	VARIANCE	0.05	0.08	0.07	0.21		

Notes: a) County Business Patterns does not report data.
b) County Business Patterns reports a range of numbers. We selected the midpoint.

Source: USEEM files obtained from the U.S. Small Business Administration (1986), and County Business Patterns (1986) [number of employees for week including March 12].

Appendix 1-4b

Comparison of USEEM Data to County Business Patterns Data
Employment for Selected Industries in Selected Metro and Non-Metro Counties

MARYLAND, 1986

SIC	Industry	1 BALTIMORE [131]	2 HOWARD [541]	3 ST. MARY'S [746]	4 WORCHESTER [951]	MEAN	VARIANCE
42	Trucking and warehousing	4.34	0.69	0.58	215/a	1.87	3.05
48	Communication	2.04	5.55	0.47[b]	0.75	2.20	4.09
50	Wholesale trade-durable goods	2.10	1.10	1.57	1.41	1.55	0.13
51	Wholesale trade-nondurable goods	2.24	0.52[b]	0.98	1.78	1.38	0.45
54	Food stores	0.98	0.48	0.60	1.14	0.80	0.07
55	Automotive dealers and service stations	1.11	0.54	0.66	0.68	0.75	0.05
58	Eating and drinking places	1.21	0.76	0.50	0.78	0.81	0.06
60	Banking	5.71	0.44	0.70	0.64	1.87	4.92
64	Insurance agents, brokers and services	4.51	1.47	0.44	0.60	1.76	2.68
65	Real estate	3.32	2.03	1.80	1.11	2.07	0.64
70	Hotels and other lodging places	2.30	0.35	1.00	0.68	1.08	0.55
73	Business Services	1.94	1.13	1.70	3.72	2.12	0.94
75	Auto repair, services and garages	2.08	0.53	0.31	40/a	0.97	0.62
80	Health services	2.69	0.48[b]	0.78	0.76	1.18	0.78
81	Legal services	4.40	0.74	0.35	0.24	1.43	2.97
82	Educational services	4.81	2.03	0.86	0.58	2.07	2.80
	MEAN	2.86	1.18	0.83	1.06		
	VARIANCE	2.01	1.55	0.21	0.68		

Notes: a) County Business Patterns does not report data.
b) County Business Patterns reports a range of numbers. We selected the midpoint.

Source: USEEM files obtained from the U.S. Small Business Administration (1986), and County Business Patterns (1986) [number of employees for week including March 12].

Appendix 1-4c

Comparison of USEEM Data to County Business Patterns Data
Employment for Selected Industries in Selected Metro and Non-Metro Counties

MASSACHUSETTS, 1986

SIC	Industry	1 SUFFOLK [863]	2 NORFOLK [731]	3 BARNSTABLE [071]	4 NANTUCKET [665]	MEAN	VARIANCE
42	Trucking and warehousing	0.98	1.73	1.08	0.39	1.05	0.23
48	Communication	0.51	1.16	0.37	4/a	0.68	0.12
50	Wholesale trade-durable goods	0.92	0.93	1.18	3/a	1.01	0.01
51	Wholesale trade-nondurable goods	1.04	0.88	2.26	45/a	1.39	0.38
54	Food stores	0.57	0.64	0.68	0.41	0.58	0.01
55	Automotive dealers and service stations	0.94	0.72	0.65	0.69	0.75	0.01
58	Eating and drinking places	0.70	0.59	0.83	1.29	0.85	0.07
60	Banking	1.50	1.15	0.76	1.08	1.12	0.07
64	Insurance agents, brokers and services	0.79	1.17	0.62	14/a	0.86	0.05
65	Real estate	0.93	1.11	1.12	0.72	0.97	0.03
70	Hotels and other lodging places	1.29	0.84	1.35	0.46	0.99	0.13
73	Business Services	0.78	0.77	0.89	11/a	0.81	0.00
75	Auto repair, services and garages	0.68	0.72	0.63	6/a	0.68	0.00
80	Health services	1.06	0.94	0.70	0.90	0.90	0.02
81	Legal services	0.89	0.54	0.24	1.00	0.67	0.09
82	Educational services	0.32	1.01	1.18	6/a	0.84	0.14
	MEAN	0.86	0.88	0.90	0.77		
	VARIANCE	0.08	0.04	0.22	0.09		

note:a) County Business Patterns does not report data.
b) County Business Patterns reports a range of numbers. We selected the midpoint.
Source: USEEM files obtained from the U.S. Small Business Administration (1986), and
County Business Patterns (1986) [number of employees for week including March 12].

Chapter 2

A Profile of Rural Service Employment

The Composition of Rural Service Employment

In their research on the distribution of services across U.S. cities, Noyelle and Stanback (1983) found that smaller cities further had smaller concentrations of corporate service employment than the largest cities. More recent research (Drennan 1989) shows that the information intensive services are highly concentrated in the core counties of the largest metropolitan areas. In 1984, the core counties of the 24 largest metropolitan areas had 39% of the nation's employment in information intensive services, whereas their share of all private sector jobs was only 27%. Banking and legal services were among the most highly concentrated of the information intensive industries. Kirn's 1987 findings, which included cities further down the city-size hierarchy were similar. Kirn studied selected counties which he categorized as belonging to four groups, including large SMSAs, small SMSAs, large non-metropolitan counties and small non-metropolitan counties. Using 1958 data, he found producer service industries, including business services, legal services, miscellaneous services, banking, insurance, and real estate, were more concentrated in large places than in small places. The highly specialized services, such as advertising, engineering, architectural, and accounting services were particularly concentrated in large urban centers. The results from other industrialized countries reinforce this pattern. In the United Kingdom, for example, 45 percent of the country's producer services are concentrated in London and other metropolitan counties (Marshall et. al. 1987).

Findings from the USEEM Data

In light of this earlier research, it is not surprising to find rural counties in our six states having a smaller proportion of their service

employment in corporate services than is the case for urban counties and to find the major share of each states' services concentrated in the urban counties and largest cities. Tables 2-1a, 2-1b, and 2-1c compare the share of service employment in each of the five service categories, including distributive, corporate, non-profit, retail, and consumer service. In all states, urban counties have 1/4 to 1/3 of their service employment in corporate services, while rural counties have only 13 to 17 percent of their employment in corporate services. The rural and urban counties have similar proportions of distributive and consumer service employment, and rural counties have a larger proportion of their employment in non-profit and retailing services. The data for the diverse group of states, Kansas, New York and Virginia are reported here. The results for California, Massachusetts, and Maryland are repetitive and therefore reported in Appendix 2-1.

Table 2-1a

Distribution of Service Employment
by Type of Service

Kansas 1986

	Location		
ACTIVITY	METROPOLITAN	RURAL ADJACENT	RURAL NON-ADJACENT
DISTRIBUTIVE SERVICES	24.9	20.9	23.2
PRODUCER SERVICES	26.9	13.5	13.9
NON-PROFIT SERVICES	7.3	25.3	24.0
RETAIL SERVICES	24.1	34.4	32.1
MOSTLY CONSUMER SERVICES	6.7	5.9	6.8
ALL	100.0	100.0	100.0

Table 2-1b
Distribution of Service Employment
By Type of Service

New York 1986

	Location		
	METROPOLITAN	RURAL ADJACENT	Rural NON-ADJACENT
ACTIVITY			
DISTRIBUTIVE SERVICES	20.3	15.9	18.2
PRODUCER SERVICES	37.7	17.7	12.1
NON-PROFIT SERVICES	15.9	26.5	31.3
RETAIL SERVICES	19.8	30.8	32.0
MOSTLY CONSUMER SERVICES	6.3	9.2	6.4
ALL	100.0	100.0	100.0

Table 2-1c

Distribution of Service Employment by
Type of Service

Virginia 1986

	LOCATION		
	METROPOLITAN	RURAL ADJACENT	RURAL NON-ADJACENT
ACTIVITY			
DISTRIBUTIVE SERVICES	18.8	23.4	18.3
PRODUCER SERVICES	36.0	16.0	13.6
NON-PROFIT SERVICES	12.3	16.5	20.1
RETAIL SERVICES	25.6	35.7	38.2
MOSTLY CONSUMER SERVICES	7.2	8.4	9.7
ALL	100.0	100.0	100.0

Rural Share of State Service Employment

All of the major service categories are over-represented in the metropolitan counties when compared to their share of state population (see

Table 2-2, a, b, and c). For example, metropolitan counties in Kansas have 65 percent of all distributive services employment and only 52 percent of the state's population. Non-profit services are the only category in which rural economies have an employment share close to their share of state population.

When the 1980 definition of metro and non-metropolitan counties is used and the data are disaggregated by city size, the concentration of services in the metropolitan areas is again clear (see Table 2-3). Table 2-3 includes aggregate employment for all six states and demonstrates that producer services are most concentrated in the largest cities. Retailing is the most decentralized of all the five major service categories.

Table 2-2a

PERCENT SHARE OF EMPLOYMENT BY SERVICE CATEGORY
FOR KANSAS, 1986

		Rural	
	Metro	Adjacent	Non-adjacent
	1986	1986	1986
A:DISTRIBUTIVE SERVICES	85064	11128	32968
SHARE OF STATE TOTAL [%]	65.9	8.6	25.5
B:RETAIL SERVICES	72868	18313	45540
SHARE OF STATE TOTAL [%]	53.3	13.4	33.3
C:NONPROFIT SERVICES	52250	13459	34093
SHARE OF STATE TOTAL [%]	52.4	13.5	34.2
D:PRODUCER SERVICES	81260	7176	19806
SHARE OF STATE TOTAL [%]	75.1	6.6	18.3
E:MAINLY CONSUMER SERVICE	20307	3136	9592
SHARE OF STATE TOTAL [%]	61.5	9.5	29.0
ALL SERVICES	311996	53254	142110
SHARE OF STATE TOTAL [%]	61.5	10.5	28.0
POPULATION SHARE [%]	52.0	16.3	31.8

Source: University of Maryland Analysis of USEEM data, 1986.

Table 2-2b

Percent Share of Employment by Service Category
New York, 1986

	Metro 1986	Rural Adjacent 1986	Rural Non-adjacent 1986
A:DISTRIBUTIVE SERVICES	827575	34286	3047
SHARE OF STATE TOTAL[%]	95.7	4.0	0.4
B:RETAIL SERVICES	806552	66537	5384
SHARE OF STATE TOTAL[%]	91.8	7.6	0.6
C:NONPROFIT SERVICES	646458	57283	5256
SHARE OF STATE TOTAL[%]	91.2	8.1	0.7
D:PRODUCER SERVICES	1535479	38330	2025
SHARE OF STATE TOTAL[%]	97.4	2.4	0.1
E:MAINLY CONSUMER SER.	258738	19853	1080
SHARE OF STATE TOTAL[%]	92.5	7.1	0.4
ALL SERVICES	4075178	216311	16794
SHARE OF STATE TOTAL[%]	94.6	5.7	0.4
POPULATION SHARE [%]	90.5	8.8	0.7

Source: University of Maryland analysis of USEEM data, 1986.

Table 2-2c
Percent Share of Employment by Service Category
in Virginia, 1986

		Rural	
	Metro 1986	Adjacent 1986	Non-adjacent 1986
A:DISTRIBUTIVE SERVICES	176002	23161	15653
SHARE OF STATE TOTAL [%]	81.9	10.8	7.3
B:RETAIL SERVICES	239664	35350	32640
SHARE OF STATE TOTAL [%]	77.9	11.5	10.6
C:NONPROFIT SERVICES	114735	16392	17121
SHARE OF STATE TOTAL [%]	77.4	11.1	11.5
D:PRODUCER SERVICES	336859	15861	11648
SHARE OF STATE TOTAL [%]	92.5	4.4	3.2
E:MAINLY CONSUMER SERVICES	67773	8320	8284
SHARE OF STATE TOTAL [%]	80.3	9.9	9.8
ALL SERVICES	935363	99122	85379
SHARE OF STATE TOTAL [%]	83.5	8.9	7.6
POPULATION SHARE [%]	71.9	18.1	10.0

Source: University of Maryland analysis of USEEM data, 1986.

Table 2-3
Share of Employment by City Size, In all Six Study States
1986

TOTAL		DISTRIBUTIVE	PRODUCER	NON-PROFIT	RETAIL	CONSUMER
ABOVE 1,000,000	MSA	0.18	0.25	0.15	0.11	0.16
500,000-999,999	MSA	0.09	0.13	0.11	0.08	0.10
250,000-499,999	MSA	0.06	0.05	0.06	0.05	0.04
100,000-249,999	MSA	0.11	0.11	0.13	0.12	0.11
50,000-99,999	MSA	0.11	0.11	0.12	0.12	0.12
25,000-49,999	MSA	0.09	0.10	0.10	0.12	0.10
10,000-24,999	MSA	0.09	0.07	0.08	0.10	0.08
5,000-9,999	MSA	0.03	0.02	0.03	0.04	0.03
2,500-4,999	MSA	0.02	0.01	0.01	0.02	0.01
BELOW 2,500	MSA	0.16	0.13	0.13	0.16	0.15
25,000-49,999	RURAL	0.00	0.00	0.02	0.01	0.01
10,000-24,999	RURAL	0.02	0.01	0.03	0.03	0.02
5,000-9,999	RURAL	0.01	0.01	0.01	0.02	0.01
2,500-4,999	RURAL	0.01	0.00	0.01	0.01	0.01
BELOW 2,500	RURAL	0.01	0.01	0.01	0.02	0.03
TOTAL		100.	100.	100.	100.	100.

ource: USEEM data, 1980 1986

When the data are disaggregated to the 3-digit level of detail, it becomes clearer that rural counties specialize in relatively few service activities. Tables 3-3a, b, and c, report the ratio of each regions' share of state employment to its share of state population at the 3-digit level of industrial disaggregation. Region here refers to metropolitan, rural adjacent, and rural non-adjacent areas. A value greater than 1 indicates the region has a larger share of the state's employment in that industry than of population. Similarly, a value of one indicates an equal share of state industry employment and state population. The results are reported for Kansas, New York and Virginia here, and again, since the results for California, Massachusetts and Maryland are redundant, these tables are relegated to the appendix. The ratios are ranked by largest to smallest values in all rural counties.

Table 2-4a
Rank of Relative Employment Share in Selected Industries
Sorted By Relative Share in Rural Areas
Kansas, 1986

SIC	Industries	Metro	Rural Adj.	Rural Non-Adj.	Rural Total
497	Irrigation systems	0.00	0.79	2.75	2.08
442	Deep sea domestic transportation	0.00	0.00	3.15	2.08
703	Camps and trailer parks	0.15	0.61	2.59	1.92
515	Farm-product raw materials	0.23	1.12	2.19	1.83
491	Electric services	0.34	1.71	1.72	1.72
821	Elementary and secondary schools	0.44	2.11	1.34	1.60
492	Gas production and distribution	0.46	0.51	2.14	1.59
598	Fuel and ice dealers	0.46	1.17	1.79	1.58
446	Water transportation services	0.46	3.11	0.80	1.58
461	Pipe lines, except natural gas	0.52	0.45	2.07	1.52
533	Variety stores	0.56	1.37	1.53	1.47
881	Private household	0.63	0.18	2.03	1.40
401	Railroad operating	0.64	0.00	2.10	1.39
783	Motion picture theaters	0.64	0.80	1.69	1.39
654	Title abstract offices	0.66	0.89	1.62	1.37
824	Correspondence and vocational schools	0.67	1.00	1.55	1.36
517	Petroleum and petroleum products	0.69	1.12	1.45	1.33
527	Mobile home dealers	0.72	1.06	1.43	1.31
726	Funeral service and crematories	0.72	1.29	1.31	1.30
525	Hardware stores	0.72	1.13	1.39	1.30
805	Nursing and personal care facilities	0.74	1.40	1.23	1.29
482	Telegraph communication	0.75	0.00	1.92	1.27
452	Air transport., non-certified carriers	0.77	0.42	1.67	1.25
539	Misc. general merchandise stores	0.78	0.60	1.57	1.24
554	Gasoline service stations	0.79	0.87	1.41	1.22
553	Auto and home supply stores	0.83	0.90	1.33	1.18
557	Motorcycle dealers	0.84	0.81	1.36	1.17
822	Colleges and universities	0.85	0.61	1.45	1.16
417	Bus terminal and service facilities	0.85	0.00	1.75	1.16
803	Offices of osteopathic physicians	0.87	1.75	0.83	1.14
521	Lumber and other building materials	0.89	1.16	1.09	1.11
541	Grocery stores	0.90	1.15	1.09	1.11
572	Household appliance stores	0.90	0.90	1.22	1.11
556	Recreation & utility trailer dealers	0.91	0.98	1.16	1.10
793	Bowling and billiard establishments	0.91	0.85	1.22	1.09
562	Women's ready-to-wear stores	0.94	0.64	1.27	1.06
552	Used car dealers	0.96	0.90	1.12	1.05
519	Miscellaneous nondurable goods	0.96	1.05	1.04	1.04
573	Radio, television, and music stores	0.96	0.85	1.14	1.04
493	Combination utility services	0.96	0.54	1.30	1.04
531	Department stores	0.97	0.94	1.08	1.03
633	Fire, marine, and casualty insurance	0.98	0.39	1.35	1.02
551	New and used car dealers	0.98	0.82	1.12	1.02
661	Real est., insur., loans, law off. comb.	0.98	0.00	1.54	1.02
545	Dairy products stores	0.99	1.94	0.53	1.01
523	Paint, glass, and wallpaper stores	1.00	0.87	1.07	1.00
725	Shoe repair and hat cleaning shops	1.00	0.46	1.28	1.00
602	Commercial and stock savings banks	1.00	0.94	1.03	1.00
769	Misc. repair services	1.01	0.65	1.17	0.99
591	Drug stores and proprietary stores	1.01	0.97	0.99	0.99
833	Job training & related services	1.03	0.83	1.04	0.97
623	Security and commodity exchange	1.04	0.00	1.45	0.96
526	Retail nurseries and garden stores	1.04	0.94	0.96	0.96

561	Men's & boy's clothing & furnishing	1.04	0.48	1.20	0.95
501	Motor vehicles and automotive equipment	1.04	1.10	0.88	0.95
564	Children's and infants' wear stores	1.06	0.46	1.18	0.94
412	Taxicabs	1.07	0.00	1.39	0.92
601	Federal reserve banks	1.08	0.00	1.38	0.91
701	Hotels and other lodging places	1.08	0.48	1.13	0.91
839	Social services, nec	1.09	0.45	1.13	0.90
722	Photographic studios, portrait	1.10	0.46	1.11	0.89
612	Savings and loan associations	1.11	0.92	0.87	0.88
782	Motion picture distribution and services	1.11	0.87	0.89	0.88
753	Automotive repair shops	1.11	0.74	0.95	0.88
542	Meat markets and freezer provisions	1.11	0.74	0.95	0.88
581	Eating and drinking places	1.11	0.68	0.97	0.88
864	Civic and social associations	1.13	0.19	1.20	0.86
571	Furniture and home furnishings stores	1.14	0.73	0.90	0.84
555	Boat dealers	1.15	0.78	0.87	0.83
421	Trucking, local and long distance	1.16	0.66	0.92	0.83
413	Intercity highway transportation	1.16	1.22	0.63	0.83
594	Misc. shopping goods stores	1.16	0.54	0.97	0.82
592	Liquor stores	1.17	0.51	0.98	0.82
764	Reupholstery and furniture repair	1.18	0.37	1.03	0.81
599	Retail stores, nec	1.18	0.63	0.90	0.81
806	Hospitals	1.18	0.62	0.90	0.80
543	Fruit stores and vegetable market	1.18	0.47	0.97	0.80
544	Candy nut, and confectionery stores	1.20	0.74	0.80	0.78
721	Laundry, cleaning, & garment services	1.21	0.49	0.92	0.78
593	Used merchandise stores	1.22	0.69	0.80	0.77
514	Groceries and related products	1.24	0.28	0.98	0.74
546	Retail bakeries	1.24	0.41	0.91	0.74
504	Sporting goods, toys, and hobby goods	1.25	0.46	0.87	0.73
508	Machinery, equipment, and supplies	1.25	0.42	0.89	0.73
804	Offices of other health practitioners	1.26	1.04	0.56	0.72
505	Metals and minerals, except petroleum	1.26	0.36	0.90	0.72
483	Radio and television broadcasting	1.26	0.63	0.76	0.71
565	Family clothing stores	1.27	1.03	0.55	0.71
489	Communication services, nec	1.29	0.39	0.84	0.69
762	Electrical repair shops	1.29	0.50	0.78	0.68
702	Rooming and boarding houses	1.30	1.99	0.00	0.67
866	Religious organizations	1.30	0.56	0.73	0.67
411	Local and suburban transportation	1.30	0.23	0.90	0.67
835	Child day care services	1.31	1.09	0.45	0.67
622	Commodity contracts brokers, dealers	1.31	0.42	0.78	0.66
549	Miscellaneous food stores	1.32	0.54	0.71	0.65
723	Beauty shops	1.33	0.50	0.72	0.64
507	Hardware, plumbing and heating equipment	1.34	0.77	0.57	0.64
422	Public warehousing	1.34	0.72	0.59	0.64
893	Accounting, auditing & bookkeeping	1.34	0.61	0.64	0.63
763	Watch, clock, and jewelry repair	1.35	0.61	0.63	0.62
799	Misc. amusement, recreational services	1.35	0.52	0.67	0.62
754	Automotive services, except repair	1.37	0.49	0.66	0.60
569	Misc. apparel & accessories	1.37	0.42	0.70	0.60
801	Offices of physicians	1.37	0.61	0.60	0.60
823	Libraries and information centers	1.38	0.75	0.51	0.59
518	Beer, wine, and distilled beverages	1.41	0.36	0.66	0.56
563	Women's accessary and specialty stores	1.42	0.00	0.83	0.55
891	Engineering & architectural services	1.42	0.18	0.73	0.55
613	Agricultural credit institutions	1.43	0.25	0.68	0.53
509	Miscellaneous durable goods	1.44	0.57	0.50	0.52
832	Individual & family services	1.44	0.89	0.34	0.52
423	Trucking terminal facilities	1.44	0.00	0.79	0.52
807	Medical and dental laboratories	1.44	0.77	0.39	0.52
861	Business associations	1.44	1.05	0.25	0.52
792	Producers, orchestras, entertainers	1.45	1.14	0.19	0.51

458	Air transportation services	1.45	0.17	0.69	0.51
724	Barber shops	1.46	0.42	0.55	0.51
596	Nonstore retailers	1.46	0.62	0.44	0.50
892	Noncommercial research organizations	1.46	0.13	0.69	0.50
494	Water supply	1.47	0.54	0.47	0.49
566	Shoe stores	1.48	0.40	0.53	0.48
651	Real estate operators and lessors	1.49	0.35	0.54	0.47
794	Commercial sports	1.50	0.55	0.42	0.46
653	Real estate agents and managers	1.50	0.33	0.52	0.46
808	Outpatient care facilities	1.50	0.06	0.66	0.45
802	Offices of dentists	1.51	0.44	0.45	0.45
503	Lumber and construction materials	1.51	0.45	0.45	0.45
836	Residential care	1.52	0.29	0.52	0.44
679	Misc. investing	1.52	0.23	0.55	0.44
841	Museums and art galleries	1.52	0.71	0.30	0.44
673	Trusts	1.52	0.08	0.62	0.44
414	Transportation charter service	1.52	0.48	0.41	0.44
516	Chemicals and allied products	1.53	0.10	0.60	0.43
614	Personal credit institutions	1.53	0.37	0.45	0.43
829	Schools & educational services, nec	1.55	0.44	0.38	0.40
641	Insurance agents & brokers	1.55	0.29	0.46	0.40
671	Holding offices	1.58	0.39	0.37	0.38
603	Mutual savings banks	1.58	1.08	0.00	0.37
734	Services to buildings	1.62	0.33	0.33	0.33
731	Advertising	1.62	0.08	0.46	0.33
811	Legal services	1.63	0.34	0.31	0.32
729	Misc. personal services	1.64	0.23	0.35	0.31
478	Miscellaneous transportation services	1.64	0.00	0.46	0.30
751	Automotive rentals, without drivers	1.64	0.17	0.37	0.30
559	Automotive dealers, nec	1.65	0.46	0.21	0.30
631	Life insurance	1.66	0.07	0.40	0.29
739	Misc. business services	1.66	0.27	0.30	0.29
472	Arrangement of transportation	1.66	0.24	0.31	0.28
732	Credit reporting and collection	1.66	0.50	0.17	0.28
655	Subdividers and developers	1.67	0.40	0.21	0.28
495	Sanitary services	1.67	0.39	0.21	0.27
733	Mailing, reproduction, stenographic	1.67	0.26	0.28	0.27
628	Security and commodity services	1.70	0.09	0.31	0.24
511	Paper and paper products	1.71	0.35	0.17	0.23
621	Security brokers and dealers	1.71	0.30	0.19	0.23
481	Telephone communication	1.71	0.17	0.26	0.23
869	Membership organizations, nec	1.72	0.19	0.24	0.23
513	Apparel, piece goods, and notions	1.72	0.08	0.30	0.23
502	Furniture and home furnishings	1.72	0.22	0.22	0.22
781	Motion picture production & services	1.72	0.29	0.18	0.22
506	Electrical goods	1.72	0.21	0.22	0.22
615	Business credit institutions	1.72	0.10	0.28	0.22
736	Personnel supply services	1.72	0.03	0.31	0.22
791	Dance halls, studios, and schools	1.73	0.11	0.27	0.21
862	Professional associations	1.73	0.34	0.15	0.21
415	School buses	1.79	0.23	0.09	0.14
401	Railroad operating	1.80	0.22	0.10	0.14
737	Computer and data processing services	1.80	0.16	0.12	0.14
863	Labor organizations	1.82	0.32	0.00	0.11
474	Rental of railroad cars	1.82	0.11	0.11	0.11
809	Health and allied services, nec	1.83	0.04	0.13	0.10
672	Investment offices	1.86	0.00	0.11	0.07
616	Mortgage bankers and brokers	1.87	0.04	0.07	0.06
512	Drugs, proprietaries, and sundries	1.87	0.09	0.04	0.06
752	Automobile parking	1.87	0.16	0.00	0.05
471	Freight forwarding	1.89	0.00	0.06	0.04
451	Air transportation	1.90	0.00	0.03	0.02
605	Functions closely related to banking	1.92	0.00	0.00	0.00

636	Title insurance	1.92	0.00	0.00	0.00
842	Botanical & zoological gardens	1.92	0.00	0.00	0.00
639	Insurance carriers, misc	1.92	0.00	0.00	0.00
611	Rediscount and financing institutions	1.92	0.00	0.00	0.00
704	Membership-basis organization hotels	1.92	0.00	0.00	0.00
635	Surety insurance	1.92	0.00	0.00	0.00
445	Local water transportation	1.92	0.00	0.00	0.00
568	Furrier and fur shops	1.92	0.00	0.00	0.00
865	Political organizations	1.92	0.00	0.00	0.00
632	Medical service and health insurance	1.92	0.00	0.00	0.00
441	Deep sea foreign transportation	1.92	0.00	0.00	0.00
735	News syndicates	1.92	0.00	0.00	0.00

Source: USEEM database, 1986 and City and County Data Book, 1988.

Table 2-4b
Rank of Relative Employment Share in Selected Industries
Sorted by Relative Share in Rural Areas
New York, 1986

SIC	Industries	Metro	Rural		
			Adj	Non-Adj	Rural
497	Irrigation systems	0.45	6.69	0.00	6.20
613	Agricultural credit institutions	0.57	5.51	0.00	5.10
703	Camps and trailer parks	0.68	4.29	1.49	4.08
527	Mobile home dealers	0.73	3.56	3.93	3.59
833	Job training & related services	0.82	2.84	0.84	2.70
557	Motorcycle dealers	0.86	2.35	2.51	2.36
552	Used car dealers	0.91	1.83	2.79	1.90
521	Lumber and other building materials	0.93	1.68	1.40	1.66
821	Elementary and secondary schools	0.93	1.50	3.36	1.64
491	Electric services	0.93	1.66	1.31	1.64
556	Recreation & utility trailer dealers	0.94	1.48	2.93	1.59
555	Boat dealers	0.95	1.51	1.69	1.52
701	Hotels and other lodging places	0.95	1.53	0.93	1.48
493	Combination utility services	0.95	1.55	0.00	1.44
515	Farm-product raw materials	0.96	1.54	0.00	1.43
824	Correspondence and vocational schools	0.96	1.30	2.70	1.41
702	Rooming and boarding houses	0.96	1.48	0.31	1.39
461	Pipe lines, except natural gas	0.96	1.50	0.00	1.39
551	New and used car dealers	0.96	1.36	1.51	1.37
526	Retail nurseries and garden stores	0.96	1.38	1.19	1.37
525	Hardware stores	0.96	1.37	1.29	1.36
553	Auto and home supply stores	0.97	1.30	1.09	1.28
545	Dairy products stores	0.97	1.37	0.00	1.27
559	Automotive dealers, nec	0.97	1.27	1.33	1.27
539	Misc. general merchandise stores	0.98	1.09	2.96	1.23
517	Petroleum and petroleum products	0.98	1.16	1.63	1.20
822	Colleges and universities	0.98	1.23	0.69	1.19
598	Fuel and ice dealers	0.98	1.15	1.14	1.15
793	Bowling and billiard establishments	0.99	1.07	1.91	1.14
572	Household appliance stores	0.99	1.13	1.04	1.12
554	Gasoline service stations	0.99	1.12	1.04	1.11
805	Nursing and personal care facilities	0.99	1.10	0.89	1.09
565	Family clothing stores	1.00	1.07	0.51	1.03
452	Air transport., non-certified carriers	1.00	1.10	0.20	1.03
661	Real est., insur., loans, law off. comb.	1.00	0.90	2.59	1.03
726	Funeral service and crematories	1.00	0.95	1.89	1.02
591	Drug stores and proprietary stores	1.00	1.01	0.84	1.00
481	Telephone communication	1.00	1.02	0.31	0.96
864	Civic and social associations	1.01	0.95	0.61	0.93
501	Motor vehicles and automotive equipment	1.01	0.88	1.21	0.91
541	Grocery stores	1.01	0.93	0.56	0.91
421	Trucking, local and long distance	1.01	0.88	1.19	0.90
531	Department stores	1.01	0.86	1.34	0.89
836	Residential care	1.02	0.91	0.10	0.85
581	Eating and drinking places	1.02	0.85	0.76	0.84
523	Paint, glass, and wallpaper stores	1.02	0.81	1.10	0.83
446	Water transportation services	1.02	0.69	2.54	0.83
414	Transportation charter service	1.02	0.87	0.06	0.81
839	Social services, nec	1.02	0.82	0.33	0.79
799	Misc. amusement, recreational services	1.02	0.80	0.40	0.77
593	Used merchandise stores	1.02	0.80	0.27	0.76
614	Personal credit institutions	1.03	0.76	0.80	0.76
592	Liquor stores	1.03	0.78	0.39	0.75
806	Hospitals	1.03	0.71	0.84	0.72

753	Automotive repair shops	1.03	0.72	0.61	0.71
495	Sanitary services	1.03	0.75	0.13	0.70
803	Offices of osteopathic physicians	1.03	0.75	0.00	0.70
704	Membership-basis organization hotels	1.03	0.75	0.00	0.69
654	Title abstract offices	1.03	0.66	1.03	0.69
594	Misc. shopping goods stores	1.03	0.67	0.84	0.68
573	Radio, television, and music stores	1.03	0.67	0.79	0.68
599	Retail stores, nec	1.03	0.68	0.63	0.68
546	Retail bakeries	1.04	0.63	0.94	0.65
783	Motion picture theaters	1.04	0.70	0.00	0.65
503	Lumber and construction materials	1.04	0.68	0.20	0.65
602	Commercial and stock savings banks	1.04	0.67	0.23	0.64
571	Furniture and home furnishings stores	1.04	0.64	0.59	0.63
401	Railroad operating	1.04	0.68	0.01	0.63
721	Laundry, cleaning, & garment services	1.04	0.64	0.40	0.62
892	Noncommercial research organizations	1.04	0.60	0.77	0.62
519	Miscellaneous nondurable goods	1.04	0.62	0.54	0.62
729	Misc. personal services	1.04	0.64	0.24	0.61
762	Electrical repair shops	1.04	0.60	0.59	0.60
769	Misc. repair services	1.04	0.62	0.40	0.60
801	Offices of physicians	1.04	0.59	0.61	0.59
492	Gas production and distribution	1.04	0.63	0.00	0.58
514	Groceries and related products	1.04	0.57	0.70	0.58
533	Variety stores	1.05	0.58	0.39	0.57
832	Individual & family services	1.05	0.61	0.06	0.57
725	Shoe repair and hat cleaning shops	1.05	0.55	0.71	0.56
518	Beer, wine, and distilled beverages	1.05	0.53	0.86	0.56
808	Outpatient care facilities	1.05	0.53	0.77	0.55
809	Health and allied services, nec	1.05	0.58	0.07	0.55
763	Watch, clock, and jewelry repair	1.05	0.56	0.00	0.52
507	Hardware, plumbing and heating equipment	1.05	0.50	0.69	0.52
651	Real estate operators and lessors	1.05	0.54	0.26	0.52
566	Shoe stores	1.05	0.53	0.19	0.51
829	Schools & educational services, nec	1.05	0.53	0.21	0.50
569	Misc. apparel & accessories	1.05	0.53	0.20	0.50
782	Motion picture distribution and services	1.05	0.48	0.71	0.50
483	Radio and television broadcasting	1.05	0.46	0.80	0.49
866	Religious organizations	1.05	0.48	0.51	0.48
835	Child day care services	1.06	0.51	0.00	0.47
722	Photographic studios, portrait	1.06	0.49	0.14	0.46
489	Communication services, nec	1.06	0.46	0.43	0.46
415	School buses	1.06	0.49	0.06	0.46
596	Nonstore retailers	1.06	0.42	0.87	0.45
641	Insurance agents & brokers	1.06	0.46	0.33	0.45
724	Barber shops	1.06	0.38	1.30	0.45
804	Offices of other health practitioners	1.06	0.48	0.00	0.44
543	Fruit stores and vegetable market	1.06	0.39	0.94	0.43
754	Automotive services, except repair	1.06	0.42	0.53	0.43
869	Membership organizations, nec	1.06	0.46	0.10	0.43
413	Intercity highway transportation	1.06	0.46	0.00	0.43
823	Libraries and information centers	1.06	0.40	0.71	0.42
516	Chemicals and allied products	1.06	0.39	0.67	0.41
444	Transportation on rivers & canals	1.06	0.43	0.00	0.40
794	Commercial sports	1.06	0.42	0.00	0.39
549	Miscellaneous food stores	1.06	0.36	0.71	0.39
612	Savings and loan associations	1.06	0.31	1.39	0.39
723	Beauty shops	1.06	0.38	0.40	0.39
544	Candy nut, and confectionery stores	1.06	0.37	0.60	0.38
445	Local water transportation	1.07	0.32	1.14	0.38
561	Men's & boy's clothing & furnishing	1.07	0.39	0.23	0.38
802	Offices of dentists	1.07	0.38	0.13	0.37
508	Machinery, equipment, and supplies	1.07	0.35	0.43	0.36
562	Women's ready-to-wear stores	1.07	0.35	0.33	0.35

841	Museums and art galleries	1.07	0.37	0.00	0.35
504	Sporting goods, toys, and hobby goods	1.07	0.30	0.90	0.34
603	Mutual savings banks	1.07	0.33	0.29	0.32
443	Great lakes transportation	1.07	0.34	0.00	0.31
542	Meat markets and freezer provisions	1.07	0.30	0.47	0.31
411	Local and suburban transportation	1.07	0.31	0.26	0.30
764	Reupholstery and furniture repair	1.07	0.32	0.00	0.30
422	Public warehousing	1.07	0.23	1.03	0.29
423	Trucking terminal facilities	1.08	0.31	0.00	0.28
655	Subdividers and developers	1.08	0.30	0.00	0.27
511	Paper and paper products	1.08	0.28	0.19	0.27
506	Electrical goods	1.08	0.25	0.41	0.26
671	Holding offices	1.08	0.24	0.51	0.26
679	Misc. investing	1.08	0.28	0.00	0.26
412	Taxicabs	1.08	0.25	0.27	0.25
807	Medical and dental laboratories	1.08	0.26	0.04	0.24
732	Credit reporting and collection	1.08	0.26	0.00	0.24
673	Trusts	1.08	0.26	0.00	0.24
751	Automotive rentals, without drivers	1.08	0.22	0.43	0.24
616	Mortgage bankers and brokers	1.08	0.23	0.00	0.21
451	Air transportation	1.08	0.12	1.36	0.21
633	Fire, marine, and casualty insurance	1.08	0.22	0.00	0.20
653	Real estate agents and managers	1.08	0.20	0.13	0.20
893	Accounting, auditing & bookkeeping	1.08	0.14	0.87	0.19
494	Water supply	1.09	0.20	0.00	0.19
472	Arrangement of transportation	1.09	0.12	0.97	0.19
509	Miscellaneous durable goods	1.09	0.19	0.06	0.18
891	Engineering & architectural services	1.09	0.19	0.06	0.18
478	Miscellaneous transportation services	1.09	0.19	0.00	0.18
564	Children's and infants' wear stores	1.09	0.17	0.14	0.17
563	Women's accessary and specialty stores	1.09	0.15	0.30	0.17
736	Personnel supply services	1.09	0.14	0.23	0.15
739	Misc. business services	1.09	0.14	0.21	0.14
622	Commodity contracts brokers, dealers	1.09	0.01	1.64	0.13
737	Computer and data processing services	1.09	0.13	0.03	0.12
505	Metals and minerals, except petroleum	1.09	0.13	0.04	0.12
863	Labor organizations	1.09	0.13	0.01	0.12
861	Business associations	1.09	0.13	0.00	0.12
734	Services to buildings	1.09	0.11	0.04	0.11
458	Air transportation services	1.09	0.11	0.14	0.10
792	Producers, orchestras, entertainers	1.09	0.11	0.00	0.10
862	Professional associations	1.10	0.10	0.00	0.10
811	Legal services	1.10	0.09	0.11	0.09
512	Drugs, proprietaries, and sundries	1.10	0.09	0.07	0.09
733	Mailing, reproduction, stenographic	1.10	0.10	0.03	0.09
791	Dance halls, studios, and schools	1.10	0.09	0.00	0.08
482	Telegraph communication	1.10	0.09	0.00	0.08
731	Advertising	1.10	0.08	0.03	0.07
502	Furniture and home furnishings	1.10	0.06	0.21	0.07
615	Business credit institutions	1.10	0.04	0.40	0.06
636	Title insurance	1.10	0.06	0.00	0.06
752	Automobile parking	1.10	0.05	0.00	0.05
471	Freight forwarding	1.10	0.03	0.24	0.05
568	Furrier and fur shops	1.10	0.04	0.00	0.04
513	Apparel, piece goods, and notions	1.10	0.04	0.03	0.04
632	Medical service and health insurance	1.10	0.04	0.00	0.04
781	Motion picture production & services	1.10	0.04	0.03	0.03
635	Surety insurance	1.10	0.04	0.00	0.03
628	Security and commodity services	1.10	0.03	0.01	0.03
735	News syndicates	1.10	0.03	0.00	0.03
631	Life insurance	1.10	0.02	0.00	0.02
605	Functions closely related to banking	1.10	0.02	0.00	0.02
672	Investment offices	1.10	0.01	0.00	0.01

621 Security brokers and dealers	1.10	0.01	0.01	0.01
637 Pension, health, and welfare funds	1.10	0.01	0.00	0.01
604 Trust companies	1.11	0.00	0.00	0.00
496 Steam supply	1.11	0.00	0.00	0.00
474 Rental of railroad cars	1.11	0.00	0.00	0.00
639 Insurance carriers, misc	1.11	0.00	0.00	0.00
881 Private household	1.11	0.00	0.00	0.00
611 Rediscount and financing institutions	1.11	0.00	0.00	0.00
442 Deep sea domestic transportation	1.11	0.00	0.00	0.00
865 Political organizations	1.11	0.00	0.00	0.00
441 Deep sea foreign transportation	1.11	0.00	0.00	0.00
623 Security and commodity exchange	1.11	0.00	0.00	0.00
842 Botanical & zoological gardens	1.11	0.00	0.00	0.00
601 Federal reserve banks	1.11	0.00	0.00	0.00
417 Bus terminal and service facilities	1.11	0.00	0.00	0.00
899 Services, nec	1.11	0.00	0.00	0.00

Source: USEEM database, 1986 and City and County Data Book, 1988.

Table 2-4c

Rank of Relative Employment Share in Selected Industries
Sorted by Relative Share in Rural Areas
Virginia, 1986

SIC	Industries	Metro	Rural		
			Adj	Non-Adj	Rural
613	Agricultural credit institutions	0.62	1.51	2.84	1.98
517	Petroleum and petroleum products	0.64	1.51	2.65	1.92
703	Camps and trailer parks	0.68	1.15	3.07	1.83
422	Public warehousing	0.76	1.99	0.95	1.62
527	Mobile home dealers	0.76	1.10	2.53	1.61
543	Fruit stores and vegetable market	0.78	0.50	3.47	1.55
726	Funeral service and crematories	0.84	1.23	1.76	1.42
764	Reupholstery and furniture repair	0.84	0.45	3.16	1.42
496	Steam supply	0.85	2.16	0.00	1.39
565	Family clothing stores	0.85	0.72	2.58	1.38
513	Apparel, piece goods, and notions	0.89	1.76	0.43	1.29
552	Used car dealers	0.89	1.07	1.67	1.28
833	Job training & related services	0.90	1.01	1.68	1.25
478	Miscellaneous transportation services	0.92	0.11	3.15	1.19
553	Auto and home supply stores	0.94	1.10	1.25	1.15
591	Drug stores and proprietary stores	0.94	0.98	1.47	1.15
841	Museums and art galleries	0.94	0.96	1.49	1.15
421	Trucking, local and long distance	0.95	1.21	1.01	1.14
491	Electric services	0.95	1.21	0.98	1.13
572	Household appliance stores	0.95	1.00	1.33	1.12
541	Grocery stores	0.96	0.92	1.45	1.11
519	Miscellaneous nondurable goods	0.96	0.98	1.33	1.10
533	Variety stores	0.96	0.95	1.37	1.10
525	Hardware stores	0.96	1.07	1.15	1.10
805	Nursing and personal care facilities	0.97	0.85	1.49	1.08
829	Schools & educational services, nec	0.98	0.91	1.33	1.06
523	Paint, glass, and wallpaper stores	0.99	0.88	1.30	1.03
783	Motion picture theaters	1.00	0.47	1.98	1.01
526	Retail nurseries and garden stores	1.00	0.81	1.36	1.01
557	Motorcycle dealers	1.00	0.85	1.26	1.00
794	Commercial sports	1.00	1.02	0.95	1.00
554	Gasoline service stations	1.01	0.92	1.07	0.98
598	Fuel and ice dealers	1.01	0.87	1.16	0.97
822	Colleges and universities	1.01	0.38	2.04	0.97
559	Automotive dealers, nec	1.01	0.87	1.14	0.97
539	Misc. general merchandise stores	1.02	0.82	1.20	0.96
521	Lumber and other building materials	1.02	0.81	1.22	0.95
514	Groceries and related products	1.04	0.50	1.64	0.90
808	Outpatient care facilities	1.04	0.90	0.91	0.90
542	Meat markets and freezer provisions	1.04	0.43	1.72	0.89
842	Botanical & zoological gardens	1.04	1.38	0.00	0.89
501	Motor vehicles and automotive equipment	1.05	0.73	1.12	0.87
556	Recreation & utility trailer dealers	1.05	0.84	0.90	0.86
564	Children's and infants' wear stores	1.06	0.67	1.19	0.86
515	Farm-product raw materials	1.06	0.70	1.10	0.84
516	Chemicals and allied products	1.07	0.83	0.83	0.83
701	Hotels and other lodging places	1.08	0.59	1.17	0.80
562	Women's ready-to-wear stores	1.08	0.72	0.91	0.79
836	Residential care	1.09	0.50	1.29	0.78
573	Radio, television, and music stores	1.09	0.57	1.14	0.78
551	New and used car dealers	1.09	0.62	1.06	0.78
725	Shoe repair and hat cleaning shops	1.09	0.37	1.47	0.77
494	Water supply	1.09	0.60	1.04	0.76

832	Individual & family services	1.09	0.81	0.66	0.76
806	Hospitals	1.10	0.63	0.95	0.75
753	Automotive repair shops	1.10	0.67	0.87	0.74
505	Metals and minerals, except petroleum	1.11	0.69	0.77	0.72
729	Misc. personal services	1.11	0.54	1.04	0.72
622	Commodity contracts brokers, dealers	1.11	0.66	0.79	0.71
592	Liquor stores	1.12	1.07	0.00	0.69
571	Furniture and home furnishings stores	1.12	0.53	0.97	0.69
801	Offices of physicians	1.12	0.58	0.86	0.68
769	Misc. repair services	1.12	0.47	1.07	0.68
594	Misc. shopping goods stores	1.12	0.52	0.96	0.68
566	Shoe stores	1.13	0.50	1.00	0.68
593	Used merchandise stores	1.13	0.60	0.80	0.67
809	Health and allied services, nec	1.13	0.40	1.16	0.67
531	Department stores	1.13	0.48	1.02	0.67
561	Men's & boy's clothing & furnishing	1.13	0.35	1.22	0.66
581	Eating and drinking places	1.13	0.52	0.91	0.66
792	Producers, orchestras, entertainers	1.13	0.82	0.36	0.66
555	Boat dealers	1.13	0.53	0.89	0.66
544	Candy nut, and confectionery stores	1.14	0.63	0.66	0.64
602	Commercial and stock savings banks	1.14	0.61	0.70	0.64
546	Retail bakeries	1.14	0.49	0.88	0.63
721	Laundry, cleaning, & garment services	1.14	0.65	0.59	0.63
821	Elementary and secondary schools	1.15	0.71	0.45	0.62
823	Libraries and information centers	1.16	0.48	0.81	0.60
518	Beer, wine, and distilled beverages	1.16	0.54	0.70	0.60
414	Transportation charter service	1.16	0.89	0.06	0.59
702	Rooming and boarding houses	1.16	0.00	1.64	0.58
483	Radio and television broadcasting	1.17	0.41	0.85	0.57
762	Electrical repair shops	1.17	0.45	0.76	0.56
661	Real est., insur., loans, law off. comb.	1.17	0.46	0.72	0.55
724	Barber shops	1.18	0.46	0.72	0.55
596	Nonstore retailers	1.19	0.55	0.46	0.52
782	Motion picture distribution and services	1.19	0.52	0.51	0.52
799	Misc. amusement, recreational services	1.19	0.36	0.77	0.51
723	Beauty shops	1.19	0.34	0.81	0.51
793	Bowing and billiard establishments	1.19	0.44	0.62	0.50
722	Photographic studios, portrait	1.19	0.39	0.72	0.50
503	Lumber and construction materials	1.19	0.55	0.41	0.50
599	Retail stores, nec	1.19	0.37	0.73	0.50
482	Telegraph communication	1.20	0.00	1.40	0.50
492	Gas production and distribution	1.20	0.44	0.59	0.49
839	Social services, nec	1.20	0.18	1.05	0.49
569	Misc. apparel & accessories	1.20	0.33	0.74	0.48
509	Miscellaneous durable goods	1.21	0.45	0.47	0.46
545	Dairy products stores	1.21	0.17	0.97	0.46
401	Railroad operating	1.21	0.61	0.17	0.45
612	Savings and loan associations	1.22	0.43	0.49	0.45
655	Subdividers and developers	1.22	0.44	0.45	0.44
754	Automotive services, except repair	1.22	0.26	0.76	0.43
411	Local and suburban transportation	1.22	0.33	0.59	0.43
446	Water transportation services	1.23	0.42	0.41	0.42
893	Accounting, auditing & bookkeeping	1.23	0.47	0.29	0.41
651	Real estate operators and lessors	1.23	0.28	0.63	0.40
734	Services to buildings	1.24	0.52	0.16	0.39
802	Offices of dentists	1.24	0.33	0.46	0.38
563	Women's accessary and specialty stores	1.25	0.33	0.45	0.37
458	Air transportation services	1.25	0.53	0.09	0.37
507	Hardware, plumbing and heating equipment	1.25	0.26	0.57	0.37
508	Machinery, equipment, and supplies	1.25	0.30	0.47	0.36
864	Civic and social associations	1.25	0.37	0.34	0.36
489	Communication services, nec	1.25	0.29	0.47	0.36
481	Telephone communication	1.25	0.30	0.45	0.35

671	Holding offices	1.25	0.25	0.53	0.35
412	Taxicabs	1.25	0.29	0.46	0.35
733	Mailing, reproduction, stenographic	1.26	0.47	0.12	0.34
824	Correspondence and vocational schools	1.26	0.47	0.08	0.33
413	Intercity highway transportation	1.26	0.46	0.08	0.33
549	Miscellaneous food stores	1.26	0.34	0.30	0.33
495	Sanitary services	1.27	0.24	0.45	0.32
461	Pipe lines, except natural gas	1.27	0.49	0.00	0.32
641	Insurance agents & brokers	1.27	0.26	0.40	0.31
866	Religious organizations	1.27	0.23	0.41	0.30
506	Electrical goods	1.28	0.22	0.40	0.28
763	Watch, clock, and jewelry repair	1.28	0.26	0.32	0.28
472	Arrangement of transportation	1.28	0.12	0.54	0.27
653	Real estate agents and managers	1.29	0.23	0.32	0.26
804	Offices of other health practitioners	1.29	0.21	0.35	0.26
504	Sporting goods, toys, and hobby goods	1.29	0.11	0.52	0.26
614	Personal credit institutions	1.29	0.32	0.14	0.25
863	Labor organizations	1.29	0.39	0.00	0.25
869	Membership organizations, nec	1.29	0.25	0.24	0.25
442	Deep sea domestic transportation	1.30	0.30	0.14	0.24
502	Furniture and home furnishings	1.30	0.14	0.43	0.24
452	Air transport., non-certified carriers	1.30	0.16	0.39	0.24
751	Automotive rentals, without drivers	1.30	0.18	0.35	0.24
807	Medical and dental laboratories	1.30	0.14	0.39	0.23
423	Trucking terminal facilities	1.30	0.23	0.22	0.23
493	Combination utility services	1.30	0.35	0.00	0.22
512	Drugs, proprietaries, and sundries	1.30	0.01	0.61	0.22
835	Child day care services	1.31	0.20	0.24	0.21
732	Credit reporting and collection	1.31	0.10	0.39	0.20
603	Mutual savings banks	1.32	0.00	0.54	0.19
811	Legal services	1.32	0.14	0.29	0.19
739	Misc. business services	1.32	0.14	0.26	0.18
511	Paper and paper products	1.32	0.14	0.26	0.18
737	Computer and data processing services	1.32	0.13	0.25	0.17
601	Federal reserve banks	1.32	0.05	0.39	0.17
615	Business credit institutions	1.33	0.13	0.23	0.16
444	Transportation on rivers & canals	1.33	0.25	0.00	0.16
417	Bus terminal and service facilities	1.33	0.17	0.15	0.16
791	Dance halls, studios, and schools	1.33	0.13	0.16	0.14
891	Engineering & architectural services	1.34	0.13	0.13	0.13
735	News syndicates	1.34	0.00	0.35	0.12
752	Automobile parking	1.34	0.18	0.00	0.12
633	Fire, marine, and casualty insurance	1.35	0.04	0.25	0.11
704	Membership-basis organization hotels	1.35	0.00	0.31	0.11
474	Rental of railroad cars	1.35	0.00	0.29	0.10
679	Misc. investing	1.35	0.12	0.05	0.10
451	Air transportation	1.35	0.08	0.11	0.09
568	Furrier and fur shops	1.35	0.14	0.00	0.09
861	Business associations	1.36	0.06	0.12	0.08
654	Title abstract offices	1.36	0.12	0.00	0.08
731	Advertising	1.36	0.04	0.12	0.07
621	Security brokers and dealers	1.36	0.07	0.06	0.07
892	Noncommercial research organizations	1.36	0.03	0.13	0.07
445	Local water transportation	1.37	0.00	0.18	0.06
631	Life insurance	1.37	0.04	0.10	0.06
616	Mortgage bankers and brokers	1.37	0.07	0.03	0.06
781	Motion picture production & services	1.37	0.03	0.10	0.06
471	Freight forwarding	1.37	0.07	0.00	0.05
628	Security and commodity services	1.38	0.02	0.04	0.03
632	Medical service and health insurance	1.38	0.04	0.01	0.03
862	Professional associations	1.38	0.03	0.01	0.02
636	Title insurance	1.38	0.03	0.00	0.02
736	Personnel supply services	1.38	0.01	0.03	0.01

672 Investment offices	1.39	0.00	0.00	0.00
635 Surety insurance	1.39	0.00	0.00	0.00
881 Private household	1.39	0.00	0.00	0.00
637 Pension, health, and welfare funds	1.39	0.00	0.00	0.00
605 Functions closely related to banking	1.39	0.00	0.00	0.00
865 Political organizations	1.39	0.00	0.00	0.00
611 Rediscount and financing institutions	1.39	0.00	0.00	0.00
639 Insurance carriers, misc	1.39	0.00	0.00	0.00
441 Deep sea foreign transportation	1.39	0.00	0.00	0.00
673 Trusts	1.39	0.00	0.00	0.00
415 School buses	1.39	0.00	0.00	0.00
899 Services, nec	1.39	0.00	0.00	0.00

Source: USEEM database, 1986 and City and County Data Book, 1988.

Most service activities are concentrated in urban areas, as indicated by the large number of values greater than 1 in the metropolitan counties and less than 1 in rural areas. There are, however, a number of activities which show up as industries with a rural concentration in four or more states.

These service activities are Electric Services (SIC 491), Irrigation Systems (SIC 497), Petroleum Bulk Products and Terminus (SIC 517), Hardware Stores (SIC 525), Mobile Home Dealers (SIC 527), Used Car Dealers (SIC 552), Auto and Home Supply Stores, (SIC 553), Motorcycle Dealers (SIC 557), Household Appliance Stores (SIC 572), Savings and Loans (SIC 612), Agricultural Credit Institutions (SIC 613), Hotels and Motels (SIC 701), Rooming and Boarding Houses (SIC 702), Recreational Vehicle Parks (SIC 703), Funeral Services (SIC 726), Miscellaneous Repair Services (SIC 769), Bowling Centers (SIC 793), Osteopathic Physicians (SIC 803), Personal Nursing Care (SIC 805), Elementary and Secondary Schools (SIC 821), Colleges (SIC 822), Vocational Schools (SIC 824), Job Training Services (SIC 833), and Social Services Not Elsewhere Classified (SIC 839).

For the remaining services, the rural share of state employment to state population is less than 1 for the majority of states. The types of services where rural counties exhibit strength, relative to urban counties, can be characterized as activities dealing with agriculture or raw material extraction, such as agricultural credit and petroleum bulk products; the elderly, such as nursing care and funeral homes; with unemployed or underemployed population, such as vocational education and social services; and low income populations, such as mobile home sales and repair services. None of these activities fall into the category of being high growth advanced services or corporate services.

This is not to imply that there are no examples of higher level producer service activities in rural counties. A print out of all

producer service establishments in the SIC categories of insurance carriers (SIC 63), combined real estate and insurance (SIC 66), business services (SIC 73), and miscellaneous services (SIC 89) for non-adjacent rural counties in Kansas, New York, and Virginia yielded a small but interesting assortment of business services, some in the category of advanced services. We included only establishments in non-adjacent counties, to insure the establishments were truly rural and not located on the fringe of a metropolitan area, and we included only establishments with 50 employees or more in an attempt to capture the establishments that are most likely to serve markets outside the local economy. These SIC codes were selected because they were likely candidates for exportable service activities. There were 12 private businesses in non-adjacent counties in Kansas, 3 such businesses in New York, and 7 in Virginia.

Telephone calls were made to each of the business to discuss the description of their activities, the number of employees, the nature of the jobs, why they located in a rural area, and their financial well-being. Out of the 12 Kansas firms, two were out of business. Five of the remaining 10 establishments provided services to the local market, and 5 exported services outside of their region, where region is defined as the surrounding counties. In New York, there were 2 firms and both were research and development institutes with national markets. Of the 7 Virginia firms, only six would discuss their business with us. All of the 7 are still operating however. The findings from these phone calls are summarized in Tables 2-5a, 2-5b, and 2-5c.

Table 2-5a
Producer Service Activities in Non-Adjacent Rural Counties in Kansas, 1986

Name	Activity	Employment	Market Area	Status
Producing for Regional Market				
1. American States Insurance	insurance sales	200	Local and Surrounding counties	branch
2. Kansas Farm Bureau	insurance sales	650	"	branch
3. Centro/Plains Insurance Co.	insurance sales	170	local markets	subsidiary
4. Watco, Inc.	railroad services/ maintenance	150	local utility co.	branch
5. Eschbauch George Advertising	screen printers	50	local	Indep.
Producing for External Market				
1. Mossberg Sanitation	cleans meat packing plants	160	Midwestern States	indep.
2. Wilson Co.	engineers and arch	250	all U.S.	HDQ.
3. Professional Photographic Service	film processing	40	all U.S.	HDQ.
4. Centro Management Inc.	food service/ management	365	all U.S.	Indep.
5. High Plains Publishers	produce rancher/ farmer newspaper	120	8 state region	Branch

Table 2-5b
Producer Service Activities in Non-Adjacent Rural Counties in New York, 1986

Name	Activity	Employment	Market Area	Status
Producing for Local Market				
Producing for External Market				
1. American Home Products/ Ayerst Laboratories	Research and Devel. pharmaceutical Res.	100	national	indep.
2. Trudeau Institute	Biomedical Research	60	national	indep.

Table 2-5c
Producer Service Activities in Non-Adjacent Rural Counties in Virginia, 1986

Name	Activity	Employment	Market Area	Status
Producing for Local Market				
1. Central Security Bureau	detective services	200	local businesses	indep.
2. Friendship Industries	sheltered workshop training disabled	85	nearby counties	indep.
3. Virginia Tech Athl. Assoc.	handles athletic transactions for Virginia Tech.	105	local	indep.
Producing for External Market				
1. Highland Data Service Co.	computer and data processing	100	federal and state government	indep.
2. Olver Inc.	engineers and arch services	55	east coast	indep.
3. Cosmonics Inc.	repairs and manufac for cable T.V. ind.	190	state	indep.

The general patterns that emerged from the phone calls are the following. (1) In all headquarters cases the rural location was selected because it was the owner's home town. (2) The majority of the exporting establishments are independents and headquarters, rather than branches or subsidiaries. (3) The subsidiaries and branches are more likely to be located in rural areas to take advantage of local markets and less likely to be exporter. (4) In all cases the remote location was selected for idiosyncratic reasons have to do with the preference of the owners. (5) all of the businesses were doing well and the remote location was not considered to be a major disadvantage, and (6) only one of the exporters were located in a university town.

Summary

The picture that emerges from these findings are that most services and particularly corporate services are under-represented in rural economies. There is some evidence that corporate service activities, including advanced services requiring a highly skilled labor force can successfully operate in remote rural regions. Among the firms in corporate services located in non-adjacent rural areas most were independents and headquarters. There were no examples of multiplant firms spinning export-oriented branch plants to remote rural locations to take advantage of a low-cost, less-skilled labor force. The reasons entrepreneurs selected these rural locations were generally idiosyncratic and personal.

References

Abler, Ronald and Thomas Falk (1981) "Public Information Services and The Changing Role of Distance in Human Affairs", *Economic Geography*, 57: 10-22.

Drennan, M.P. (1989) "Information Intensive Industries in Metropolitan Areas of the United States of America", *Environment and Planning A*, 21: 1603-1618.

Kirn, Thomas (1987) "Growth and Change in the Service Sector of the U.S.: A Spatial Perspective", *Annals of the Association of American Geographers*, 77, 3: 353-372.

Kellerman, Aharon (1985) "The Evolution of Service Economies: A Geographical Analysis", *The Professional Geographer*, 37,2 (May): 133-143.

Drucker, Peter (1989) "Information and the Future of the City", *The Wall Street Journal*, April 4: A22.

Howells, J.R.L (1984) "The Location of Research and Development: Some Observations and Evidence from Britain", *Regional Studies*, 18,1: 13-29.

Howells J. and A.E. (1986) Green *Location, Technology and Industrial Organisation in U.K. Services, Progress in Planning*, vol. 26,2 Pergamon Press: Oxford, England.

Langdale, John (1983) "Competition in the United States' Long-Distance Telecommunications Industry", *Regional Studies*, 17,6: 393-409.

Marshall, J.N. P. Damesick, and P. Wood (1987) "Understanding the Location and Role of Producer Services in the United Kingdom", *Environment and Planning A*,19: 575-595.

Marshall, J.N. (1988) *Services and Uneven Development*, New York: Oxford University Press.

Morrill, Richard L. (1982) "A Note: Continuing Deconcentration Trends in Trade", *Growth and Change*, (January), 13.

Noyelle, Theirry and Thomas M. Stanback Jr.(1983) *The Economic Transformation of American Cities*, Rowman and Allanheld: Totowa, New Jersey.

Parker, Edwin B., Heather E. Hudson, Don A. Dillman, and Andrew D. Roscoe, (1989) *Rural American in the Information Age: Telecommunications Policy for Rural Development*, University Press of America: Boston, 1989.

Price, D.G. and A.M. Blair (1989) *The Changing Geography of the Service Sector*, Belhaven Press: London.

Smith S. M. (1984) "Export Orientation of Non-manufacturing Businesses in Non-Metropolitan Communities", *Journal of Agricultural Economics Association*, 66: 145-155.

Appendix 2-1a

Distribution of Service Employment
by Type of Service

California 1986

	Location		
ACTIVITY	METROPOLITAN	RURAL ADJACENT	RURAL NON-ADJACENT
DISTRIBUTIVE SERVICES	20.3	15.7	16.2
PRODUCER SERVICES	32.2	14.3	17.2
NON-PROFIT SERVICES	14.7	13.8	21.9
RETAIL SERVICES	24.5	43.0	35.5
MOSTLY CONSUMER SERVICES	8.7	13.2	9.2
ALL	100.0	100.0	100.0

Appendix 2-1b
Distribution of Service Employment
By Type of Service

Maryland 1986

	Location		
ACTIVITY	METROPOLITAN	RURAL ADJACENT	Rural NON-ADJACENT
DISTRIBUTIVE SERVICES	15.9	24.9	19.1
PRODUCER SERVICES	35.6	26.7	17.5
NON-PROFIT SERVICES	16.1	24.3	18.0
RETAIL SERVICES	25.9	15.4	36.8
MOSTLY CONSUMER SERVICES	6.4	8.7	8.9
ALL	100.0	100.0	100.0

Appendix 2-1c

Distribution of Service Employment by
Type of Service

Massachusetts 1986

	LOCATION		
ACTIVITY	METROPOLITAN	RURAL ADJACENT	RURAL NON-ADJACENT
DISTRIBUTIVE SERVICES	21.4	13.6	10.0
PRODUCER SERVICES	29.5	15.8	9.1
NON-PROFIT SERVICES	18.6	14.6	9.3
RETAIL SERVICES	24.1	42.0	50.4
MOSTLY CONSUMER SERVICES	6.5	14.1	21.2
ALL	100.0	100.0	100.0

Appendix 2-2a

Percent Share of Employment in Each Service Industry Group, By Region
California, 1986

	Metro	Rural	
		Adjacent	Non-adjacent
	1986	1986	1986
A:DISTRIBUTIVE SERVICES	1136895	19282	3348
SHARE OF STATE TOTAL [%]	98.0	1.7	0.3
B:RETAIL SERVICES	1367988	52865	7361
SHARE OF STATE TOTAL [%]	95.8	3.7	0.5
C:NONPROFIT SERVICES	818655	16907	4535
SHARE OF STATE TOTAL [%]	97.4	2.0	0.5
D:PRODUCER SERVICES	1790459	17610	3570
SHARE OF STATE TOTAL [%]	98.8	1.0	0.2
E:MAINLY CONSUMER SERVIC	482573	16268	1910
SHARE OF STATE TOTAL [%]	96.4	3.2	0.4
REGIONAL TOTAL	5596960	122940	20726
SHARE OF STATE TOTAL [%]	97.5	2.1	0.4
POPULATION SHARE [%]	95.7	3.8	0.5

Source: University of Maryland Analysis of USEEM, 1986.

*: Service categories adopted from T. M. Stanback and T. J. Noyelle: Cities in Transition.

Appendix 2-2b

Percent Share of Employment in Each Service Industry Group, By Region
Maryland, 1986

		Rural	
	Metro 1986	Adjacent 1986	Non-adjacent 1986
A:DISTRIBUTION SERVICES	145537	4847	5624
SHARE OF STATE TOTAL [%]	93.3	3.1	3.6
B:RETAIL SERVIES	236841	3003	10840
SHARE OF STATE TOTAL [%]	94.5	1.2	4.3
C:NONPROFIT SERVICES	147392	4721	5294
SHARE OF STATE TOTAL [%]	93.6	3.0	3.4
D:PRODUCER SERVICES	325017	5190	5058
SHARE OF STATE TOTAL [%]	96.9	1.5	1.5
E:MAINLY CONSUMER SERVICE	58625	1693	2630
SHARE OF STATE TOTAL [%]	93.1	2.7	4.2
REGIONAL TOTAL	913790	19463	29459
SHARE OF STATE TOTAL [%]	94.9	2.0	3.1
POPULATION SHARE [%]	92.9	3.6	3.5

Source: USEEM data, 1986.
*: Service categories adopted from T. M. Stanback and T. J. Noyelle Cities in Transition.

Appendix 2-2c

Percent Share of Employment in Each Service Industry Group, By Region
Massachusetts

		Rural	
	Metro 1980	Adjacent 1980	Non-adjacent 1980
A:DISTRIBUTIVE SERVICES	256101	5604	125
SHARE OF STATE TOTAL [%]	97.8	2.1	0.0
B:RETAIL SERVICES	287336	17378	629
SHARE OF STATE TOTAL [%]	94.1	5.7	0.2
C:NONPROFIT SERVICES	221752	6022	116
SHARE OF STATE TOTAL [%]	97.3	2.6	0.1
D:PRODUCER SERVICES	351828	6544	113
SHARE OF STATE TOTAL [%]	98.1	1.8	0.0
E:MAINLY CONSUMER SERVICES	77679	5814	264
SHARE OF STATE TOTAL	92.7	6.9	0.0
REGIONAL TOTAL	1194696	41362	1247
SHARE OF STATE TOTAL [%]	96.6	3.3	0.1
POPULATION SHARE [%]	95.7	4.2	.1

Source: University of Maryland analysis of USEEM data, 1980 and 1986.
*: Service categories adopted from T. M. Stanback and T. J. Noyelle: Cities in Transition.

Appendix 2-3a
Rank of Relative Employment Share in Selected Industries
Sorted by Relative Share in Rural Areas
California, 1986

		Population Share [%]			
		MSA	Adj	Non-Ad	Rural
		95.70	3.80	0.50	4.30
				Rural	
SIC	Industries	Metro	Adj.	Non-adj.	Total
417	Bus terminal and service facilities	0.66	9.73	0.00	8.60
497	Irrigation systems	0.79	6.33	0.18	5.61
703	Camps and trailer parks	0.88	3.71	3.44	3.67
613	Agricultural credit institutions	0.90	3.58	0.76	3.25
496	Steam supply	0.90	3.67	0.00	3.24
598	Fuel and ice dealers	0.93	2.43	3.20	2.52
539	Misc. general merchandise stores	0.95	2.09	1.48	2.02
527	Mobile home dealers	0.96	1.94	2.36	1.99
525	Hardware stores	0.96	1.94	1.72	1.92
554	Gasoline service stations	0.97	1.82	1.28	1.76
654	Title abstract offices	0.97	1.74	1.76	1.74
515	Farm-product raw materials	0.97	1.87	0.68	1.73
521	Lumber and other building materials	0.97	1.74	1.00	1.66
564	Children's and infants' wear stores	0.98	1.45	1.76	1.49
821	Elementary and secondary schools	0.98	1.50	1.12	1.46
701	Hotels and other lodging places	0.98	1.47	1.28	1.45
553	Auto and home supply stores	0.98	1.48	1.00	1.43
533	Variety stores	0.98	1.21	2.68	1.38
517	Petroleum and petroleum products	0.98	1.37	1.08	1.34
541	Grocery stores	0.98	1.27	1.86	1.33
526	Retail nurseries and garden stores	0.99	1.35	1.12	1.33
591	Drug stores and proprietary stores	0.99	1.28	1.38	1.29
726	Funeral service and crematories	0.99	1.34	0.72	1.27
594	Misc. shopping goods stores	0.99	1.26	1.12	1.24
839	Social services, nec	0.99	0.79	4.32	1.20
704	Membership-basis organization hotels	0.99	1.31	0.00	1.16
557	Motorcycle dealers	0.99	1.16	0.86	1.13
836	Residential care	0.99	0.68	4.52	1.12
793	Bowing and billiard establishments	0.99	1.03	1.72	1.11
555	Boat dealers	1.00	1.07	1.20	1.09
523	Paint, glass, and wallpaper stores	1.00	1.07	1.22	1.09
483	Radio and television broadcasting	1.00	0.99	1.72	1.08
799	Misc. amusement, recreational serv.	1.00	1.09	0.70	1.05
566	Shoe stores	1.00	1.04	1.08	1.04
494	Water supply	1.00	0.98	1.38	1.03
545	Dairy products stores	1.00	1.13	0.00	1.00
783	Motion picture theaters	1.00	0.89	1.84	1.00
573	Radio, television, and music stores	1.00	0.93	1.44	0.99
549	Miscellaneous food stores	1.00	1.06	0.50	0.99
581	Eating and drinking places	1.00	0.94	1.06	0.96
593	Used merchandise stores	1.00	0.84	1.72	0.94
592	Liquor stores	1.00	0.93	0.66	0.90
562	Women's ready-to-wear stores	1.00	0.89	0.96	0.90
833	Job training & related services	1.01	0.86	1.12	0.89
829	Schools & educational services, nec	1.01	0.94	0.42	0.88
753	Automotive repair shops	1.01	0.85	0.94	0.86
721	Laundry, cleaning, & garment services	1.01	0.87	0.80	0.86
542	Meat markets and freezer provisions	1.01	0.84	0.84	0.84
495	Sanitary services	1.01	0.85	0.68	0.83
546	Retail bakeries	1.01	0.83	0.68	0.82

421	Trucking, local and long distance	1.01	0.72	1.38	0.80
481	Telephone communication	1.01	0.82	0.60	0.79
571	Furniture and home furnishings stores	1.01	0.77	0.84	0.78
503	Lumber and construction materials	1.01	0.73	1.18	0.78
832	Individual & family services	1.01	0.75	0.84	0.76
869	Membership organizations, nec	1.01	0.78	0.36	0.73
565	Family clothing stores	1.01	0.82	0.04	0.73
551	New and used car dealers	1.01	0.67	1.00	0.71
602	Commercial and stock savings banks	1.01	0.70	0.68	0.70
572	Household appliance stores	1.01	0.72	0.46	0.69
805	Nursing and personal care facilities	1.01	0.63	1.16	0.69
518	Beer, wine, and distilled beverages	1.01	0.68	0.74	0.69
552	Used car dealers	1.01	0.56	1.62	0.68
401	Railroad operating	1.01	0.48	2.20	0.68
569	Misc. apparel & accessories	1.01	0.68	0.62	0.67
636	Title insurance	1.01	0.63	0.94	0.67
599	Retail stores, nec	1.02	0.61	0.80	0.63
723	Beauty shops	1.02	0.66	0.42	0.63
519	Miscellaneous nondurable goods	1.02	0.66	0.40	0.63
803	Offices of osteopathic physicians	1.02	0.71	0.00	0.63
835	Child day care services	1.02	0.56	1.06	0.62
411	Local and suburban transportation	1.02	0.59	0.82	0.62
452	Air transp., non-certified carriers	1.02	0.67	0.22	0.62
482	Telegraph communication	1.02	0.52	1.20	0.60
561	Men's & boy's clothing & furnishing	1.02	0.48	1.40	0.59
808	Outpatient care facilities	1.02	0.44	1.72	0.59
461	Pipe lines, except natural gas	1.02	0.65	0.00	0.58
864	Civic and social associations	1.02	0.52	0.94	0.57
762	Electrical repair shops	1.02	0.55	0.72	0.57
822	Colleges and universities	1.02	0.39	1.90	0.57
531	Department stores	1.02	0.59	0.34	0.57
806	Hospitals	1.02	0.53	0.72	0.55
702	Rooming and boarding houses	1.02	0.61	0.00	0.54
544	Candy nut, and confectionery stores	1.02	0.57	0.30	0.54
556	Recreation & utility trailer dealers	1.02	0.42	1.40	0.54
543	Fruit stores and vegetable market	1.02	0.61	0.00	0.53
769	Misc. repair services	1.02	0.53	0.52	0.53
861	Business associations	1.02	0.41	1.44	0.53
489	Communication services, nec	1.02	0.48	0.78	0.52
725	Shoe repair and hat cleaning shops	1.02	0.52	0.48	0.52
801	Offices of physicians	1.02	0.47	0.82	0.51
804	Offices of other health practitioners	1.02	0.46	0.90	0.51
501	Motor vehicles and automotive equip.	1.02	0.44	0.96	0.50
445	Local water transportation	1.02	0.42	1.00	0.48
458	Air transportation services	1.02	0.52	0.18	0.48
729	Misc. personal services	1.02	0.50	0.22	0.47
661	Re. est., insur., lo., law off. comb.	1.02	0.53	0.00	0.47
514	Groceries and related products	1.02	0.42	0.76	0.46
754	Automotive services, except repair	1.03	0.47	0.22	0.44
508	Machinery, equipment, and supplies	1.03	0.42	0.44	0.43
491	Electric services	1.03	0.36	0.90	0.42
653	Real estate agents and managers	1.03	0.41	0.32	0.40
782	Motion picture distribution and serv.	1.03	0.40	0.36	0.40
413	Intercity highway transportation	1.03	0.43	0.06	0.38
446	Water transportation services	1.03	0.22	1.48	0.37
764	Reupholstery and furniture repair	1.03	0.37	0.38	0.37
493	Combination utility services	1.03	0.41	0.00	0.36
655	Subdividers and developers	1.03	0.35	0.40	0.35
651	Real estate operators and lessors	1.03	0.36	0.28	0.35
807	Medical and dental laboratories	1.03	0.24	1.16	0.35
559	Automotive dealers, nec	1.03	0.40	0.00	0.35
722	Photographic studios, portrait	1.03	0.36	0.26	0.35
791	Dance halls, studios, and schools	1.03	0.37	0.00	0.33

794	Commercial sports	1.03	0.37	0.00	0.33
492	Gas production and distribution	1.03	0.36	0.06	0.32
809	Health and allied services, nec	1.03	0.35	0.10	0.32
802	Offices of dentists	1.03	0.31	0.34	0.31
412	Taxicabs	1.03	0.18	1.34	0.31
612	Savings and loan associations	1.03	0.31	0.30	0.30
563	Women's accessary and specialty stores	1.03	0.28	0.50	0.30
507	Hardware, plumbing and heating equip.	1.03	0.28	0.42	0.29
596	Nonstore retailers	1.03	0.25	0.46	0.28
505	Metals and minerals, except petroleum	1.03	0.30	0.12	0.28
893	Accounting, auditing & bookkeeping	1.03	0.25	0.44	0.27
451	Air transportation	1.03	0.30	0.04	0.27
891	Engineering & architectural services	1.03	0.26	0.30	0.27
614	Personal credit institutions	1.03	0.21	0.68	0.26
671	Holding offices	1.03	0.16	0.94	0.25
866	Religious organizations	1.03	0.24	0.32	0.25
732	Credit reporting and collection	1.03	0.22	0.42	0.24
734	Services to buildings	1.03	0.24	0.26	0.24
751	Automotive rentals, without drivers	1.03	0.21	0.50	0.24
509	Miscellaneous durable goods	1.03	0.23	0.30	0.24
472	Arrangement of transportation	1.03	0.23	0.24	0.23
511	Paper and paper products	1.03	0.22	0.32	0.23
724	Barber shops	1.04	0.24	0.00	0.22
628	Security and commodity services	1.04	0.20	0.34	0.22
632	Medical service and health insurance	1.04	0.23	0.00	0.20
622	Commodity contracts brokers, dealers	1.04	0.23	0.00	0.20
422	Public warehousing	1.04	0.22	0.06	0.20
414	Transportation charter service	1.04	0.16	0.48	0.20
865	Political organizations	1.04	0.22	0.00	0.19
641	Insurance agents & brokers	1.04	0.17	0.28	0.19
841	Museums and art galleries	1.04	0.21	0.00	0.18
516	Chemicals and allied products	1.04	0.21	0.00	0.18
811	Legal services	1.04	0.18	0.18	0.18
739	Misc. business services	1.04	0.15	0.36	0.18
823	Libraries and information centers	1.04	0.08	0.88	0.17
672	Investment offices	1.04	0.18	0.00	0.16
792	Producers, orchestras, entertainers	1.04	0.12	0.40	0.15
506	Electrical goods	1.04	0.13	0.24	0.14
504	Sporting goods, toys, and hobby goods	1.04	0.16	0.00	0.14
733	Mailing, reproduction, stenographic	1.04	0.14	0.10	0.13
824	Correspondence and vocational schools	1.04	0.15	0.00	0.13
763	Watch, clock, and jewelry repair	1.04	0.12	0.18	0.12
735	News syndicates	1.04	0.13	0.00	0.12
679	Misc. investing	1.04	0.11	0.08	0.10
478	Miscellaneous transportation services	1.04	0.06	0.34	0.09
731	Advertising	1.04	0.07	0.18	0.08
474	Rental of railroad cars	1.04	0.09	0.00	0.08
863	Labor organizations	1.04	0.07	0.16	0.08
615	Business credit institutions	1.04	0.09	0.00	0.08
621	Security brokers and dealers	1.04	0.04	0.30	0.07
502	Furniture and home furnishings	1.04	0.07	0.02	0.07
736	Personnel supply services	1.04	0.07	0.00	0.06
616	Mortgage bankers and brokers	1.04	0.05	0.08	0.06
737	Computer and data processing services	1.04	0.06	0.06	0.06
605	Functions closely related to banking	1.04	0.05	0.00	0.05
423	Trucking terminal facilities	1.04	0.05	0.00	0.04
892	Noncommercial research organizations	1.04	0.04	0.00	0.04
673	Trusts	1.04	0.04	0.00	0.03
513	Apparel, piece goods, and notions	1.04	0.03	0.02	0.03
637	Pension, health, and welfare funds	1.04	0.03	0.00	0.03
781	Motion picture production & services	1.04	0.03	0.02	0.03
601	Federal reserve banks	1.04	0.03	0.00	0.03
862	Professional associations	1.04	0.02	0.04	0.02

512	Drugs, proprietaries, and sundries	1.04	0.02	0.04	0.02
631	Life insurance	1.04	0.02	0.00	0.02
471	Freight forwarding	1.04	0.02	0.00	0.02
633	Fire, marine, and casualty insurance	1.04	0.01	0.08	0.01
604	Trust companies, nondeposit	1.04	0.00	0.00	0.00
568	Furrier and fur shops	1.04	0.00	0.00	0.00
444	Transportation on rivers & canals	1.04	0.00	0.00	0.00
639	Insurance carriers, misc	1.04	0.00	0.00	0.00
442	Deep sea domestic transportation	1.04	0.00	0.00	0.00
635	Surety insurance	1.04	0.00	0.00	0.00
881	Engineering & architectural services	1.04	0.00	0.00	0.00
611	Rediscount and financing institutions	1.04	0.00	0.00	0.00
441	Deep sea foreign transportation	1.04	0.00	0.00	0.00
752	Automobile parking	1.04	0.00	0.00	0.00
415	School buses	1.04	0.00	0.00	0.00
623	Security and commodity exchange	1.04	0.00	0.00	0.00
842	Botanical & zoological gardens	1.04	0.00	0.00	0.00
603	Mutual savings banks	1.04	0.00	0.00	0.00
404	Railroad express services	1.04	0.00	0.00	0.00
899	Services, nec	1.04	0.00	0.00	0.00

Source: USEEM database, 1986 and City and County Data Book, 1988.

Appendix 2-3b

Rank of Relative Employment Share in Selected Industries
Sorted by Relative Share in Rural Areas
Maryland, 1986

SIC	Industries	Metro	Rural Adj	Rural Non-adj.	Rural Total
803	Offices of osteopathic physicians	0.00	0.00	28.90	14.10
444	Transportation on rivers & canals	0.00	25.67	0.98	13.62
704	Membership-basis organization hotels	0.65	8.26	2.89	5.64
494	Water supply	0.65	1.30	10.20	5.64
527	Mobile home dealers	0.68	7.20	3.12	5.21
458	Air transportation services	0.71	9.07	0.29	4.79
442	Deep sea domestic transportation	0.73	8.89	0.00	4.55
515	Farm-product raw materials	0.74	6.32	2.37	4.39
445	Local water transportation	0.75	8.34	0.00	4.27
517	Petroleum and petroleum products	0.82	3.82	2.90	3.37
491	Electric services	0.82	0.43	6.30	3.29
452	Air transport., non-certified carriers	0.83	2.26	4.26	3.24
543	Fruit stores and vegetable market	0.85	5.87	0.00	3.00
555	Boat dealers	0.87	3.43	2.06	2.76
413	Intercity highway transportation	0.87	4.14	1.22	2.72
703	Camps and trailer parks	0.87	4.06	1.23	2.68
544	Candy nut, and confectionery stores	0.87	0.40	5.03	2.66
492	Gas production and distribution	0.88	1.10	4.17	2.60
451	Air transportation	0.88	0.00	5.30	2.59
598	Fuel and ice dealers	0.89	2.20	2.62	2.41
701	Hotels and other lodging places	0.93	1.08	2.77	1.90
446	Water transportation services	0.93	2.93	0.82	1.90
565	Family clothing stores	0.94	0.89	2.85	1.85
824	Correspondence and vocational schools	0.94	3.36	0.25	1.84
562	Women's ready-to-wear stores	0.94	1.08	2.55	1.80
552	Used car dealers	0.94	1.67	1.82	1.74
539	Misc. general merchandise stores	0.94	2.77	0.65	1.74
572	Household appliance stores	0.95	1.67	1.76	1.72
526	Retail nurseries and garden stores	0.95	2.44	0.92	1.70
839	Social services, nec	0.95	1.04	2.33	1.67
514	Groceries and related products	0.96	1.00	2.21	1.59
805	Nursing and personal care facilities	0.96	1.52	1.59	1.55
864	Civic and social associations	0.96	0.70	2.42	1.54
569	Misc. apparel & accessories	0.96	0.22	2.92	1.54
542	Meat markets and freezer provisions	0.96	0.90	2.07	1.47
421	Trucking, local and long distance	0.96	1.87	1.05	1.47
782	Motion picture distribution and serv.	0.96	1.23	1.71	1.46
821	Elementary and secondary schools	0.97	1.85	1.01	1.44
596	Nonstore retailers	0.97	0.51	2.37	1.42
763	Watch, clock, and jewelry repair	0.97	0.24	2.53	1.36
541	Grocery stores	0.98	1.33	1.32	1.33
726	Funeral service and crematories	0.98	1.31	1.32	1.31
521	Lumber and other building materials	0.98	1.70	0.90	1.31
823	Libraries and information centers	0.98	1.50	1.09	1.30
525	Hardware stores	0.98	1.08	1.52	1.29
553	Auto and home supply stores	0.98	1.31	1.25	1.28
833	Job training & related services	0.98	0.72	1.82	1.26
483	Radio and television broadcasting	0.98	0.46	1.97	1.20
564	Children's and infants' wear stores	0.99	1.29	1.05	1.17
571	Furniture and home furnishings stores	0.99	0.92	1.43	1.17
523	Paint, glass, and wallpaper stores	0.99	1.21	1.09	1.15
602	Commercial and stock savings banks	0.99	1.21	1.06	1.14
533	Variety stores	0.99	0.89	1.39	1.14

769	Misc. repair services	0.99	1.15	1.10	1.13
503	Lumber and construction materials	0.99	1.17	1.08	1.12
762	Electrical repair shops	0.99	0.85	1.34	1.09
593	Used merchandise stores	0.99	1.44	0.72	1.09
591	Drug stores and proprietary stores	0.99	1.07	1.07	1.07
581	Eating and drinking places	1.00	0.69	1.42	1.05
551	New and used car dealers	1.00	1.10	0.98	1.04
557	Motorcycle dealers	1.00	0.61	1.43	1.01
478	Miscellaneous transportation services	1.00	0.00	1.96	0.96
594	Misc. shopping goods stores	1.00	0.74	1.18	0.95
793	Bowing and billiard establishments	1.00	1.07	0.83	0.95
545	Dairy products stores	1.00	1.41	0.46	0.94
722	Photographic studios, portrait	1.00	0.32	1.59	0.94
519	Miscellaneous nondurable goods	1.00	0.72	1.16	0.94
806	Hospitals	1.01	0.69	1.19	0.93
612	Savings and loan associations	1.01	0.36	1.44	0.89
501	Motor vehicles and automotive equip.	1.01	0.71	1.05	0.88
414	Transportation charter service	1.01	1.47	0.15	0.83
721	Laundry, cleaning, & garment services	1.01	0.86	0.78	0.82
518	Beer, wine, and distilled beverages	1.01	0.83	0.81	0.82
531	Department stores	1.01	0.31	1.34	0.81
653	Real estate agents and managers	1.02	0.53	1.07	0.79
804	Offices of other health practitioners	1.02	0.44	1.08	0.75
509	Miscellaneous durable goods	1.02	0.50	0.99	0.74
799	Misc. amusement, recreational services	1.02	0.58	0.88	0.72
573	Radio, television, and music stores	1.02	0.76	0.62	0.69
753	Automotive repair shops	1.02	0.56	0.83	0.69
554	Gasoline service stations	1.02	0.64	0.71	0.68
556	Recreation & utility trailer dealers	1.03	0.95	0.38	0.67
891	Engineering & architectural services	1.03	1.04	0.28	0.67
671	Holding offices	1.03	0.76	0.53	0.65
546	Retail bakeries	1.03	0.25	1.07	0.65
482	Telegraph communication	1.03	0.00	1.33	0.65
723	Beauty shops	1.03	0.65	0.64	0.64
508	Machinery, equipment, and supplies	1.03	0.45	0.80	0.62
505	Metals and minerals, except petroleum	1.03	0.28	0.97	0.61
592	Liquor stores	1.03	0.75	0.47	0.61
507	Hardware, plumbing and heating equip.	1.03	0.28	0.96	0.61
599	Retail stores, nec	1.03	0.59	0.60	0.59
493	Combination utility services	1.03	1.16	0.00	0.59
516	Chemicals and allied products	1.03	0.13	1.08	0.59
754	Automotive services, except repair	1.03	0.17	1.04	0.59
783	Motion picture theaters	1.03	0.93	0.22	0.58
729	Misc. personal services	1.03	0.28	0.89	0.58
725	Shoe repair and hat cleaning shops	1.03	0.55	0.58	0.56
835	Child day care services	1.03	0.24	0.89	0.56
504	Sporting goods, toys, and hobby goods	1.03	0.10	1.00	0.54
563	Women's accessary and specialty stores	1.04	0.10	1.00	0.54
511	Paper and paper products	1.04	0.28	0.76	0.51
869	Membership organizations, nec	1.04	0.47	0.55	0.51
724	Barber shops	1.04	0.37	0.64	0.50
702	Rooming and boarding houses	1.04	0.00	1.03	0.50
801	Offices of physicians	1.04	0.44	0.56	0.50
861	Business associations	1.04	0.12	0.89	0.50
822	Colleges and universities	1.04	0.49	0.49	0.49
566	Shoe stores	1.04	0.33	0.64	0.49
893	Accounting, auditing & bookkeeping	1.04	0.36	0.61	0.48
561	Men's & boy's clothing & furnishing	1.04	0.32	0.64	0.48
472	Arrangement of transportation	1.04	0.69	0.25	0.47
764	Reupholstery and furniture repair	1.04	0.68	0.25	0.47
655	Subdividers and developers	1.04	0.18	0.77	0.47
651	Real estate operators and lessors	1.04	0.50	0.43	0.47
605	Functions closely related to banking	1.04	0.00	0.91	0.45

481	Telephone communication	1.04	0.05	0.83	0.43
807	Medical and dental laboratories	1.05	0.32	0.50	0.40
733	Mailing, reproduction, stenographic	1.05	0.57	0.16	0.37
739	Misc. business services	1.05	0.39	0.32	0.35
412	Taxicabs	1.05	0.42	0.26	0.34
679	Misc. investing	1.05	0.25	0.43	0.34
811	Legal services	1.05	0.19	0.49	0.33
614	Personal credit institutions	1.05	0.53	0.12	0.33
737	Computer and data processing services	1.05	0.58	0.06	0.33
802	Offices of dentists	1.05	0.06	0.60	0.32
836	Residential care	1.05	0.25	0.36	0.30
734	Services to buildings	1.05	0.38	0.22	0.30
506	Electrical goods	1.05	0.09	0.51	0.30
751	Automotive rentals, without drivers	1.05	0.19	0.41	0.29
731	Advertising	1.05	0.10	0.49	0.29
603	Mutual savings banks	1.05	0.56	0.00	0.29
422	Public warehousing	1.05	0.07	0.51	0.28
832	Individual & family services	1.06	0.02	0.53	0.27
641	Insurance agents & brokers	1.06	0.17	0.36	0.26
495	Sanitary services	1.06	0.18	0.34	0.26
489	Communication services, nec	1.06	0.08	0.44	0.26
732	Credit reporting and collection	1.06	0.10	0.38	0.23
808	Outpatient care facilities	1.06	0.13	0.32	0.23
622	Commodity contracts brokers, dealers	1.06	0.42	0.00	0.21
791	Dance halls, studios, and schools	1.06	0.00	0.44	0.21
632	Medical service and health insurance	1.06	0.00	0.40	0.19
613	Agricultural credit institutions	1.06	0.00	0.36	0.18
633	Fire, marine, and casualty insurance	1.06	0.00	0.36	0.18
792	Producers, orchestras, entertainers	1.06	0.18	0.15	0.17
866	Religious organizations	1.06	0.12	0.21	0.16
616	Mortgage bankers and brokers	1.07	0.03	0.27	0.15
513	Apparel, piece goods, and notions	1.07	0.10	0.19	0.15
512	Drugs, proprietaries, and sundries	1.07	0.00	0.30	0.15
502	Furniture and home furnishings	1.07	0.04	0.25	0.14
809	Health and allied services, nec	1.07	0.08	0.20	0.14
401	Railroad operating	1.07	0.25	0.00	0.13
415	School buses	1.07	0.05	0.20	0.12
621	Security brokers and dealers	1.07	0.13	0.09	0.11
411	Local and suburban transportation	1.07	0.12	0.07	0.09
549	Miscellaneous food stores	1.07	0.11	0.06	0.08
794	Commercial sports	1.07	0.00	0.16	0.08
736	Personnel supply services	1.07	0.07	0.03	0.05
841	Museums and art galleries	1.07	0.00	0.08	0.04
863	Labor organizations	1.07	0.07	0.00	0.04
631	Life insurance	1.07	0.04	0.02	0.03
829	Schools & educational services, nec	1.07	0.01	0.05	0.03
862	Professional associations	1.07	0.05	0.00	0.02
615	Business credit institutions	1.07	0.00	0.05	0.02
628	Security and commodity services	1.07	0.04	0.00	0.02
635	Surety insurance	1.08	0.00	0.00	0.00
781	Motion picture production & services	1.08	0.00	0.00	0.00
496	Steam supply	1.08	0.00	0.00	0.00
842	Botanical & zoological gardens	1.08	0.00	0.00	0.00
559	Automotive dealers, nec	1.08	0.00	0.00	0.00
654	Title abstract offices	1.08	0.00	0.00	0.00
672	Investment offices	1.08	0.00	0.00	0.00
601	Federal reserve banks	1.08	0.00	0.00	0.00
474	Rental of railroad cars	1.08	0.00	0.00	0.00
604	Trust companies, nondeposit	1.08	0.00	0.00	0.00
568	Furrier and fur shops	1.08	0.00	0.00	0.00
417	Bus terminal and service facilities	1.08	0.00	0.00	0.00
461	Pipe lines, except natural gas	1.08	0.00	0.00	0.00
865	Political organizations	1.08	0.00	0.00	0.00

637	Pension, health, and welfare funds	1.08	0.00	0.00	0.00
611	Rediscount and financing institutions	1.08	0.00	0.00	0.00
623	Security and commodity exchange	1.08	0.00	0.00	0.00
752	Automobile parking	1.08	0.00	0.00	0.00
636	Title insurance	1.08	0.00	0.00	0.00
881	Private household	1.08	0.00	0.00	0.00
661	Re. est., insur., loans, law off. comb	1.08	0.00	0.00	0.00
639	Insurance carriers, misc	1.08	0.00	0.00	0.00
423	Trucking terminal facilities	1.08	0.00	0.00	0.00
892	Noncommercial research organizations	1.08	0.00	0.00	0.00
471	Freight forwarding	1.08	0.00	0.00	0.00
673	Trusts	1.08	0.00	0.00	0.00
441	Deep sea foreign transportation	1.08	0.00	0.00	0.00
735	News syndicates	1.08	0.00	0.00	0.00
899	Services, nec	1.08	0.00	0.00	0.00

Source: USEEM database, 1986 and City and County Data Book, 1988.

Appendix 2-3c
Ratio of Share of Employment to Share of Population,
Sorted by Relative Share in Rural Areas
Massachusetts, 1986

SIC	Industries	MSA	Adj	Non-Ad	Rural
442	Deep sea domestic transportation	0.39	14.68	0.00	14.34
842	Botanical & zoological gardens	0.65	8.84	0.00	8.64
452	Air transport., non-certified carriers	0.68	8.23	0.00	8.04
703	Camps and trailer parks	0.74	6.83	0.00	6.67
446	Water transportation services	0.79	5.56	4.70	5.54
445	Local water transportation	0.81	5.32	0.00	5.20
401	Railroad operating	0.81	5.24	0.00	5.12
892	Noncommercial research organizations	0.89	3.48	0.00	3.40
555	Boat dealers	0.89	3.14	11.80	3.34
533	Variety stores	0.91	3.02	0.00	2.95
526	Retail nurseries and garden stores	0.91	2.88	4.90	2.93
517	Petroleum and petroleum products	0.92	2.81	0.00	2.75
803	Offices of osteopathic physicians	0.92	2.76	0.00	2.69
527	Mobile home dealers	0.93	2.71	0.00	2.65
544	Candy nut, and confectionery stores	0.93	2.20	14.90	2.49
557	Motorcycle dealers	0.93	2.50	0.00	2.44
701	Hotels and other lodging places	0.94	2.44	1.40	2.42
441	Deep sea foreign transportation	0.94	2.33	0.00	2.27
702	Rooming and boarding houses	0.94	1.63	27.60	2.23
542	Meat markets and freezer provisions	0.95	2.25	0.00	2.20
593	Used merchandise stores	0.95	1.95	12.20	2.19
569	Misc. apparel & accessories	0.96	1.54	19.70	1.96
563	Women's accessary and specialty stores	0.96	1.92	2.40	1.93
594	Misc. shopping goods stores	0.96	1.73	5.80	1.83
564	Children's and infants' wear stores	0.96	1.63	9.00	1.80
821	Elementary and secondary schools	0.96	1.82	0.00	1.77
581	Eating and drinking places	0.97	1.67	4.40	1.73
799	Misc. amusement, recreational services	0.97	1.52	9.60	1.71
515	Farm-product raw materials	0.97	1.69	0.00	1.65
494	Water supply	0.97	1.45	9.80	1.65
841	Museums and art galleries	0.98	1.53	1.20	1.53
521	Lumber and other building materials	0.98	1.40	6.60	1.52
592	Liquor stores	0.98	1.39	4.00	1.45
549	Miscellaneous food stores	0.98	1.28	7.90	1.43
491	Electric services	0.98	1.36	4.20	1.42
598	Fuel and ice dealers	0.98	1.41	1.50	1.41
541	Grocery stores	0.98	1.42	0.50	1.40
525	Hardware stores	0.98	1.34	2.80	1.38
869	Membership organizations, nec	0.98	1.12	10.70	1.34
545	Dairy products stores	0.99	1.11	10.30	1.32
612	Savings and loan associations	0.99	1.34	0.00	1.31
413	Intercity highway transportation	0.99	1.33	0.00	1.30
523	Paint, glass, and wallpaper stores	0.99	1.31	0.00	1.28
565	Family clothing stores	0.99	1.10	5.90	1.21
655	Subdividers and developers	0.99	1.22	0.80	1.21
571	Furniture and home furnishings stores	0.99	1.21	0.40	1.19
546	Retail bakeries	0.99	1.14	3.30	1.19
726	Funeral service and crematories	0.99	1.16	0.80	1.15
809	Health and allied services, nec	0.99	1.17	0.00	1.14
503	Lumber and construction materials	0.99	1.15	0.50	1.13
599	Retail stores, nec	0.99	1.09	2.10	1.12
551	New and used car dealers	1.00	1.10	1.70	1.11
561	Men's & boy's clothing & furnishing	1.00	1.11	0.90	1.11
411	Local and suburban transportation	1.00	1.12	0.00	1.10
596	Nonstore retailers	1.00	1.11	0.00	1.09

513	Apparel, piece goods, and notions	1.00	1.01	4.00	1.08
653	Real estate agents and managers	1.00	1.03	1.10	1.03
415	School buses	1.00	1.04	0.70	1.03
554	Gasoline service stations	1.00	1.05	0.00	1.02
805	Nursing and personal care facilities	1.00	1.00	1.20	1.00
591	Drug stores and proprietary stores	1.00	0.97	2.30	1.00
556	Recreation & utility trailer dealers	1.00	1.02	0.00	1.00
764	Reupholstery and furniture repair	1.00	0.90	5.00	0.99
489	Communication services, nec	1.00	0.99	1.00	0.99
553	Auto and home supply stores	1.00	1.01	0.00	0.98
572	Household appliance stores	1.00	0.94	2.40	0.97
539	Misc. general merchandise stores	1.00	0.99	0.00	0.97
568	Furrier and fur shops	1.00	0.97	0.00	0.94
492	Gas production and distribution	1.00	0.92	0.00	0.90
451	Air transportation	1.00	0.92	0.00	0.89
762	Electrical repair shops	1.01	0.88	0.90	0.88
573	Radio, television, and music stores	1.01	0.88	0.90	0.88
543	Fruit stores and vegetable market	1.01	0.89	0.00	0.87
835	Child day care services	1.01	0.88	0.00	0.86
782	Motion picture distribution and serv.	1.01	0.86	0.00	0.84
832	Individual & family services	1.01	0.85	0.00	0.83
802	Offices of dentists	1.01	0.79	2.70	0.83
793	Bowing and billiard establishments	1.01	0.78	2.80	0.82
836	Residential care	1.01	0.79	0.00	0.77
723	Beauty shops	1.01	0.78	0.00	0.76
483	Radio and television broadcasting	1.01	0.75	0.10	0.73
753	Automotive repair shops	1.01	0.72	0.80	0.73
801	Offices of physicians	1.01	0.74	0.00	0.73
631	Life insurance	1.01	0.74	0.00	0.72
721	Laundry, cleaning, & garment services	1.01	0.71	0.20	0.69
829	Schools & educational services, nec	1.01	0.66	1.60	0.68
562	Women's ready-to-wear stores	1.01	0.66	1.30	0.67
807	Medical and dental laboratories	1.02	0.69	0.00	0.67
769	Misc. repair services	1.02	0.66	0.60	0.66
559	Automotive dealers, nec	1.02	0.67	0.00	0.65
531	Department stores	1.02	0.66	0.00	0.65
651	Real estate operators and lessors	1.02	0.57	2.90	0.63
412	Taxicabs	1.02	0.64	0.00	0.63
603	Mutual savings banks	1.02	0.56	2.10	0.59
552	Used car dealers	1.02	0.60	0.00	0.59
641	Insurance agents & brokers	1.02	0.58	0.80	0.59
729	Misc. personal services	1.02	0.52	2.90	0.58
472	Arrangement of transportation	1.02	0.58	0.30	0.57
458	Air transportation services	1.02	0.52	2.30	0.56
602	Commercial and stock savings banks	1.02	0.55	0.80	0.55
507	Hardware, plumbing and heating equip.	1.02	0.54	0.00	0.52
566	Shoe stores	1.02	0.52	0.00	0.51
806	Hospitals	1.02	0.49	0.70	0.49
736	Personnel supply services	1.02	0.49	0.00	0.48
519	Miscellaneous nondurable goods	1.02	0.48	0.00	0.47
673	Trusts	1.02	0.48	0.00	0.47
421	Trucking, local and long distance	1.02	0.45	1.00	0.47
679	Misc. investing	1.02	0.44	1.60	0.46
722	Photographic studios, portrait	1.03	0.45	0.00	0.44
792	Producers, orchestras, entertainers	1.03	0.40	1.50	0.43
891	Engineering & architectural services	1.03	0.42	0.40	0.42
804	Offices of other health practitioners	1.03	0.42	0.00	0.41
518	Beer, wine, and distilled beverages	1.03	0.39	0.00	0.38
751	Automotive rentals, without drivers	1.03	0.36	0.70	0.37
731	Advertising	1.03	0.36	0.00	0.35
514	Groceries and related products	1.03	0.32	1.00	0.34
414	Transportation charter service	1.03	0.34	0.00	0.34
501	Motor vehicles and automotive equip.	1.03	0.34	0.00	0.33

822	Colleges and universities	1.03	0.32	0.00	0.31
781	Motion picture production & services	1.03	0.29	0.70	0.30
739	Misc. business services	1.03	0.29	0.30	0.29
509	Miscellaneous durable goods	1.03	0.29	0.00	0.29
502	Furniture and home furnishings	1.03	0.28	0.00	0.27
614	Personal credit institutions	1.03	0.27	0.00	0.27
516	Chemicals and allied products	1.03	0.27	0.00	0.26
511	Paper and paper products	1.03	0.26	0.00	0.26
725	Shoe repair and hat cleaning shops	1.03	0.26	0.00	0.26
864	Civic and social associations	1.03	0.25	0.00	0.24
732	Credit reporting and collection	1.03	0.25	0.00	0.24
811	Legal services	1.03	0.24	0.00	0.24
724	Barber shops	1.03	0.24	0.00	0.23
495	Sanitary services	1.04	0.21	0.00	0.20
866	Religious organizations	1.04	0.21	0.00	0.20
733	Mailing, reproduction, stenographic	1.04	0.19	0.40	0.20
791	Dance halls, studios, and schools	1.04	0.20	0.00	0.20
861	Business associations	1.04	0.20	0.00	0.19
734	Services to buildings	1.04	0.19	0.00	0.19
506	Electrical goods	1.04	0.18	0.00	0.18
754	Automotive services, except repair	1.04	0.18	0.00	0.18
621	Security brokers and dealers	1.04	0.17	0.00	0.16
824	Correspondence and vocational schools	1.04	0.16	0.00	0.16
504	Sporting goods, toys, and hobby goods	1.04	0.16	0.00	0.16
508	Machinery, equipment, and supplies	1.04	0.16	0.00	0.15
737	Computer and data processing services	1.04	0.14	0.00	0.14
616	Mortgage bankers and brokers	1.04	0.13	0.00	0.13
808	Outpatient care facilities	1.04	0.13	0.00	0.13
615	Business credit institutions	1.04	0.12	0.00	0.12
505	Metals and minerals, except petroleum	1.04	0.12	0.00	0.12
893	Accounting, auditing & bookkeeping	1.04	0.11	0.10	0.11
422	Public warehousing	1.04	0.10	0.00	0.09
839	Social services, nec	1.04	0.09	0.00	0.09
783	Motion picture theaters	1.04	0.06	1.10	0.09
512	Drugs, proprietaries, and sundries	1.04	0.05	1.00	0.07
671	Holding offices	1.04	0.06	0.00	0.06
863	Labor organizations	1.04	0.06	0.00	0.06
794	Commercial sports	1.04	0.05	0.00	0.05
633	Fire, marine, and casualty insurance	1.04	0.04	0.00	0.04
628	Security and commodity services	1.04	0.03	0.00	0.03
833	Job training & related services	1.04	0.02	0.00	0.02
481	Telephone communication	1.04	0.02	0.00	0.02
605	Functions closely related to banking	1.05	0.00	0.00	0.00
611	Rediscount and financing institutions	1.05	0.00	0.00	0.00
604	Trust companies, nondeposit	1.05	0.00	0.00	0.00
752	Automobile parking	1.05	0.00	0.00	0.00
601	Federal reserve banks	1.05	0.00	0.00	0.00
704	Membership-basis organization hotels	1.05	0.00	0.00	0.00
496	Steam supply	1.05	0.00	0.00	0.00
661	Re. est., insur., loans, law off. comb	1.05	0.00	0.00	0.00
493	Combination utility services	1.05	0.00	0.00	0.00
639	Insurance carriers, misc	1.05	0.00	0.00	0.00
482	Telegraph communication	1.05	0.00	0.00	0.00
636	Title insurance	1.05	0.00	0.00	0.00
862	Professional associations	1.05	0.00	0.00	0.00
823	Libraries and information centers	1.05	0.00	0.00	0.00
478	Miscellaneous transportation services	1.05	0.00	0.00	0.00
623	Security and commodity exchange	1.05	0.00	0.00	0.00
474	Rental of railroad cars	1.05	0.00	0.00	0.00
613	Agricultural credit institutions	1.05	0.00	0.00	0.00
865	Political organizations	1.05	0.00	0.00	0.00
735	News syndicates	1.05	0.00	0.00	0.00
471	Freight forwarding	1.05	0.00	0.00	0.00

654	Title abstract offices	1.05	0.00	0.00	0.00
461	Pipe lines, except natural gas	1.05	0.00	0.00	0.00
635	Surety insurance	1.05	0.00	0.00	0.00
881	Private household	1.05	0.00	0.00	0.00
622	Commodity contracts brokers, dealers	1.05	0.00	0.00	0.00
444	Transportation on rivers & canals	1.05	0.00	0.00	0.00
672	Investment offices	1.05	0.00	0.00	0.00
423	Trucking terminal facilities	1.05	0.00	0.00	0.00
632	Medical service and health insurance	1.05	0.00	0.00	0.00
637	Pension, health, and welfare funds	1.05	0.00	0.00	0.00
763	Watch, clock, and jewelry repair	1.05	0.00	0.00	0.00
417	Bus terminal and service facilities	1.05	0.00	0.00	0.00
899	Services, nec	1.05	0.00	0.00	0.00

Source: University of Maryland analysis of USEEM data, 1986 and City and County Data Book, 1988.

Chapter 3
Employment Growth in Rural Services

National data show that, services, especially those that are non-routine, are not only highly concentrated, but centralizing in metropolitan counties (U.S. Department of Agriculture, 1989). When service data are viewed at a more disaggregate spatial level, however, there is evidence that service firms are decentralizing to the suburban fringe. Between 1982 and 1986, service employment grew at an annual average rate of 3.8 in metropolitan counties, as compared to only 2.7 percent in non-metro counties. Yet within metropolitan areas, services grew at an annual average rate of only 3.2 in the core counties and at 5.1 percent in the suburban fringe counties (see Table 3-1).

While the aggregate data do not indicate the widespread decentralization of services to rural communities in the 1980s, there are several highly visible cases where firms have moved their back-office functions to more remote communities. Examples inlcude Citibank's credit card processing operation in North Dakota and check clearing facility in upstate New York.

One purpose of this chapter is to examine the degree to which rural economies are capable of participating in the new information economy by attracting tradable services. Are these back-office and other export oriented service sitings in rural communities idiosynratic events or the cutting edge of a trend in the dispersal of routine corporate services? The first section focuses on the location of producer services, the service activities most likely to provide an export base for rural communities.

The next chapter examines employment trends in the services whose markets are most likely to be rural producers and final consumers. A growth in services to local markets can either replace previously imported services or be a response to growing local incomes and population. The service industries that are most likely to supply local markets include distributive, non-profit, retailing, and consumer services.

More specifically this chapter is divided into four sections. The first sets out the basic model that frames the analysis. The second surveys previous literature. The third section presents national growth trends, and the forth explores trends and the sources of growth in producer services.

The Basic Model

The basic Keynsian model (equation 1) highlights three modes of regional income growth. Income (Y) grows in region i when there is an increase in exports (X), an increase in local expenditures (E), or a reduction in the proportion of expenditures on imports (M).

$$Y_i = X_i + (E_i - M_i)*Y_i$$

Services offer two potential sources of rural growth. They may can provide an export base for rural economies (by increasing X) or replace previously imported services (reducing M). The purpose of this chapter is to examine the extent to which either phenomenon is occurring.

Previous Literature - Direct Export Services

If direct export service employment is to be a source of economic vitality for rural communities, two conditions are required. First, there must be a sizeable export base component to national service employment, and second, at least some of the export oriented services must decentralize to rural areas.

The extent to which services are capable of initiating growth is a hotly debated in the current both of literatures on U.S. international competitiveness and regional development (Cohen and Zysman 1987, Gilder 1988). Most scholars would now agree that selected services are capable generating export revenues for a country and region. The most widely traded corporate services include, consulting, banking, insurance, and data processing facilities (Riddle 19) and accounting, design and engineering, and legal services (Sauvant 1986). However, just what proportion of the national service sector has this potential is

unclear.

Traditional regional economic theories, such as export-base and central place theories, perceive services in a passive role. Service growth is reflective of growth in the basic or export sectors of the local economy, and the export sectors are assumed to primarily include agriculture, manufacturing and natural resource extraction (North 1955). Some scholars continue to argue that the major share of service activities remain market oriented and as such services are likely to respond to, but not initiate regional and national growth (Falk and Broner 1980). For example, Riefler (1976) found that all services, with the exception of government, are closely tied to market size. Moreover, Riefler found that services became more rather than less market oriented over time. While Riefler shows that a large, and perhaps growing, proportion of the service sector is market oriented, he does not prove that all services are market oriented. His models only explains about 50 percent of service growth in terms of markets.

Another set of scholars argue that services can be an engine of regional and national growth, and the notion of a merely passive service sector is out of date. Noyelle and Stanback (1983) postulate that that advanced services are increasingly exported either directly as final services or, more often, indirectly as intermediate services to national and international markets. However, their research highlights the role of service exports from the major U.S. cities and suggest little about the potential for rural service exports. Other studies examine service exports from smaller cities and towns. Keil and Mack (1986) calculated location quotients for services industries for non-SMSA counties and for each SMSA with a population of 250,000 and above. The authors hypothesized that services with the greatest variation in location quotients across space are the commonly traded services. As expected, they found retail sales had an average location quotient of near one and a small variation in the mean across space. Colleges and universities had the largest variation. Commercial research, management services, and data processing also exhibited large variations in location quotients, suggesting these services are often

traded between different cities and non-SMSA counties.

Using a survey of firm sales patterns, Polese (1982) identified substantial interregional trade in services in a rural area of Quebec. Beyers and Alvine (1985) also conducted a survey of approximately 1,100 Puget Sound service firms, and found this sample made sales to buyers across the U.S. as well is in Canada, Asia, Europe, and Latin America. Porterfield and Pulver surveyed service firms in the Upper Midwest region of the U.S. and found rural service producers exported 16.7 percent of sales out of state. Stabler and Howe (1988) examined exports from the four Western provinces of Canada and found in 1974, service exports accounted for between 22 and 44 percent of total direct-plus-indirect exports, and by 1979, services accounted for between 38 and 53 percent of total exports from the western Canadian provinces. They conclude there can be no doubt that service exports made a substantial contribution to the growth of the four western Canadian provinces during the 1970s. The above results are important because they indicate service exports can be significant and growing in regions which contain only small or intermediate-sized metropolitan centers. These, as well as other studies by Daniels (1984) and Marshall (1988) consistently report that corporate services, especially advertising, management, and computer services, are the most commonly traded services and they are exported more often than previously assumed.

While this recent literature finds evidence of a growth-inducing role for services, the extent to which export services will decentralize and diversify rural economies is less clear. There are two possible reasons for export service decentralization. One line of reasoning is that many entrepreneurs would rather live in less congested, more pastoral environments and a second argument draws upon the spatial division of labor and product cycle models to argue that routine service functions of large corporations may decentralize to rural areas to take advantage of low-wage non-unionized labor (Hepworth 1989). Both possibilities hinge on innovations in telecommunications technologies.

Telecommuncations and the Decentralization of Services

Innovations in communications technology are dramatically reducing the cost of crossing space, and many hypothesize will facilitate the decentralization of service industries (Daniels 1985, Drucker 1989, Hepworth 1989, Kellerman 1985, Smith 1984). Optical fiber developments, two way videos, fax machines, electronic mail, personal computer and modem technologies are making it possible for companies to locate branch offices and back office functions in remote locations and feasible for small entrepreneurs to live in and work in rural areas. Improved communications, according to this argument, reduce agglomeration economies and liberate establishments from their tight attachment to urban markets and inputs. Observers cite Citibank's credit card handing facility in North Dakota and check clearing operation in Upstate New York as examples. Some scholars go so far as to argue that the home will become the workplace and consumers need not leave their home to make purchases and carry out banking functions (Toffler 1981, Nilles 1985, Zimmerman 1986).

Models of decentralization of tradable services can best be understood in the context of the decentralization of manufacturing that has occurred in the Post World War II period. Nilles et. al (1976) proposes a four-stage locational model for the service sector which is derived from the innovation diffusion model for manufacturing (Thompson 1965, Vernon 1966). In the first stage employment is centralized in urban areas. Currently, this is the phase for most services, especially for most information-using industries. In the second stage, decentralization will begin to occur, primarily through the outward movement of subunits, such as back office functions. Fragmentation of this sort may affect branch banks or accounting sections who use mail and telecommunication to maintain contact with head offices. Further dispersion may occur in a third stage when previously central functions are shifted to peripheral sites. A fourth phase occurs when employees work at home, connecting to their office by a computer and modem. During this last phase only a small core of senior personnel will be concentrated at a single central location. Nilles' model follows closely the innovation diffusion model for manufacturing, where firms

spin off branch plants to rural communities while headquarters stay close to the capital markets and high skilled labor forces of urban areas. Other authors have also speculated on a filtering down process for services, similar to the pattern experienced by manufacturing (Smith 1984).

Whereas Nilles' model hypothesizes employment dispersion, another, equally compelling argument is that services will not behave like manufacturing in the foreseeable future. One reason is that services are much more dependent on sophisticated telecommunications technologies than manufacturing, and investments in this technology are spatially uneven, with rural areas lagging behind in the investments required to link rural areas into the information economy and necessary to attract service firms. Most importantly, many rural counties are lacking digital switching equipment and fibre optic connections. Data transmission in analog form, the current technology in many rural communities, is unreliable and slow, resulting in higher transmission costs. Installation of digital switching and fibre optic cables is only justified if the volume of use is high, making these investments uneconomic in many rural areas (Price and Blair 1989, Parker et. al. 1989).

This uneven distribution of telecommunications services is the result of deregulation and the switch to marginal cost pricing in the communications industry. Prior to deregulation, the Bell system set average nationwide rates. The cost of communications systems to rural areas and small towns was cross-subsidized by the more profitable high-demand metropolitan routes. With deregulation, competitors have seen this as an opportunity to carve out the heavy traffic inter-city routes by undercutting previous monopoly rates and attracting customers by enhancing services. Such a competitive strategy of "creaming off" the most profitable routes is forcing AT&T to abandon geographical cross subsidization and to respond to the competition with marginal cost pricing on the interurban routes and a greater range of services between major cities.

The result is that rural and small towns will face higher costs because of the higher average costs incurred in serving low population areas, and rural clients will have access to a narrower range of telecommunications options where

limited demand does not justify the high fixed costs of state-of- the- art telecommunications investments (Abler and Falk 1981, Langdale 1983).

As a result service employment, which is increasingly dependent on telecommunications technology is unlikely to decentralize to non-metropolitan areas, and in fact should centralize. Headquarters making location choices for their branches and subsidiaries will be deterred from locations where data transmission technologies are inferior. According to this scenario, services will not compensate for the loss of jobs in the goods-producing sectors of peripheral regions.

Gottman (1983) makes another argument for the continued concentration of service employment. Telecommunications are not a substitute for face to face contacts, but are a complement to, or contributer to, face to face interactions. Thus, according to this argument, the new telecommunications revolution generates face to face contacts and thus promotes concentration not dispersion.

National Trends In Rural Service Employment

National data for the 1958 to 1979 period show service employment growing almost as rapidly in rural as urban counties. Between 1969 and 1979, services grew at an annual average rate of 2.9 percent per year in metropolitan counties and 2.7 percent per year in non-metropolitan counties (see table 3-1). Kirn (1987) studied the periods 1958 to 1967 and 1967 to 1977, and found that services grew faster in large non-metro than metro areas. Such producer services as banking, finance, real estate, advertising, management consulting, membership organizations, miscellaneous services, and accounting became less urbanized in 1977 than they had been in 1958. Because data were missing for most SIC codes for small non-metro cities, Kirn's findings refer only to non-SMSA counties of 50,000 population and above.

There is also evidence from Great Britain that services decentralized in the decade of the 1970s. Howells and Green (1986) found that the location quotient for producer services decreased in London from 2.04 in 1971 to 1.85 in 1981, while the location quotient for Southern rural areas increased from .72 in

1971 to .89 in 1981. According to the U.S. Department of Agriculture's analysis, this trend towards dispersal reversed after the 1979-82 recession, at least in the United States. Their analysis showns, from 1982 to 1986, metropolitan service growth exceeded that of rural service growth by an average of 1.1 percent per year (see Table 3-1). Within non-metro counties, service growth was greatest in counties adjacent to metro counties. Table 3-1 also indicates that the trend towards service centralization to metropolitan counties does not apply to the Noetheast.

Table 3-1
Annual Average Employment Growth by Type of County
Total United States, 1969 to 1986

	Compound average annual rate		
	1969-79	1979-82	1982-86
U.S. total 1/	2.8	1.5	3.6
Metro	2.9	1.6	3.8
Greater core	2.0	1.2	3.2
Greater fringe	4.5	2.8	5.1
Medium	3.2	1.5	3.8
Lesser	3.2	1.6	3.1
Nonmetro	2.7	.9	2.7
Urbanized adjacent	2.8	1.1	3.2
Urbanized nonadjacent	2.9	.9	2.4
Less urbanized adjacent	2.6	.9	2.9
Less urbanized nonadjacent	2.8	.9	2.3
Totally rural adjacent	2.7	1.7	3.0
Totally rural nonadjacent	2.5	.7	2.4
Northeast	1.7	1.3	3.6
Nonmetro	2.3	1.1	3.6
Metro	1.6	1.3	3.5
Midwest	2.5	.1	3.0
Nonmetro	2.3	.1	2.2
Metro	2.6	.1	3.3
South	3.3	2.4	3.7
Nonmetro	2.7	1.3	2.8
Metro	3.5	2.7	3.9
West	4.0	2.0	4.0
Nonmetro	4.3	1.6	2.8
Metro	3.9	2.0	4.2

Source: Majchrowicz, T. Alexander, U.S. Department of Commerce, Bureau of Labor Statistics, *Patterns of Change in the Rural Economy, 1986-86.*

There two explanations for the reversal of the dramatic pattern of decentralization observed in the 1970s. Although manufacturing employment growth has been stronger in rural than urban counties in the 1982-86 period, agriculture, construction, and mining have all exhibited a weak rural recovery (U.S. Department of Agriculture 1989). The tendency for rural service growth to lag behind urban service growth during this period underscores the dependence of rural services on the resource extracting and goods producing sectors.

A second explanation for the slowdown in service decentralization is that the convergence in the 1950s, 60s, and 70s was partially purchased by hidden subsidies and underpriced energy resources. The pre-1980 regulatory environment of the transportation and communications industries resulted in large subsidies for urban to rural and rural to rural linkages (Abler and Falk 1981). Prior to 1980, airfares, trucking, and telephone rates were all cross-subsidized by the lower marginal cost urban to urban connections. In the deregulatory environment of the 1980s, rural businesses are being asked to pay their own way. Costs are higher, and in the case of the airlines, many routes have become uneconomic and have been eliminated. A reduction in rural investment is to be expected as at the cost of linking rural locations to the national and international transportation and telecommunications network rises.

Results from the USEEM File

Overview of All Services in the Six States

The results from the six states are consistent with this national pattern. The USEEM data show that while the service sector is showing strong growth in both metropolitan and rural areas, service employment is centralizing in the six states.

Table 3-2
Employment Growth Rate for all Six States
1980-1986
(Annual Average Compound Percent Growth Rate)

	Distrib.	Prod.	Non-Pro.	Retail	Consum.	Total
Metropolitan	2.77	4.98	3.69	3.50	3.64	3.74
Non-metropolitan	.94	3.60	2.36	2.29	.51	2.07

Source: University of Maryland analysis of USEEM data, 1980 and 1986.

In all service categories, employment is centralizing, and producer services are the fastest growing sector in both metro and non-metro counties.

When the data are disaggregated by city size, however, there is a trend towards service decentralization within metropolitan counties (see Table 3-3). Employment growth is lowest in the cities of 1 million population and greatest in the smaller cities in metropolitan counties. Rural service employment is growing fastest in the largest cities in rural counties, and, in fact, exceeds growth in the largest class cities, sized 1 million population and above.

TABLE 3-3
Annual Average Employment Growth Rates By City Size
in All Services in Six Study States
Annual Average Compound Growth Rate

City Size	Metro/Rural	Percent Growth
ABOVE 1,000,000	MSA	1.56
500,000-999,999	MSA	3.83
250,000-499,999	MSA	2.61
100,000-249,999	MSA	3.89
50,000-99,999	MSA	4.20
25,000-49,999	MSA	5.45
10,000-24,999	MSA	5.35
5,000-9,999	MSA	4.00
2,500-4,999	MSA	3.02
25,000 and up	RURAL	2.59
10,000-24,999	RURAL	2.89
5,000-9,999	RURAL	2.77
2,500-4,999	RURAL	1.99

Source: University of Maryland Analysis of USEEM data, 1980 to 1986.
Using 1983 definition of metro/non-metro counties.

Table 3-4

Growth Rates by Type of County
All Services in Six Study States

Annual Average Percent Change

	Metro	Adjacent Rural	Non-Adjacent Rural	Total Rural
Distributive Services	2.78	0.57	1.56	.94
Producer Services	5.01	3.94	2.90	3.61
Non-Profit Services	3.57	2.11	3.10	2.46
Retail Services	3.51	2.20	2.49	2.30
Consumer Services	3.53	0.98	0.03	.71

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.
Using the 1983 definition of metro-non-metro counties.

The data indicate rapid centralization among each of the service categories. However, employment growth in some non-adjacent counties exceeds growth in the adjacent counties for distributive, non-profit, and retail services.

Summary

Although service employment is growing faster in metro than non-

metropolitan counties, employment growth in rural counties was strong during the study period. When the data are disagregated by city size and type of county, there is evidence of service decentralization within metro counties. These results indicate the suburbanization of services along with a diffusion of services down the urban hierarchy.

Producer Services

As indicated above, producer services are the fastest growing service category in rural areas, although they are growing more rapidly in metro than non-metro metro counties in the total of the six states. As shown in Table 3-5, the slowest growth is in cities of 1 million population and up, and producer service growth in the rural counties exceeds the growth rates in these largest urban areas. Producer service employment is suburbanizing and moving down the urban hierarchy, at least in these six states.

The gap between urban and rural producer growth is narrowest in the most urbanized states of California, Maryland, Massachusetts, and New York. In both Kansas and Virginia rural producer services employment is centralizing at a rapid rate because of the rapid rate of producer service growth in the metropolitan counties of these latter two states.

TABLE 3-5
Annual Average Producer Service Employment Growth Rates By City Size
in All Six Study States
Compound Growth Rate

City Size	METRO/RURAL	CA	KS	MD	MA	NY	VA	Total
	MSA	4.65	6.45	6.92	5.17	4.41	7.72	4.98
	RURAL	2.57	2.90	5.55	4.95	3.89	3.63	3.60
ABOVE 1,000,000	MSA	-1.87	--	--	--	3.31	--	2.04
500,000-999,999	MSA	4.36	--	5.78	4.94	--	--	4.76
250,000-499,999	MSA	7.02	7.28	--	--	3.71	3.97	5.62
100,000-249,999	MSA	5.78	2.16	--	4.68	5.53	6.44	5.62
50,000-99,999	MSA	6.33	6.66	3.71	4.81	3.42	13.16	5.74
25,000-49,999	MSA	8.37	6.95	8.30	6.64	9.56	-.68	8.02
10,000-24,999	MSA	8.53	2.45	3.12	6.09	5.63	12.39	7.12
5,000-9,999	MSA	8.20	10.37	6.24	10.14	6.58	1.35	6.05
2,500-4,999	MSA	14.01	8.00	5.59	.72	4.22	11.13	6.20
25,000 and up	RURAL	0	3.23	0	10.96	6.77	14.88	6.43
10,000-24,999	RURAL	4.17	5.70	.02	5.23	4.07	3.48	4.11
5,000-9,999	RURAL	4.93	7.67	13.47	5.86	5.86	4.10	5.85
2,500-4,999	RURAL	4.38	4.66	3.59	4.14	3.34	3.71	3.86

Source: University of Maryland Analysis of USEEM data, 1980 to 1986.

Producer services are growing faster in non-adjacent rural counties in California, Kansas, and Massachusetts. However, in Massachusetts in particular, the very high growth rate is the result of employment changes occurring on a small employment base. This is particularly true for Massachusetts. In 1980, there were only 113 corporate service employees in nonadjacent rural Massachusetts counties. By 1986, this number had increased to 206. There was a total of 2294 producer service employees in non-adjacent rural counties in California and 2678 employees in adjacent rural counties in Maryland in 1980.

Table 3-6

Employment Growth Rate for Producer Services
in Metro and Non-Metro Areas, 1980-1986
Annual Average Percent Change

		Rural		
State	Metro	Adjacent	Non-Adjacent	Total
California	5.4	1.8	9.3	2.8
Kansas	7.9	1.1	4.0	3.2
Maryland	8.6	15.6	1.4	6.6
Massachusetts	6.1	5.6	13.7	5.8
New York	5.1	4.7	.0	4.4
Virginia	9.7	6.1	1.8	4.1

Source: University of Maryland analysis of USEEM data 1980 and 1986.

Table 3-7 demonstrates that relative to the rural share of population, producer services are underrepresented in rural areas. The ratios in Table 3-7 represented the ratio of each regions' producer service employment to population ratio divided by producer service employment to population ratio for the nation. A ratio of 1, indicates the region has the same share of population in producer service employment as the nation. A value lower than 1 indicates the region has a smaller share of population in producer services than the nation as a whole. In all nearly all rural areas, the ratio is substantially below .50. The ratio is also below 1 for Metropolitan counties in Kansas. Not surprisingly, the ratio is highest for metro counties in New

York, which include New York city. There is no consistent pattern of increasing or decreasing ratios overtime, which is consistent with the variations in producer services growth across regions shown above.

Table 3-7

Ratio of Producer Service Employment to Population

	Metro		Rural			
			Adjacent		Non-adjacent	
	1980	1986	1980	1986	1980	1986
CALIFORNIA	1.13	1.03	0.35	0.26	0.27	0.39
KANSAS	0.88	0.95	0.32	0.27	0.39	0.38
MARYLAND	1.04	1.17	0.33	0.48	0.61	0.49
MASSACHUSETTS	1.21	1.28	0.56	0.53	0.42	0.51
NEW YORK	1.41	1.42	0.36	0.36	0.31	0.24
VIRGINIA	1.07	1.21	0.22	0.22	0.35	0.30

Source: University of Maryland analysis of USEEM data, 1980 and 1986, and *County City Data Book, 1988*.

Location Patterns in Advertising, Mailing and Reproduction, Management Consulting, and Computer and Data Processing

Four industries are repeatedly cited as being export oriented services. Thus we examined these industries in more detail in order to determine the extent to which they are decentralizing (see Table 3-8). Whereas all earlier analysis focused on rates of employment change, Table 3-8 highlights the concentration of producer services in metropolitan counties. All of these industries are highly concentrated in urban counties and, with few exceptions all have centralized very slightly over the 1980 to 1986 period. The only case where employment appears to have decentralized to non-metropolitan counties to any significant extent is mailing and reproduction. In Virginia, the share of employment in mailing and reproduction services in adjacent non-metro Virginia counties rose from 2.2 to 8 percent of state employment. Although there is evidence services have the potential to lead growth, there is only limited evidence that the services most likely to be export oriented services have shifted location to rural counties. Rural counties are partipating in the national shift to a service based economy, but not in proportion to their population.

Table 3-8

Decentralization of Export Oriented Services,
Share of State Employment by Regions (percent)

	Advertising [731]			Mailing/Reproduction [733]			Computer and Data Processing [737]			Engineering/ Architecture [891]		
	Metro	Rural ADJ.	Rural NON-AD	Metro	Rural ADJ.	Rural NON-AD	Metro	Rural ADJ.	Rural NON-AD	Metro	Rural ADJ.	Rural NON-AD
California												
1980	99.6	.3	.1	99.4	.5	.1	99.8	.1	.1	98.6	1.2	.2
1986	99.6	.3	.1	99.4	.5	.1	99.8	.2	0	98.9	1.0	.2
Kansas												
1980	82.8	4.5	12.8	81.4	11.7	7.0	90.5	2.8	6.7	67.5	3.3	29.2
1986	84.0	1.3	14.7	87.0	4.2	8.8	93.5	2.7	3.9	73.3	3.0	23.2
Maryland												
1980	98.2	.2	1.6	97.3	2.0	.7	97.8	2.1	.2	96.4	2.2	1.4
1986	98.0	.4	1.7	97.4	2.1	.6	97.7	2.1	.2	95.3	3.8	1.0
Massachusetts												
1980	98.1	1.9	0	99.0	1.0	0	99.4	.6	0	99.0	1.0	0
1986	98.5	1.5	0	99.2	.8	0	99.4	.6	0	98.2	1.8	0
New York												
1980	99.2	.8	0	99.5	.5	0	94.8	5.2	0	98.0	1.9	.1
1986	99.3	.7	0	99.2	.8	0	98.8	1.2	0	98.3	1.7	0
Virginia												
1980	96.8	1.4	1.8	96.2	2.2	1.6	96.0	3.4	.6	93.7	4.1	2.3
1986	98.0	.8	1.2	90.4	8.5	1.1	95.2	2.3	2.5	96.4	2.3	1.3

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.
Using the 1988 definition of metro/non-metro counties.

Clearly not all producer services are export oriented activities. Banking, insurance, accounting, and legal services are all likely to be market oriented activities in rural areas. There decentralization to rural areas would promote rural growth through the substitution of local purchases for imports. Table 3-9 reports the distribution and change in distribution of these activities between 1980 and 1986. As expected because of their market orientation, all four of these activities are more decentralized than advertising, mailing and reproduction, data processing, and engineering and architecture. However, similar to the most export oriented producer services, in most all states these more market oriented producer service activities have become more concentrated in the metropolitan counties over the 1980 to 1986 period.

Table 3-9
The Spatial Distribution of
More Market Oriented Producer Services

	Banking 60			Insurance 63			Accounting 8931			Legal 81		
CA	96.2	3.4	.4	99.5	.5	.0	99.1	.7	.2	99.4	.6	.1
	97.2	2.5	.3	99.5	.4	.1	99.8	1.0	.2	99.2	.7	.1
KA	44.6	17.5	37.9	77.5	2.9	19.6	60.6	18.9	20.6	71.7	12.9	15.4
	52.3	15.1	32.6	72.3	3.4	24.2	69.7	9.9	20.4	84.6	5.6	9.8
MD	98.4	.3	1.2	98.7	.1	1.2	97.8	1.1	1.1	97.8	.6	1.6
	92.8	4.0	3.3	99.3	.1	.6	96.6	1.3	2.1	97.7	.7	1.7
MA	97.0	2.9	.1	99.9	.1	.0	98.5	1.5	.0	98.9	1.1	.0
	97.6	2.3	.1	98.9	1.1	.0	99.5	.5	.0	99.0	1.0	.0
NY	93.6	6.0	.3	99.5	.5	.0	97.9	1.5	.6	98.8	1.15	.1
	94.7	5.1	.1	99.1	.9	.0	98.2	1.2	.6	99.1	.8	.1
VA	81.0	9.5	9.5	98.5	.9	.7	90.7	3.6	5.7	93.7	2.9	3.4
	82.7	10.5	6.9	98.4	.7	.9	88.5	8.5	2.9	94.6	2.5	2.9

Source: University of Maryland analysis of USEEM data, 1980 and 1986.

Branch Plant Dependency and Rural Corporate Services Growth

The service variant of the innovation diffusion model suggests rural service growth will take place as large companies site export- oriented branch plants in rural communities. We further examine the diffusion innovation model by comparing the growth of rural producer service employment due to the location of branch plants.

Aside from a theoretical interest in the locational patterns of services, the question of branch plant employment in rural areas is relevant to economic development scholars and practitioners who are concerned about rural economic stability and local control. Rural dependency on manufacturing branch plants has caused instability in rural communities. During the 1950s through the 1970s, rural economies experienced rapid manufacturing growth, as multi-location manufacturers moved standardized production processes to rural communities. Many of these same communities experienced decline in the 1980s as firms closed down their rural branches or relocated them abroad. Rural communities complain of being 'whip sawed' by changes in the national economy. Rural communities gained from the invasion of branch plants and suffered when corporations retreated.

A second and not unrelated concern about branch plant dependency is the lack of local ownership often means that the needs and interests of the local economy do not enter decisions affecting plant operations (Barkley 1978, Smith 1984). A third cause for apprehension about branch plant dependent growth is that branches purchase fewer of their inputs from local sources, and therefore generate fewer jobs and less income in linked industries than is the case for locally owned businesses (Daniels 1984, Van Dintern 1987, Howland and Miller 1990). Although this concern assumes that branches displace rather than supplement locally owned firms.

Alternately, a higher proportion of branch plant employment, especially in corporate services, may signal increasing external investment in rural communities and an expansion of rural exports. External investment can stimulate rural economic growth, much as manufacturing has provided the engine

of rural growth since the 1950s. Smith (1984) found evidence to support this view in his study of rural services exports. He found that nonlocally owned service firms exported 57 percent of their sales, while locally owned firms exported only 23 percent of sales. A similar finding is reported by Daniels (1984).

The share of each regions employment in independent firms, headquarters, subsidiaries, and branches is reported in Tables 3-10. The percentages represent the share of each region's producer service employment, in independents, headquarters, subsidiaries, and branches. The numbers should be interpreted as follows. For Kansas, in 1980, 50 percent of the metropolitan counties' producer services employment was in independents while 66 and 59 percent of rural adjacent and rural non-adjacent employment was in independent firms, respectively. The share of MSA's employment in independents, headquarters, subsidiaries, and branches (.50 + .22 + .6 +.23) = 101 percent (due to rounding error).

TABLE 3-10
Share of Each Region's Producer Service Employment in Independent, Headquarters, Subsidiary, and Branch Establishments
California, Kansas, Maryland
(Percent)

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
INDUSTRY CATEGORY	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ.
CALIFORNIA															
1980	55	66	60	29	11	.	2	2	.	13	22	40	100	100	100
1986	54	64	72	24	11	3	6	20	.	16	6	24	100	100	100
KANSAS															
1980	50	66	59	22	19	26	6	8	6	23	8	10	100	100	100
1986	43	63	54	18	22	18	12	8	18	27	8	10	100	100	100
MARYLAND															
1980	42	48	49	18	16	14	10	1	2	30	36	35	100	100	100
1986	38	41	54	18	10	19	12	5	3	32	44	25	100	100	100
MASSACHUSETTS															
1980	34	62	64	25	10	32	13	4	.	28	24	4	100	100	100
1986	37	62	71	28	17	21	13	4	.	23	17	8	100	100	100
NEW YORK															
1980	40	51	53	30	20	9	14	1	0	16	29	39	100	100	100
1986	37	47	48	25	20	13	18	4	1	21	30	39	100	100	100
VIRGINIA															
1980	43	48	47	21	20	15	10	5	6	26	27	32	100	100	100
1986	36	48	56	18	12	12	14	4	3	32	36	28	100	100	100

Source: University of Maryland analysis of USEEM data 1986. Using the 1988 definition of metro/non-metro counties

Across the states, rural producer services are more likely to be independents than urban producer services. Nearly one-half or more of rural producer service employees work in independent firms. For example, in California 66 percent of producer service employees in adjacent rural counties work in independents and 60 percent of employees in non-adjacent counties work in idependent firms. Twenty-two percent of the workforce in adjacent counties in California work in branch plants. The comparable figure in non-adjacent counties is 40 percent.

Comparable proportions of rural employees work in branch plants across all of the states, except Kansas. Kansas has a particularly low dependence on rural branch plant employment and a high reliance on employment in single plant operations. A story consistent with these findings and earlier findings is that producer services are moving down the urban hierarchy. From an early concentration in the largest metropolitan areas of the U.S., branches move first to the urban fringe of the largest cities. In a second phase, services decentralize to second and third order urban centers throughout the county and to rural areas surrounding the first order cities. The hinterlands of the smaller urban centers, such as Kansas City, are bypassed altogether and the producer services which evolve are locally-owned independent enterprises.

For example, in California and New York, there is evidence of a relatively high proportion of rural corporate service employment in branch plants. In New York, twenty-nine percent of adjacent and 39 percent of non-adjacent counties' producer services employment is in branch plants, as compared to only 16 percent of MSA employment in branch plants. This suggests some branch plant dependence in both the states which the largest cities. In Maryland, Massachusetts, and Virginia, the shares are roughly even across regions, and in Kansas there is a much smaller share of rural producer service employment in

branch plants than is the case for MSAs.

Between 1980 and 1986, rural dependence on corporate branch plant employment did not increase in any of the states. This finding is significant for testing the hypothesis that firms are spinning off branch operations to rural communities. For example, New York had 39 percent of its non-adjacent counties' corporate service employment in branch plants. In 1986, the percentage was still 39 percent. There is no evidence firms are spinning off corporate service employment in the form of rural branch plants. In both Virginia and Maryland, there was an increase in employment in branch plants in adjacent rural counties. This finding, along with earlier evidence of decentralization of producer export services, suggest that the innovation-diffusion model for services could apply to the close in rural counties of Maryland and Virginia.

Table 3-10 reports the level and relative increases in the categories of rural employment in branch plants, but does not inform us about rates of employment growth or decline. Table 3-11 examines employment growth in producer services by type of firm, including branches and subsidiaries or independents and headquarters. It is clear from Table 3-10 that independents dominate the independent/ headquarters category and branches dominate the branches/subsidiary category. Because random data errors may bias small samples, the results are only reported for this cases where the number of establishments is greater than 250.

Table 3-11 indicates that independents are as responsible for rural producer services growth as are branch plants. In California, Massachusetts, Kansas and New York growth is greater in independents. In Maryland and Virginia a higher proportion of growth is due to the growth of branches and subsidiaries.

It is important to note at this point two biases in the data that may influence results. First, branch plants are underrepresented due

to the failure of some firms to report all of their affiliated locations. Imputed values are recorded in employment totals, but not in specific regional locations. Therefore, we cannot include these imputed values. A second bias occurs because the startups among independents may be underrepresented due to the failure to capture a firm at is inception. Fortunately both biases operate in the same direction. Unfortunately the extent of the biases are unknown. Therefore, conclusions should not be drawn based on small differences between the independents/headquarters and branch/subsidiary categories.

Table 3-11
Sources of Growth
Branches and Subsidiaries Versus Independents and Headquarters
Rural Producer Services
Annual Average Rate, 1980 to 1986

CA	KA	MD	MA	NY	VA	
Branches and Subsidiaries	1.0	1.2	3.9	2.0	1.5	1.8
Independents and Headquarters	2.4	1.8	2.9	3.1	1.8	1.6
State Total	3.4	3.0	6.8	5.1	3.3	3.4

Source: University of Maryland analysis of USEEM data, 1980 and 1986.

Deregulation in the banking industry and the rapid growth of branch banking in rural counties may dominate the branch/subsidiary categories and overshadow the role of independents as the major share of growth in producer services. While banking may include back-office, export-oriented functions, the major share of this activity is most likely market oriented functions, serving local businesses and final consumers. Establishments in banking (SIC codes 60, 61, and 62) were eliminated from the producer services category to determine the sources of rural service growth in the remaining business services. The results in Table 3-12 show that without banking, independents/headquarters contributed twice as much to rural producer

service growth as branches and subsidiaries in five of the six states. For example, without banking, independents and headquarters created 69 percent of the rural employment growth between 1980 and 1986, with branches and subsidiaries responsible for only 31 percent of the growth. In New York, independents/headquarters accounted for 73 percent and in Virginia independents/headquarters accounted for 65 percent of rural corporate services growth. The sources of banking growth is reported in Table 3-13 for the states with establishment populations of 250.

Table 3-12
Sources of Growth
Branches and Subsidiaries Versus Independents and Headquarters
Rural Producer Services Minus Banking Services
Annual Average Rate, 1980 to 1986

	CA	KA	MD	MA	NY	VA
Branches and Subsidiaries	.7	1.8	4.4	2.2	.8	1.5
Independents and Headquarters	2.8	4.1	2.8	3.6	2.2	2.8
State Total	3.5	5.9	7.2	5.8	3.0	4.3

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.

Table 3-13
Sources of Growth
Branches and Subsidiaries Versus Independents and Headquarters
Banking Services
Annual Average Rate, 1980 to 1986

	CA	KA	MA	NY	VA
Branches and Subsidiaries	1.9	.6	2.1	5.1	1.3
Independents and Headquarters	1.2	-1.6	0.0	- .3	- .3
State Total	3.1	-1.0	2.1	4.8	1.0

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.

As hypothesized, branch banking is growing in rural areas at the expense of locally owned banks. The reasons, advantages, and

disadvantages of the growth of rural banking is a topic for another paper.

Conclusion

Three conclusions and one hypothesized explanation can be drawn from the above data. While there is evidence that services, in total, and producer services, in particular, are decentralizing, this movement out of the largest metropolitan areas is primarily limited to the urban fringe and smaller urban centers. Services and producer services are growing relatively rapidly in rural economies, yet this growth continues to lag behind that of metropolitan counties.

Secondly, although previous research provides convincing evidence that some services are tradable across regions and countries, there is no widespread support for the hypothesis that export oriented services are decentralizing to rural areas. Rural counties contain a small proportion of producer services, relative to their share of population, and with few exceptions, the employment to population ratio relative to the nation declined or remained constant between 1980 and 1986.

Thirdly, there is no widespread evidence to support a innovation-diffusion model for producer services. The major share of rural corporate services employment is in independent firms, and for most of our case study states, the rural share of corporate service employment in branch plants has remained stable over the 1980 to 1986 time period.

The variations in rural producer growth and ownership patterns across states can be explained by the tendency for producer services to diffuse down the urban hierarchy. Growth is now slowest in the largest urban centers and highest in the smaller urban areas, suggesting a diffusion of employment to the smaller urban areas of both the industrialized and rural states. There is also evidence of

slower, but respectable producer service growth in the largest cities in rural counties. However, the standard innovation-diffusion model where headquarters spin off branch plants to distant locations is not appropriate. For the most part, independents, not branch plants, are responsible for this rural growth.

References

Abler, Ronald and Thomas Falk (1981) "Public Information Services and The Changing Role of Distance in Human Affairs", *Economic Geography*, 57: 10-22.

Barkely, David (1978) "Plant Ownership Characteristics and the Locational Stability of Rural Iowa Manufacturers", *Land Economics*, 54 (February): 92-99.

Beyer, William and Michael J. Alvine (1985) "Export Services in Postindustrial Society", *Regional Science Association, Papers of the Thirty-First North American Meetings of the Regional Science Association*, 57: 33-45.

Cohen, Steven and John Zysman (1987) *Manufacturing Matters: The Myth of the Post-Industrial Economy*, Basic Books: New York.

Daniels, P.W. (1985) *Service Industries*, New York: Methuen & Co.

Drennan, M.P. (1989) "Information Intensive Industries in Metropolitan Areas of the United States of America", *Environment and Planning A*, 21: 1603-1618.

Drucker,

Kirn, Thomas (1987) "Growth and Change in the Service Sector of the U.S.: A Spatial Perspective", *Annals of the Association of American Geographers*, 77, 3: 353-372.

Kellerman, Aharon (1985) "The Evolution of Service Economies: A Geographical Analysis", *The Professional Geographer*, 37,2 (May): 133-143.

Drucker, Peter (1989) "Information and the Future of the City", *The Wall Street Journal*, April 4: A22.

Falk, Lawrence H. and Adam Broner (1980) "Specialization in Service Industry Employment as a State Policy", *Growth and Change*, 11: 18-23.

Gilder, (1988)

Gottman, Jean (1983) *The Coming of the Transactional City*, College Park, University of Maryland Institute for Urban Studies.

Hepworth, Mark (1989) *Geography of the Information Economy*, New York: Guilford Press.

Howells, J.R.L (1984) "The Location of Research and Development: Some Observations and Evidence from Britain", *Regional Studies*, 18,1: 13-29.

Howells J. and A.E. (1986) Green, *Location, Technology and Industrial Organisation in U.K. Services*, Progress in Planning, vol. 26,2, Oxford, England: Pergamon Press.

Howland, Marie and Ted Miller (1990) "UDAG Grants to Rural Communities: A Program that Works" *Economic Development Quarterly*, (May, forthcoming).

Keil, Stanley R. and Richard Mack (19) "Identifying Export Potential in the Service Sector", *Growth and Change*, 17 : 1-10.

Langdale, John (1983) "Competition in the United States' Long-Distance Telecommunications Industry", *Regional Studies*, 17,6: 393-409.

Majchrowicz, Alexander T. *Patterns of Change in the Rural Economy, 1969-86*, U.S. Department of Agriculture, Economic Research Service, Rural Development Research Report, No. 73, December 1989.

Marshall J. N. (1988) *Services and Uneven Development*, New York: Oxford University Press.

Marshall, J.N., P. Damesick, and P. Wood (1987) "Understanding the Location and Role of Producer Services in the United Kingdom", *Environment and Planning A*, 19: 575-595.

Miller, James P. "Recent Contributions of Small Businesses and Corporations to Rural Job Creation",

Morrill, Richard L. (1982) "A Note: Continuing Deconcentration Trends in Trade", *Growth and Change*, (January), 13.

Nilles, J.M., R. Carlson, P. Grey, and G. Heineman (1976) *Telecommunications-Transportation Trade-Offs: Options for Tomorrow*, New York: Wiley.

Nilles, Jack (1985) "Teleworking from Home" in T. Forester (editor) *The Information Technology Revolution*, Oxford, England: Basil-Blackwell Press.

Noyelle, Theirry and Thomas M. Stanback Jr.(1983) *The Economic Transformation of American Cities*, Rowman and Allanheld: Totowa, New Jersey.

Parker, Edwin B., Heather E. Hudson, Don A. Dillman, and Andrew D. Roscoe, (1989) *Rural American in the Information Age: Telecommunications Policy for Rural Development*, University Press of America: Boston, 1989.

Porterfield, Shirley and Glen C. Pulver (1988) "The Export Potential of Service Producing Industries: Survey Results", Agricultural Economics Staff Paper Series: University of Wisconsin-Madison, No. 284, (April).

Price, D.G. and A.M. Blair (19) *The Changing Geography of the Service Sector*, Belhaven Press: London.

Riddle, Dorothy (1986) *Services Led Growth*, New York: Praeger Press.

Sauvant,

Smith S. M. (1984) "Export Orientation of Non-manufacturing Businesses in Non-Metropolitan Communities", *Journal of Agricultural Economics Association*, 66: 145-155.

Stabler, Jack C. and Eric C. Howe (1988) "Service Exports and Regional Growth in the Postindustrial Era", *Journal of Regional Science*, 28,3: 303-315.

Stone, Ken (1989) "The Impact of Wal-Mart Stores on Other Businesses in Iowa", October. Unpublished paper, Iowa State University.

Thompson, Wilbur (1965) *A Preface to Urban Economies*, Baltimore, MD.: Johns Hopkins University Press.

Toffler

Van Dinteren, J. H. J. (1987) "The Role of Business Service Offices in the Economy of Medium-sized Cities", *Environment and Planning A*, 19:669-686.

Vernon, Raymond (1966) "Internationql Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics*, 80,2 :190-207.

Wheeler, James O. (1986) "Corporate Spatial Links with Financial Institutions: The Role of the Metropolitan Hierarchy", *Annals of the Association of American Geographers*, 76, 2: 262-274.

Zimmerman (1986)

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The Role of Services in Rural Growth and Development

Draft Report to the Aspen Institute
Rural Economic Policy Program

Marie Howland
University of Maryland
College Park, Maryland

December 1990

Chapter 4

Employment Growth in Rural Distributive, Non-profit, Retail and Consumer Services

In addition to attracting export-oriented services, a second means by which rural economies can grow is through import substitution, or the replacement of previously imported services with locally produced services. These locally produced and consumed services may include indirect exports, involving sales to local goods and service producing firms that export out of the region or final services sold to local consumers. To what extent are rural economies substituting local for previously imported services?

Technological and organizational change, along with changes in transporation costs can alter the optimal location of service firms and discourage or promote their decentralization to rural areas. Increases in the economies to scale of an industry and lower transportation costs should reduce dependence on local merchants, as larger population centers offer lower prices and the cost of reaching those centers fall. Additionally, improvements in telecommunications technologies may result in a greater share of retail services pruchased from distant locations. Conversely, industries in which economies-to-scale fall, and when transportation costs increase, local merchants will benefit as more local dollars are spent at home. Relatively low transport costs during the 1980 to 1986 period implies there should be some loss of employment relative to population in the most remote rural communities.

Here we use evidence from the USEEM data file to examine the extent to which service employment shifted toward rural economies between 1980 and 1986. Again the data is analyzed by city size and county type using the post-1983 metro/non-metro definition.

Results from the USEEM Data

Consistent with the aggregate data, rural growth in distributive, non-profit, retailing and consumer services, in our six study states, is lagging behind that of urban counties (Tables 4-1, 4-2, 4-3, 4-4, and 4-5).

As in the case of producer service, this pattern is again not universal across all six states. Distributive services grew faster in rural than urban counties in Maryland (see Table 4-1). Non-profit services grew faster in rural than metropolitan counties in California and Kansas (see Table 4-2), and consumer services grew faster in rural than urban counties in California (see Table and 4-4).

In general, all services are growing fastest in the medium size cities of metropolitan counties, and with the exception of distributive services, rural employment growth is greatest in the largest cities. The slowest growth is occuring in the major metropolitan cities, with 1 million population and above. In fact, across the services, employment growth is greater in the rural areas than in cities of 1 million population or more. There are exceptions to this pattern in individual states, however.

TABLE 4-1
Annual Average Distributive Services Employment Growth Rates By City Size
in Six Study States
Annual Average Compound Rate, 1980 to 1986

City Size	METRO/RURAL	CA	KA	MD	MA	NY	VA	Total
	MSA	3.72	3.19	4.00	2.73	1.02	4.60	2.77
	Non-metro	1.52	1.07	5.09	.93	-1.01	1.49	.94
ABOVE 1,000,000	MSA	1.25	--	--	--	-.60	--	0.00
500,000-999,999	MSA	3.25	--	-.06	-.08	--	--	1.83
250,000-499,999	MSA	1.87	-.22	--	--	-.10	-1.07	.76
100,000-249,999	MSA	3.28	-1.20	--	.68	3.16	2.61	2.56
50,000-99,999	MSA	6.17	3.69	11.41	5.93	-1.74	2.41	5.38
25,000-49,999	MSA	4.10	12.14	8.28	2.25	-.02	5.06	3.55
10,000-24,999	MSA	3.43	3.42	2.27	19.06	-1.18	10.17	6.69
5,000-9,999	MSA	4.45	-16.55	-.77	6.45	2.85	6.46	3.47
2,500-4,999	MSA	6.08	12.91	5.34	8.09	1.24	10.25	1.73
25,000 and above		0	-5.93	0	2.45	-3.30	-1.61	-4.10
10,000-24,999	RURAL	3.26	3.96	4.09	4.06	6.34	2.25	4.02
5,000-9,999	RURAL	-2.56	-1.81	9.33	3.65	-6.07	1.85	-.81
2,500-4,999	RURAL	-1.43	5.01	8.28	5.59	2.50	2.43	2.94

Source: University of Maryland Analysis of USEEM data, 1980 to 1986.

TABLE 4-2
Annual Average Non-Profit Services Employment Growth Rates By City Size in Six Study States
Annual Average Compound Rate, 1980 to 1986

City Size	METRO/RURAL	CA	KA	MD	MA	NY	VA	Total
	MSA	3.75	1.47	4.44	4.55	2.97	3.21	3.56
	RURAL	5.33	4.89	3.69	4.17	1.03	-.60	2.36
ABOVE 1,000,000	MSA	.76	--	--	--	3.90	--	2.96
500,000-999,999	MSA	5.48	--	3.31	5.34	--	--	4.80
250,000-499,999	MSA	5.55	2.10	--	--	-1.13	3.77	2.55
100,000-249,999	MSA	2.64	1.49	--	1.60	1.46	5.83	2.63
50,000-99,999	MSA	2.82	-1.50	4.44	5.92	.51	2.32	3.23
25,000-49,999	MSA	6.40	3.02	6.67	4.53	3.26	-1.94	5.18
10,000-24,999	MSA	4.06	1.01	.89	3.93	2.24	-.34	2.69
5,000-9,999	MSA	2.01	-.78	4.87	.73	2.95	4.16	2.60
2,500-4,999	MSA	4.67	-7.85	4.48	-4.62	4.82	-1.17	3.45
25,000 and up	RURAL	0	12.79	0	-2.55	-1.32	1.22	3.02
10,000-24,999	RURAL	5.43	3.60	3.02	2.49	-.78	-4.72	.94
5,000-9,999	RURAL	6.17	3.48	8.81	8.20	-.78	1.56	3.28
2,500-4,999	RURAL	-.17	1.80	1.54	-1.77	5.70	1.34	2.38

Source: University of Maryland Analysis of USEEM data, 1980 to 1986.

TABLE 4-3

Annual Average Retail Services Employment Growth Rates By City Size in Six Study States

Annual Average Compound Rate, 1980 to 1986

City Size	METRO/RURAL	CA	KA	MD	MA	NY	VA	Total
	MSA	3.64	3.98	4.17	3.17	2.69	5.48	3.49
	Rural	3.82	1.68	3.12	2.85	.88	2.84	2.29
ABOVE 1,000,000	MSA	-1.37	--	--	--	2.21	--	1.05
500,000-999,999	MSA	4.62	--	1.44	.09	--	--	2.90
250,000-499,999	MSA	2.06	2.14	--	--	1.20	6.67	2.66
100,000-249,999	MSA	4.05	3.21	--	3.10	3.59	4.17	3.89
50,000-99,999	MSA	3.26	2.89	1.67	2.34	1.37	4.07	2.92
25,000-49,999	MSA	4.43	7.04	5.70	4.82	3.49	6.10	4.57
10,000-24,999	MSA	5.69	3.34	5.87	3.71	2.88	6.89	4.47
5,000-9,999	MSA	3.70	3.48	4.67	5.85	3.57	1.11	3.74
2,500-4,999	MSA	2.58	-3.26	4.65	3.77	1.99	.49	2.17
25,000 and up	RURAL	0	3.25	0	7.13	1.85	6.16	3.30
10,000-24,999	RURAL	3.67	2.90	4.69	2.72	2.07	4.96	3.34
5,000-9,999	RURAL	4.74	2.93	4.01	4.38	2.39	.45	3.03
2,500-4,999	RURAL	3.17	.13	2.86	.09	-.84	4.38	1.50
2,500 and Below		3.71	-1.05	-.58	na	-.63	1.13	

Source: University of Maryland Analysis of USEEM data, 1980 to 1986.

TABLE 4-4
Annual Average Consumer Services Employment Growth Rates By City Size in Six Study States
Annual Average Compound Rate, 1980 to 1986

City Size	METRO/RURAL	CA	KA	MD	MA	NY	VA	Total
	MSA	3.28	2.85	3.67	3.39	2.49	2.43	2.79
	RURAL	2.41	-1.00	.91	-.39	-1.10	2.18	.51
ABOVE 1,000,000	MSA	.23	--	--	--	2.80	--	1.79
500,000-999,999	MSA	3.43	--	1.77	7.17	--	--	3.94
250,000-499,999	MSA	-14.38	2.01	--	--	.41	2.96	-3.75
100,000-249,999	MSA	4.19	1.77	--	4.27	2.75	3.48	3.67
50,000-99,999	MSA	2.89	6.71	5.29	-1.29	.47	7.59	2.12
25,000-49,999	MSA	4.09	5.15	3.06	3.71	5.41	-.27	3.95
10,000-24,999	MSA	5.56	-3.92	-3.01	4.74	4.18	5.03	4.47
5,000-9,999	MSA	3.60	3.75	-1.84	1.94	2.13	5.93	2.55
2,500-4,999	MSA	9.75	1.83	1.89	1.02	1.01	5.24	3.13
25,000 and up	RURAL	0	-.24	0	7.26	.83	8.63	1.76
10,000-24,999	RURAL	1.84	-.34	-.09	2.27	-3.70	3.76	.69
5,000-9,999	RURAL	4.21	-3.09	7.77	.52	2.44	2.99	2.04
2,500-4,999	RURAL	-3.40	.18	-1.81	-.31	-1.57	1.28	-1.29
2,500 and Below		4.24	-2.70	2.68	na	-1.17	.19	na

Source: University of Maryland Analysis of USEEM data, 1980 to 1986.

Reductions in transportation costs and the increasing size of the most efficient retailing operation, would suggest a loss in retail employment in the smallest rural cities. This pattern has been found by other researchers such as Stone (1987) who examined retailing sales in rural communities in Iowa over the 1979 to 1986 period. He found average declines in retail sales of 2.9 to 5.3 per year percent in rural towns sized 5,000 population and below. The USEEM data are consistent and show declines in retail employment for rural towns of 2,500 to 5,000 population in Massachusetts and New York. A further examination of Kansas cities below 2,500 indicated an annual average employment loss of 1.03 percent in retailing. There were also losses in Maryland and New York in towns of 2,500 population and below (see Tables 4-3 and 4-4).

There were also consumer service employment losses in a number of rural towns. The more detailed examination of Kansas, indicated an annual average loss of -2.70 percent in consumer services in rural towns of 2,500 population and below (see Table 4-4).

Table 4-5 presents metro/non-metro growth rates by type of county, and the results are similar to that provided above. In all cases, with the exceptions of distributive services in California and non-profit services in California and Kansas, employment growth is greater in the metropolitan counties. When the data are disaggregated by adjacent and non-adjacent rural counties there are additional exceptions. Table 4-1 indicates that distributive services employment growth is greater in the rural than urban counties in Maryland and New York. Table 4-5 indicates this growth is occuring in adjacent rural counties in Maryland and non-adjacent rural counties in New York. Non-profit service growth is greatest in adjacent rural counties in California and non-adjacent rural counties in Kansas. Retail services grew faster in adjacent California and non-adjacent Massachusetts counties than in urban counties. Consumer services grew faster in adjacent Maryland and New York counties than in the respective urban counties.

Consumer service employment in non-adjacent rural counties is declining in all but the two fastest growing states, California and Virginia. The negative growth rate in consumer services are, in part, the result of deteriorating rural incomes and population, an issue explored in more detail in the chapter that follows.

Table 4-5

Employment Growth Rate in Metro and Non-Metro Areas,
by Service Category, 1980-1986
(Annual Average Percent Change)

			Rural		
		Metro	Adjacent	Non-Adjacent	Total
DISTRIBUTIVE SERVICES	California	4.2	1.6	1.5	1.6
	Kansas	3.5	.5	1.3	1.1
	Maryland	4.5	7.9	4.5	6.0
	Massachusetts	3.0	1.0	.7	1.0
	New York	1.1	-1.3	3.8	-1.0
	Virginia	5.3	1.9	1.1	1.6
NONPROFIT SERVICES	California	4.2	6.9	4.4	6.3
	Kansas	1.5	4.6	7.0	6.3
	Maryland	5.1	2.4	6.0	4.1
	Massachusetts	5.2	4.7	6.8	4.7
	New York	3.3	.8	4.9	1.1
	Virginia	3.5	1.3	-2.0	-.6
RETAIL SERVICE	California	4.1	4.6	2.6	4.3
	Kansas	4.5	2.2	1.6	1.7
	Maryland	4.7	2.4	4.3	3.4
	Massachusetts	3.5	2.9	9.0	3.1
	New York	2.9	.8	2.5	.9
	Virginia	6.5	2.6	3.7	3.1
MAINLY CONSUMER	California	3.8	2.7	1.6	2.6
	Kansas	3.1	-1.5	- .8	-1.0
	Maryland	4.1	4.4	- .7	.9
	Massachusetts	3.8	-.2	-1.2	-.4
	New York	2.7	3.2	-1.6	-1.1
	Virginia	4.2	3.4	1.4	2.3
TOTAL	California	4.5	3.6	3.6	3.6
	Kansas	4.3	1.9	2.7	2.5
	Maryland	5.9	5.5	3.5	4.4
	Massachusetts	4.7	3.0	6.2	3.0
	New York	3.3	.8	2.7	.9
	Virginia	6.7	2.7	1.4	2.1

Source: University of Maryland analysis of USEEM data 1980 and 1986. Service categories adopted from Thomas M. Stanback and Thierry J. Noyelle: *Cities in Transition*, 1983.

Import Substitution Among Rural Service Firms

Slow or negative rural employment growth may simply be the result of the loss of rural population and income or it may be a result of rural residents and businesses traveling further to urban areas to purchase their services. In order to determine the extent to which rural counties are reducing or increasing service imports, we calculate the ratio of service employment to population in each county, relative to the ratio of service employment to population for the nation. This ratio provides an indication of the extent to which a population is served by local services. This measure is defined below.

$$(E^i_r/P_r)/(E^i_{us}/P_{us})$$

where E = employment
P = population
superscript i = service industry
subscript r = county
subscript us = United States

A quotient of 1 indicates the region has the same ratio of service employment to population as the nation. Similarly, a quotient of greater than 1 indicates a greater ratio of service employment to population than the nation and suggests a region supplies services to populations who live outside that region. An increase in rural service quotients between 1980 and 1986 would indicate an increase in rural service self-sufficiency.

There is no clear overall pattern to the employment to population quotients (see Table 4-6). More than 1/2 of the quotients declined in the adjacent rural counties. However, only 7 of the quotients declined in the non-adjacent rural counties. These declines are, however, concentrated among the consumer services, where the quotients declined in five of the six states. The exception is California. This indicates that employment in consumer services has declined faster than population in non-adjacent rural counties.

A number of other studies which look at consumption patterns at finer levels of service industry and geographic detail have found rural

consumers are more likely to travel further for such items as groceries and apparel (Anding, 1990). While we find this pattern among the consumer services, there is no consistent pattern of decreased retailing employment relative to local population in the six states studied here.

We should note here, one weakness of this measure. It assumes equal income growth across regions. For example, declines in service quotients could also be caused by slower growth in rural than urban incomes, which would reduce overall service demand by rural consumers and decrease the service quotient for non-metropolitan areas. Data for the 1982 to 1986 period indicates urban growth did exceed rural income growth by more than 80% (Ghelfi and Majchrowicz, 1990).

Table 4-6
Ratio of Service Employment to Population
Relative to the National Ratio, by Service, 1980 and 1986

	Metro		Rural Adjacent		Rural Non-adjacent	
	1980	1986	1980	1986	1980	1986
DISTRIBUTIVE SERVICES						
CALIFORNIA	0.92	1.00	0.48	0.43	0.55	0.56
KANSAS	1.37	1.51	0.62	0.63	0.90	0.96
MARYLAND	0.67	0.80	0.50	0.68	0.70	0.83
MASSACHUSETTS	1.07	1.23	0.58	0.54	0.57	0.50
NEW YORK	1.13	1.17	0.55	0.50	0.45	0.55
VIRGINIA	0.82	0.96	0.47	0.50	0.60	0.62
NONPROFIT SERVICES						
CALIFORNIA	1.00	0.93	0.49	0.49	0.83	0.99
KANSAS	1.41	1.20	0.92	0.99	1.07	1.29
MARYLAND	1.00	1.05	0.95	0.86	0.93	1.01
MASSACHUSETTS	1.40	1.54	0.95	0.92	0.79	0.80
NEW YORK	1.19	1.18	1.22	1.08	1.13	1.24
VIRGINIA	0.88	0.81	0.52	0.46	1.20	0.88
RETAIL SERVICES						
CALIFORNIA	0.91	0.91	0.92	0.88	0.85	0.94
KANSAS	0.91	0.98	0.76	0.79	1.00	1.00
MARYLAND	0.89	0.98	0.35	0.32	1.12	1.20
MASSACHUSETTS	0.98	1.07	1.48	1.41	2.33	2.77
NEW YORK	0.81	0.86	0.77	0.73	0.70	0.74
VIRGINIA	0.86	0.99	0.57	0.57	0.89	0.97
MAINLY CONSUMER SERVICES						
CALIFORNIA	1.02	0.97	0.96	0.82	0.71	0.74
KANSAS	0.85	0.83	0.50	0.41	0.76	0.64
MARYLAND	0.70	0.74	0.52	0.54	1.11	0.88
MASSACHUSETTS	2.43	2.82	2.57	2.24	3.05	2.12
NEW YORK	0.82	0.84	0.79	0.66	0.56	0.45
VIRGINIA	0.84	0.85	0.40	0.41	0.79	0.75
REGIONAL TOTAL						
CALIFORNIA	0.93	0.91	0.57	0.51	0.56	0.65
KANSAS	1.00	1.03	0.57	0.56	0.75	0.77
MARYLAND	0.82	0.93	0.45	0.51	0.81	0.80
MASSACHUSETTS	1.17	1.30	0.98	0.91	1.18	1.20
NEW YORK	1.03	1.07	0.63	0.58	0.55	0.57
VIRGINIA	0.85	0.95	0.40	0.40	0.67	0.62

Source: University of Maryland analysis of USEEM data, 1980 and 1986, *City County Data Book 1988*, *Census of Services*, 1980 and 1986, and *Statistical Abstract*, 1990.

Trends in Rural Ownership Patterns?

While there is no evidence that rural economies in these six states are capturing a larger share of rural dollars, there is a transformation in the ownership of rural firms. Tables 4-7a, 4-7b, and 4-7c reports the share of each region's employment in independents, headquarters, subsidiaries, and branches. The numbers should be read as follows for Kansas. Thirty percent of metropolitan counties' distributive services employment is in independents, both adjacent rural and non-adjacent rural counties have 49 percent of their distributive services employment in independent firms. As was the case for producer services, the largest proportion of rural employment is in independent firms and a larger share of rural employment is in independents than is the case for metropolitan counties. This is the pattern for all four service categories. The results for Kansas, New York, and Virginia are reported here. Since the pattern for California, Maryland, and Massaschuetts is similar, the data for these tables is relegated to the Appendix (see Appendix 4-1a, 4-1b, and 4-1c.

TABLE 4-7a
SHARE OF EACH REGIONS EMPLOYMENT IN INDEPENDENT, HEADQUARTERS,
SUBSIDIARY, AND BRANCH ESTABLISHMENTS
KANSAS EMPLOYMENT

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
INDUSTRY CATEGORY	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ.
1980															
DISTRIBUTIVE SERVICES	30	49	49	16	19	16	6	7	5	47	25	30	100	100	100
NON-PROFIT SERVICES	58	74	70	19	4	10	3	3	0	21	19	20	100	100	100
MOSTLY CONSUMER SER.	64	83	80	11	4	8	7	1	1	18	12	12	100	100	100
1986															
DISTRIBUTIVE SERVICES	26	46	41	17	14	12	11	6	6	46	34	41	100	100	100
NON-PROFIT SERVICES	35	69	51	24	5	30	16	9	2	25	18	18	100	100	100
MOSTLY CONSUMER SER.	58	79	79	10	11	9	4	0	1	28	10	12	100	100	100

Source: University of Maryland analysis of USEEM data, 1980 and 1986

TABLE 4-7b
SHARE OF EACH REGIONS EMPLOYMENT IN INDEPENDENT, HEADQUARTERS,
SUBSIDIARY, AND BRANCH ESTABLISHMENTS
NEW YORK EMPLOYMENT

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
INDUSTRY CATEGORY	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ.
1980															
DISTRIBUTIVE SERVICES	42	49	46	22	14	10	13	3	7	23	35	37	100	100	100
NON-PROFIT SERVICES	60	56	72	21	25	8	1	0	0	18	20	20	100	100	100
MOSTLY CONSUMER SER.	68	74	74	13	12	4	8	2	0	12	12	22	100	100	100
1986															
DISTRIBUTIVE SERVICES	42	51	45	18	13	14	11	5	6	29	31	35	100	100	100
NON-PROFIT SERVICES	56	72	88	23	19	10	1	0	0	20	9	2	100	100	100
MOSTLY CONSUMER SER.	65	78	73	11	7	3	7	3	0	18	12	24	100	100	100

TABLE 4-7c
SHARE OF EACH REGIONS EMPLOYMENT IN INDEPENDENT, HEADQUARTERS, SUBSIDIARY, AND BRANCH ESTABLISHMENTS
VIRGINIA EMPLOYMENT

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
INDUSTRY CATEGORY	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ.
1980															
DISTRIBUTIVE SERVICES	34	46	61	21	14	14	9	7	5	36	33	20	100	100	100
NON-PROFIT SERVICES	54	71	48	24	10	24	7	5	6	15	14	23	100	100	100
MOSTLY CONSUMER SER.	59	80	70	12	7	18	3	3	2	25	11	10	100	100	100
1986															
DISTRIBUTIVE SERVICES	29	40	54	17	11	10	18	7	5	36	43	32	100	100	100
NON-PROFIT SERVICES	42	69	52	24	11	29	9	8	10	25	12	9	100	100	100
MOSTLY CONSUMER SER.	55	76	64	14	6	11	3	4	2	29	14	23	100	100	100

Source: University of Maryland analysis of USEEM data 1986.

Distributive, Non-Profit, and Consumer Services

In all six states a relatively large proportion of rural distributive, non-profit, and consumer services employment is in independents and a small proportion of rural employment is in subsidiaries and branch plants. Not surprisingly, metropolitan counties have a larger proportion of their employment in headquarters than is the case for rural economies. The exception is distributive services in Kansas, where rural and urban counties have equal shares of their employment in headquarters.

For these three service activities, the rural share of employment in branches remained stable or fell over the years 1980 to 1986, indicating no tendency for multiplant companies to locate branches in rural counties over this period.

While the data in Tables 4-7a, b, and c reports the shares and changes in shares of employment by establishment type, it tells us little about overall growth. Therefore, employment growth, subdivided by type of establishment, is reported in Tables 4-8 through 4-10. These tables indicate that the sources of growth in distributive, and non-profit services varied by state. For example, for distributive services the major share of growth was contributed by independents in California and branches in New York. Among consumer services the major share of growth was due to branch plants in Virginia and independents/ headquarters in California and Maryland.

Table 4-7
Sources of Growth
Distributive Services
Annual Average Rate, 1980 to 11986

	CA	KS	MD	MA	NY	VA
Branches and Subsidiaries	.2	2.3	2.7	-.1	.0	2.1
Independents and Headquarters	1.6	-1.0	1.8	.6	-.3	-.8
Total	1.8	1.3	4.5	.5	-.3	1.3

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.

Table 4-8
Sources of Growth
Non-Profit Services
Annual Average Rate, 1980 to 1986

	CA	KS	MD	MA	NY	VA
Branches and Subsidiaries	3.2	1.0.	-1.3.	.8	-1.6	-1.1
Independents and Headquarters	1.6	4.4	5.0	3.4	2.8	.5
Total	4.8	5.4	3.7.	4.2	1.2	-.6

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.

Table 4-9
Sources of Growth
Consumer Services
Annual Average Rate, 1980 to 1986

	CA	KS	MD	MA	NY	VA
Branches and Subsidiaries	.9	- .3	- .5	.4	-.7	1.5
Independents and Headquarters	1.7	- .4	2.1	-.5	-.1	.6
Total	1.8	- .7	1.6	-.1	- .8	2.1

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.

Retailing

Among retailers, the most striking change between 1980 and 1986, was the penetration of branch retailers into rural counties and the declining share of rural retailing employment in independent firms. This is shown in Table 4-10. For example, in Kansas in 1980, nearly 70 percent of retail employment in non-adjacent rural counties was in independent firms. By 1986, this percent had dropped to 59 percent. The share of retailing employment in branches in non-adjacent rural counties increased from 20 percent to 30 percent in Kansas. In adjacent counties in Kansas, the share of retailing employment in branches jumped from 15 percent in 1980 to 33 percent in 1980. This pattern is equally dramatic for California, Maryland, and Massachusetts (see Appendices 4-1a, 4-1b, and 4-1c).

TABLE 4-10
SHARE OF EACH REGIONS EMPLOYMENT IN INDEPENDENT, HEADQUARTERS, SUBSIDIARY, AND BRANCH ESTABLISHMENTS
KANSAS, NEW YORK, AND VIRGINIA EMPLOYMENT

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
YEAR	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ.
KANSAS															
1980	55	72	70	15	11	9	4	2	1	26	15	20	100	100	100
1986	45	58	59	11	8	9	4	2	2	40	33	30	100	100	100
NEW YORK															
1980	66	76	76	12	8	6	7	2	1	15	14	17	100	100	100
1986	60	67	63	10	8	5	5	1	1	25	24	32	100	100	100
VIRGINIA															
1980	53	74	71	13	7	9	5	2	1	29	17	19	100	100	100
1986	42	59	59	10	7	9	3	1	1	44	34	32	100	100	100

Source: University of Maryland analysis of USEEM data, 1980 and 1986.

The data on sources of growth show branch retailing growing at the expense of independent retailers. For example, retail service employment in rural Kansas counties grew by 1.7 percent. All of this growth was accounted for by growth in branches and subsidiaries. Employment in the independents/ headquarters category declined by .7 percent, while branch growth was 2.5 percent (Table 4-11).

Table 4-11
Sources of Growth
Branches and Subsidiaries Versus Independents and Headquarters
Rural Retail Services
Annual Average Rate, 1980 to 1986

	CA	KA	MD	MA	NY	VA
Branches and Subsidiaries	2.4	2.5	2.6	2.3	1.9	3.3
Independents and Headquarters	1.4	- .7	.6	.8	-.8	- .5
State Total	3.8	1.8	3.2	3.1	1.1	2.7

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.

Control Centers for Rural Branches

The headquarters of rural branches are spread across a large number of states, but not surprisingly, concentrated in the metropolitan counties of the home state. For example, the headquarters of rural New York branch service firms can be found in 42 states, but 63.3 percent of rural employments is headquarters in New York. Forty-five percent of rural employment is headquartered in metropolitan counties (see Table 4-12).

Table 4-12
Location of Headquarters of Rural Branch Employment, 1986
By Census Region

Census Region

Location of Headquarters	Rural Branches Employment CA	KS	MD	MA	NY	VA
Total Employment	36992	48055	12891	9880	48618	52641
North East	0.6	0.1	2.9	73.9	9.0	2.2
Massachusetts				60.4		
Metro				46.5		
Non-metro				13.9		
Middle Atlantic	5.7	12.6	20.3	12.5	69.2	12.1
New York					63.3	
Metro					45.1	
Non-metro					18.2	
East North Central	7.9	12.0	7.3	7.6	12.8	14.7
West North Central	1.1	53.2	1.2	0.6	0.9	0.8
Kansas		40.8				
Metro		15.2				
Non-metro		25.6				
South Atlantic	3.0	0.9	56.2	3.6	3.1	58.0
Maryland			33.1			
Metro			25.9			
Non-metro			7.2			
Virginia			36.7			
Metro			26.5			
Non-metro			10.2			
East South Central	0.1	1.3	1.1	0.4	0.3	3.1
West South Central	0.9	13.5	6.6	0.7	2.2	3.7
Mountain	2.1	2.1	3.6	0.2	0.7	1.0
Pacific	78.7	3.9	0.7	0.5	1.7	4.3
California	73.9					
Metro	62.8					
Non-metro	11.1					
Total*	100.	100.	100.	100.	100.	100.

Source: University of Maryland Analysis of USEEM Data Base, 1986.

Summary

Several major conclusions can be drawn from this analysis. First, among the services most likely to follow local incomes, population, and employment, employment is centralizing but not rapidly. Employment growth in metro counties is only slightly greater than employment growth in non-metro counties.

When the data are disaggregated by city size, a pattern of decentralization within metro regions is clear. Service employment growth is slowest in cities of 1 million population or more and greatest in the medium sized cities in metropolitan counties. Rural service employment growth is, in fact, more rapid than service growth in cities of 1 million population and above, in most states and sectors.

Secondly, although services are centralizing, for the most part rural service growth is positive. The exception is consumer services which are declining in non-adjacent rural counties and rural towns of 2,500 or less, and retailing employment, which is declining in the smallest sizez rural towns of 2,000 people and less.

Thirdly, for distributive, non-profit, and retail services, employment relative to rural incomes has remained constant over time. This suggest that rural residents were as likely in 1986 to purchase their services from rural merchants as they were in 1980. Consumer services is an exception. Rural consumer service employment relative to rural incomes fell in five of the six states. This suggests that rural residents were more likely to import consumer services in 1986 than in 1980. As stated above, an alternative explanation is slower income growth in rural than urban counties may have reduced rural expenditures on consumer items to a greater extent.

Fourth, rural communities are losing the income from profits previously generated in locally owned firms, as branch retailing plants and branch banking displace independent firms. In all six states, the share of rural retailing employment in branch plants has increased

dramatically at the expense of local ownership. The disadvantage to rural economies is the loss in profits. Instead of spent locally, profits generated in branches are more likely to be repatriated to owners in other location. Finally, in the other sectors of distributive, non-profit, and consumer services, independents and headquarters employment continue to be a a major source of local growth.

References

Anding, Thomas

Barkely, David (1978) "Plant Ownership Characteristics and the Locational Stability of Rural Iowa Manufacturers", Land Economics, 54 (February): 92-99.

Daniels, P.W. (1985) Service Industries, New York: Methuen & Co.

Ghelfi, Linda M. and Alexander T. Majchrowics "Jobs and Earnings in Nonmetro Industry, 1987" United States Department of Agriculture, Economic Research Service, Bulletin No. 589, February 1990.

Kirn, Thomas (1987) "Growth and Change in the Service Sector of the U.S.: A Spatial Perspective", Annals of the Association of American Geographers, 77, 3: 353-372.

Keil, Stanley R. and Richard Mack (19) "Identifying Export Potential in the Service Sector", Growth and Change, 17 : 1-10.

Morrill, Richard L. (1982) "A Note: Continuing Deconcentration Trends in Trade", Growth and Change, (January), 13.

Smith S. M. (1984) "Export Orientation of Non-manufacturing Businesses in Non-Metropolitan Communities", Journal of Agricultural Economics Association, 66: 145-155.

Stabler, Jack C. and Eric C. Howe (1988) "Service Exports and Regional Growth in the Postindustrial Era", Journal of Regional Science, 28,3: 303-315.

Stone, Ken (1987) "Impact of the Farm Financial Crisis on the Retail and Service Sectors of Rural Communities", paper presented at AAEA Symposium on Farm Debt Stress, Kansas City, Missouri, May.

Stone, Ken (1989) "The Impact of Wal-Mart Stores on Other Businesses in Iowa", October. Unpublished paper, Iowa State University.

Wheeler, James O. (1986) "Corporate Spatial Links with Financial Institutions: The Role of the Metropolitan Hierarchy", Annals of the Association of American Geographers, 76, 2: 262-274

APPENDIX 4-1a
SHARE OF EACH REGIONS EMPLOYMENT IN INDEPENDENT, HEADQUARTERS, SUBSIDIARY, AND BRANCH ESTABLISHMENTS
CALIFORNIA

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
INDUSTRY CATEGORY	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ RURAL	NON-ADJ. RURAL
						1980									
DISTRIBUTIVE SERVICES	37	57	51	19	14	16	7	1	2	38	28	32	100	100	100
CORPORATE SERVICES	42	61	56	21	7	15	8	0	2	29	32	28	100	100	100
NON-PROFIT SERVICES	49	65	35	19	11	23	4	11	.	28	13	42	100	100	100
RETAIL SERVICES	56	77	75	13	10	13	3	0	2	28	13	11	100	100	100
MOSTLY CONSUMER SERVIC	58	78	76	14	3	8	5	5	.	23	13	16	100	100	100
						1986									
DISTRIBUTIVE SERVICES	36	61	50	17	12	12	8	2	5	40	25	33	100	100	100
CORPORATE SERVICES	39	55	62	16	12	13	11	1	1	34	32	24	100	100	100
NON-PROFIT SERVICES	33	59	15	22	8	26	9	7	.	37	26	58	100	100	100
RETAIL SERVICES	48	65	67	11	10	11	2	1	1	39	24	21	100	100	100
MOSTLY CONSUMER SERVIC	55	69	73	11	4	6	6	7	5	27	20	15	100	100	100

Source: University of Maryland analysis of USEEM data, 1980 and 1986.

SHARE OF EACH REGIONS EMPLOYMENT IN INDEPENDENT, HEADQUARTERS, SUBSIDIARY, AND BRANCH ESTABLISHMENTS
MARYLAND EMPLOYMENT

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
INDUSTRY CATEGORY	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ.
1980															
DISTRIBUTIVE SERVICES	38	55	54	16	25	16	10	6	8	37	15	23	100	100	100
CORPORATE SERVICES	42	48	49	18	16	14	10	1	2	30	36	35	100	100	100
NON-PROFIT SERVICES	55	66	60	29	11	.	2	2	.	13	22	40	100	100	100
RETAIL SERVICES	55	77	69	12	12	14	4	1	3	29	10	14	100	100	100
MOSTLY CONSUMER SER.	69	81	76	11	8	7	4	6	4	15	4	13	100	100	100
1986															
DISTRIBUTIVE SERVICES	39	43	48	17	19	10	8	15	13	36	24	30	100	100	100
CORPORATE SERVICES	38	41	54	18	10	19	12	5	3	32	44	25	100	100	100
NON-PROFIT SERVICES	54	64	72	24	11	3	6	20	.	16	6	24	100	100	100
RETAIL SERVICES	51	68	58	10	11	9	3	2	4	36	19	30	100	100	100
MOSTLY CONSUMER SER.	64	76	76	11	4	13	6	7	6	20	13	5	100	100	100

Source: University of Maryland Analysis of USEEM data, 1980 and 1986.

SHARE OF EACH REGIONS EMPLOYMENT IN INDEPENDENT, HEADQUARTERS, SUBSIDIARY, AND BRANCH ESTABLISHMENTS
MASSACHUSETTS

	INDEPENDENT			HEADQUARTERS			SUBSIDIARY			BRANCH			TOTAL		
INDUSTRY CATEGORY	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ. RURAL	MSA	ADJ. RURAL	NON-ADJ.
1980															
DISTRIBUTIVE SERVICES	44	54	85	17	9	.	9	4	8	30	33	7	100	100	100
NON-PROFIT SERVICES	63	78	95	19	6	.	1	3	.	17	14	5	100	100	100
RETAIL SERVICES	63	81	88	12	8	4	4	1	.	21	10	8	100	100	100
MOSTLY CONSUMER SERVI	66	85	90	10	7	9	3	0	.	21	8	1	100	100	100
1986															
DISTRIBUTIVE SERVICES	32	49	79	13	16	5	7	4	10	47	31	6	100	100	100
NON-PROFIT SERVICES	46	82	66	20	2	.	13	3	.	21	13	34	100	100	100
RETAIL SERVICES	56	70	84	11	7	13	4	1	.	30	21	3	100	100	100
MOSTLY CONSUMER SERVI	57	84	80	12	6	18	7	0	.	25	10	2	100	100	100

Source: University of Maryland analysis of USEEM data, 1980 and 1986.

Draft - October 1, 1990
Marie Howland

Chapter 5

Determination of The Spatial Variation in Service Employment Growth[1]

The purpose of this chapter is to identify factors that explain differential rates of distributive, producer, non-profit, retail, and consumer service employment growth across counties. We test five models, one for each of the five categories of service activity.

Model

Employment growth is measured as the change in the number of employees between 1980 and 1986. The percentage change in employment was not used because large numbers result when a few new employees are added to a small employment base. This problem arises often when rural counties are analyzed. In order to control for the employment base, the number of employees in 1980 are included as an independent variable.

Service employment growth in a county is determined by both advantageous supply side and demand side conditions. Supply side catalysts of growth include availability of an appropriately skilled labor force, agglomeration economies, and low land costs. Agglomeration economies are the reductions in production costs that occur when there is a concentration of population, employment, and industry activity in an area. E. M. Hoover pointed out that the external economies of scale can be divided into two classes: localization economies, which result when firms of the same industry congregate at a given place, and urbanization economies, which result when firms of different industries located in the same place (Heilbrun, 1974). Localization economies reduce costs by making available an appropriately skilled labor force, economies to scale among

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[1] This chapter is part of a larger study of the role of services in rural economies, funded by the Aspen Institute's Rural Economic Policy Program and the Ford Foundation.

suppliers, and access to information about industry changes and competitor actions. Urbanization economies are attributable to such factors as a threshold market size, a large labor pool, and sophisticated urban infrastructure.

Demand for labor is a derived demand, or the result of demand for products produced by labor. The factors expected to influence demand for local services, and ultimately demand for service workers are the size and wealth of the market and market growth. Markets vary by type of service. For example, the market for retailers is primarily final consumers. The largest market for distributive services is intermediate consumers, or firms selling to final consumers. In the models that follow, market characteristics differ by service category.

Data

The data set includes all counties, with several exceptions described below, in the states of California, Kansas, Maryland, Massachusetts, New York, and Virginia. The data for the dependent variables are from the USEEM file described above. The data for the independent variables is from various government sources but collected in the *County City Data Book, 1988*. In total, there are 166 counties included in the analysis.

A number of counties in Virginia and Baltimore county and city were excluded. The reason is as follows. Virginia is comprised of counties and independent cities. In several cases, the independent cities are surrounded by a county. While the *County City Data Book* reports data for the independent cities and counties separately, in many cases the USEEM file does not. The same problem arose in Baltimore, where Baltimore City and Baltimore county are given the same county code in the USEEM file. Therefore in these cases we could not match the data in the USEEM file with population, income, employment, data in the *County City Data Book* file. The variables included in each model are summarized in Table 5-1 and described below.

Table 5-1
Variables Included in Models of Local Service Growth

Dependent Variables	Distributive	Producer	Non-Profit	Retail	Consumer
Supply Side Determinants of Growth					
1. Availability of Labor					
a. Population, 1980	X	X	X	X	X
2. Quality of Labor Force					
a. Percent Population 12 yrs of Education or more	X	-	-	X	X
b. Percent Population 16 yrs of Education or more	-	X	X	-	-
3. Agglomeration Economies					
a. Population Density	-	X	X	X	X
b. Industry Employment	X	X	X	X	X
4. Cost of Land					
a. Population Density	X	-	-	-	-
Demand Side Determinants of Growth					
1. Market Size Among Final Consumers					
a. Population, 1980	X	X	X	X	X
b. Income Per-capita	-	X	X	X	X
c. Percent of Population in Poverty	-	-	X	-	-
d. Employment in Government	-	X	X	-	-
2. Market Growth Among Final Consumers					
a. Population Change, 1980-86	X	X	X	X	X
b. Growth in Income Per-capita	-	X	X	X	X
3. Tourism					
a. Receipts from Lodging	-	-	-	-	X
b. Growth Receipts/Lodging	-	-	-	-	X
4. Market Size-Intermediate Consumers					
a. Manufacturing Employment, 1980	X	X	-	-	-
b. Service Employment, 1980	-	X	-	-	-
c. Retail Employment, 1977	X				
5. Growth-Intermediate Consumers					
a. Manufacturing Employment Growth (1980-85)	X	X	-	-	-
b. Retailing Employment Growth (1977-85)	X	-	-	-	-
c Services Employment Growth (predicted value)	X	X	-	-	-

Description of Models

Distributive Services

Distributive services include wholesaling, utilities, communications, and transportation services. The growth in a county's distributive services employment is hypothesized to be determined by the availability of a labor force,

measured as total population in 1980 and the quality of labor, measured as the percent of county population with a 12th grade education or higher. Both of these variables are expected to be positively associated with growth in distributive services.

Better proxies for the availability of labor would have been the size of the civilian labor force in 1980 or the percent of population between the ages of 18 and 54. The former variable is very highly correlated with 1980 population, with a pearson correlation of .99. Therefore, it is impossible to measure the impact of the size of the labor force on employment growth independent of the size of the market (population) on growth. The percent of the population working age is not available for the least population rural counties. Population in 1980 is used as a proxy for both labor force and market size.

Since warehousing is highly land-intensive, we include population density as a proxy for the cost of land, and we expect population density to be negatively associated with growth in distributive services.

Demand side factors expected to influence distributive services growth include the size of the local market and market growth. Markets for distributive services outputs include final consumers, who, for example, purchase telephone services, and intermediate consumers, who, for example, purchase wholesaling. Final demand is measured as total population in 1980 and population growth, 1980 to 1986. Intermediate demand is measured by 1980 manufacturing employment, 1980 service employment, and 1980 retail employment. Market growth among intermediate consumers is measured as the employment growth rates for manufacturing, retailing, and all services between 1980-1986. Population level and growth should be most important for the utilities and communications sectors; manufacturing and retailing for the wholesaling; and population and services for communications.

In the distributive services, as well as the other service equations, county population and manufacturing and service employment data are not ideal for measuring demand. In some cases, markets cut across county borders and in other cases, markets may be smaller than a county area. Because the area of counties

varies across the states, population can be large because of a large area or a more densely population small area. With the density variable included in the equations, this problem is accounted for in all of the equations.

Biased coefficients occur when the Ordinary Least Squares (OLS) method of estimation is used to estimate an equation that is part of simultaneous equation system. To correct for this bias, both the distributive (and producer) services equations are estimated with two stage least squares. Surveys have shown that the largest market for distributive and producer services are other services. Among the distributive service firms, this is especially true for communications services. Yet distributive service growth, the dependent variable, is a subset of all services, an independent variable. One of the assumptions of OLS is that the independent variables be exogenously determined and uncorrelated with the error term. This assumption is violated when the variable being explained is a subset of an explanatory variable. To correct for this problem both the distributive and producer service equations are estimated with a two-staged-least squares model.

Producer Services

Producer services include finance, insurance, real estate, business services, legal services, membership organizations, professional services, and social services. Supply side catalysts of producer service growth are hypothesized to the availability of labor; labor quality, measured as the percent of the population with 16 years of education or more; and agglomeration economies. Because producer services require a larger number of skilled or professional workers than distributive, retail, or consumer services the variable 16 years of education or more was selected. Nationally, 29.4 percent of men and 12.7 percent of women in the producer services sector have completed 16 years of schooling or more. This is higher than the percentages in distributive, retail, and consumer services (Fuguitt, Brown, and Beale 1989, p. 296).

Demand side factors expected to explain county differences in producer services employment growth include the size of the final consumer market,

measured as county population and county income per capita. Market growth is measured as population and per-capita income growth. Demand from intermediate consumers is measured using the level and growth of manufacturing and service employment and the level of government employment.

Non-profit

The non-profit sectors includes education and health services, and encompass many public as well as private enterprises. Supply side factors expected to influence growth in non-profit services include labor availability, labor skills, agglomeration economies, and government service provision. Growth is expected to be greatest where a highly skilled labor force is abundant, government is a provider of services, and agglomeration economies exist. The non-profit sector has a relatively highly educated labor force. Nearly 50 percent of men and 30 percent of women in this sector have completed 16 years of schooling or more (Fuguitt, Brown, and Beale 1989, p. 296). Therefore, we use the percent of population with 16 years of schooling or more as the proxy for labor quality in the non-profit equation.

Factors that influence demand for services, and ultimately demand for service workers, include population, population growth, per-capita income, income growth, and the size of the dependent poverty population. Growth should be greatest where the population is large and growing. After holding income per-capita constant, we expect the coefficient on the poverty variable to be positive. The larger the size of the low-income population, the greater the demand for many non-profit services such as vocational training and not-for-profit housing corporations.

Retailing

The supply side conditions expected to facilitate the attraction and expansion of retailing sales, and ultimately employment, include the size of the labor force, labor skills measured as the proportion of the labor force with a 12th grade education and above, and agglomeration economies. Agglomeration

economies in this model captures a city's place in the urban hierarchy. Higher density cities support not only more services, but a services of an entirely different line than less dense settlements. See Heilbrun 1974, for example, for a more complete discussion of Central Place Theory.

Demand side factors expected to influence retail sales and employment include population size, population growth and the level and growth in income per-capita.

Consumer Services

Consumer services include personal services, hotels and motels, auto repair and garages, other repair services, motion pictures, recreation and entertainment, and private household services. The factors hypothesized to influence the growth of consumer services are the same as those for retailing with the addition of proxy variables for tourism. The amount of tourism is measured as the level of receipts from hotels and lodging and the growth of receipts from hotels and lodging.

Results

Distributive and Producer Services

Both of these equations were estimated as two-stage models which included equation 1. The equation is shown here and the variables are defined below. The values in () are T-statistics.

(1)

$$S\hat{} = -40620.1 - 2520.4(LFC) - 13.5(ED12) - .04(MAN) + 2499.8(MANCH)^{**} + 10635.9(INCCH)^{*} + 5.3(IPC)^{*}$$
$$(-4.83) \quad (.46) \quad (.21) \quad (.84) \quad (1.80) \quad (2.04) \quad (6.39)$$

$$+ .02(POP)^{*} - 9198(POPCH) + 401(POV)^{**} - .03(DEN)^{**} + 137.9(RECL)^{*} + e$$
$$(4.76) \quad (-1.03) \quad (1.84) \quad (-1.80) \quad (12.84)$$

$Adj\ R^2 = .86$

where;

S^ = Change in service employment, 1980 to 1986
LFC = Increase in the civilian labor force, 1980 to 1985.
ED12 = Proportion of the population with 12 years of education or more.
MAN = Total manufacturing employment, 1980
MANCH = Percentage change in manufacturing employment, 1980 to 1985.
INCCH = Percentage change in money income, 1979 to 1985.
IPC = Money income per-capita, 1979.
POP = Population in 1980.

POPCH = Percentage change in population, 1980 to 1986.
POV = Percent of persons below poverty level, 1979.
DEN = Population per square mile, 1980.
RECL = Receipts from hotels, motels, and other lodging places, 1982.

The results for the distributive services model is in column 1 of Table 5-2. The change in distributive services employment is positively associated with size of the population, a proxy for both market and labor force. This coefficient can be interpreted as an additional 1000 employees in the county labor force attracts 4 additional distributive services jobs, when all other variables are held constant.

Several attempts were made to improve the measurement of labor availability. First, the 1980 Civilian labor force is added. These results of this equation are reported in Appendix 5-2. As mentioned above, the size of the Civilian labor force is highly correlated with population. Second, the change in the labor force was tested in this and the remaining equations, but dropped for two reasons. First, growth in the labor force for the years for which data are available, 1977 to 1985, may be a consequence rather than a cause of growth. Moreover this variable, when tested, was not statistically significant in any of the equations.

Education level is not significant in this or any of the other equations. One possible reason is that education is a poor proxy for required skills, which include years of specialized job training, on-the-job training, and experience. The lack of significance is not due to a limited range in values. The range of values is from 80 to 50 percent of the population with 12 years of education or more.

Population density, the proxy for land costs, is negatively and significantly associated with growth in distributive services. An increase of population density by 100 people per square mile, reduces distributive services employment by 3 workers.

Table 5-2
Results - Models of Local Service Growth

Dependent Variables	Distributive	Producer	Non-Profit	Retail	Consumer
	2SLS	2SLS	OLS	OLS	OLS
Intercept	274.90	-10363.59*	-8538.98*	-6943.45*	68619.35
	(.24)	(-2.06)	(-2.26)	(-4.33)	(.60)
Level of Employment,	-.13*	.10*	.11*	.15*	.07**
	(-5.65)	(3.11)	(2.53)	(5.13)	(1.91)
Supply Side Determinants of Growth					
1. Availability of Labor					
a. Population (1980)	.004*	-.03*	-.01*	-	-
	(2.31)	(-2.69)	(-2.19)	-	-
2. Quality of Labor Force					
a. Percent Population 12 yrs of Education or More	-13.83	-	-	-9.15	2.65
	(-.77)	-	-	(-.35)	(.23)
b. Percent Population 16 yrs of Education or More	-	-139.51	22.62	-	-
	-	(-1.03)	(.71)	-	-
3. Agglomeration Economies					
a. Population Density	-	.04*	.02*	-.002	-.03**
	-	(2.00)	(4.02)	(-.55)	(-1.80)
4. Cost of Land					
a. Population Density	-.03*	-	-	-	-
	(-4.67)	-	-	-	-
5. Government Service Provision					
a. Government	-	-	.07*	-	-
	-	-	(2.86)	-	-
Demand Side Determinants of Growth					
1. Market Size Among Final Consumers					
a. Population Size	.004*	-.03*	-.01*	.001	.001
	(3.31)	(-2.69)	(-2.19)	(.60)	(1.49)
b. Income Per-capita	-	1.91*	.88*	1.11*	.08
	-	(2.46)	(2.03)	(4.21)	(.72)
c. Percent of Population in Poverty	-	-	142.86	-	-
		-	(1.35)	-	-
2. Market Growth Among Final Consumers					
a. Population Change	3079.70*	228.05	722.40	5878.54*	1011.35
	(1.34)	(.04)	(.26)	(2.30)	(.89)
b. Growth in Income Per-Capita	-	1414.77	2082.31	1520.95	327.79
	-	(.30)	(.88)	(.78)	(.39)
3. Tourism					
a. Receipts/Lodging	-	-	-	-	.02*
	-	-	-	-	(4.41)

Table 5-2 Continued

b.	Growth Receipts/Lodging	-	-	-	-	69646.31
		-	-	-		(.61)
4.	Market Size-Intermediate Consumers					
a.	Total Manufacturing Employment	.06* (4.60)	.05 (1.02)	- -	- -	- -
b.	Total Employment in Retailing	.01 (.19)	- -	- -	- -	- -
b.	Total Employment in Services	- -	.18** (1.68)	- -	- -	- -
c.	Total Employment in Government	- -	.13** (1.80)	- -	- -	- -
5.	**Growth-Intermediate Consumers**					
a.	Manufacturing Employment Growth (1980-85)	-63.27 (-.13)	1370.36 (.97)	- -	- -	- -
b.	Retailing Employment Growth (1977-85)	-549.30 (-1.02)	- -	- -	- -	- -
c.	Service Employment Growth	.13* (4.25)	.22* (2.16)	- -	- -	- -
N = 166		R^2 = .89	R^2 = .86	R^2 =.62	R^2 =.77	R^2 = .81

The 1980 level of employment in distributive services was included to control for the size of the employment base at the beginning of the period. However, this variable also captures intra- industry agglomeration economies. The negative value here indicates that new distributive services employment is repulsed from the existing centers of distributive services employment. The story consistent with these results is that as urban areas absorb peripheral counties, distributive activities, which tend to be land intensive and often incompatible with suburban development, are pushed further from the traditional centers of employment. Since these activities continue to require a large labor force, they locate in counties with a sizable working age population.

Distributive services employment growth is greatest in where the concentration of manufacturing is greater. The coefficient indicates that 100 additional manufacturing jobs results in 6 additional distributive services jobs. Wholesaling is the component of distributive services expected to be most influenced by manufacturing and retailing activity. The level of retail activity, and the change in retail and manufacturing activity are statistically significant.

The growth in service employment is positive and significant at the 5 percent level. An increase of 100 service jobs in a county are estimated to attract 11 distributive services jobs. The communications industries are the component of distributive services expected to be sensitive to the service sector.

Both demand and supply side factors are important determinants of increases in distributive services employment. Land costs and labor availability are important on the supply side and manufacturing employment and service sector growth is important on the demand side. Employment growth is greatest in counties with less dense, but larger populations. Finally, the pull towards manufacturing is greater than the pull of retailing, and the pull of services is greater than the linkage with manufacturing.

Producer Services

Again, the education variable is not a good predictor of employment change (see column 2, table 5-2). The reason may be that each of these service categories, particularly producer services, are heterogeneous in terms of skill requirements. For example, producer services includes photo copiers and lawyers. The education variables tested here are probably an imprecise proxy of requisite labor skills.

As expected, agglomeration economies are important to growth in producer services, and more important for producer than the other four categories of services. Urbanization economies are captured by the population density variable which has a positive coefficient that is significant at the 5 percent level. This coefficient can be interpreted as an increase of population density of 100 people per square mile would increase producer services employment by 4 employees. Localization economies include the benefits to firms of having a large number of firms in similar activities that provide a pool of appropriately skilled labor and a large market for specialized inputs. This variable is measured by total producer services employment in 1980 and is also positive and statistically significant. This coefficient can be interpreted as an additional 100 producer services jobs contributes 10 jobs to the county.

Per capita income is an important determinant of producer services growth. The coefficient on per-capital income can be interpreted as every $100 increase in per-capita county income results in an additional 191 producer services jobs.

Among the remaining variables measuring demand for producer services, the coefficients on the level of service employment growth are positive and statistically significant at the 10 percent level or better. However, the coefficients on employment in manufacturing and employment change in manufacturing are not significant. This results indicate that the service sector is either a more important markets for producer services or proximity to the services market is more important than proximity to the manufacturing market. This finding is consistent with our earlier finding that producer services are not following manufacturing activity to rural counties.

Non-Profit Services

Agglomeration economies, measured both as urbanization and localization economies are significant, with intra-industry economies have a larger impact on the growth of non-profit jobs than urban economies (population density). Government activity, measured as the number of government employees, is also positive and significant. The coefficient can be interpreted as a 100 additional government employees contributes 10 non-profit employees to a county.

On the demand side, non-profit services growth is also greater in high population, high income areas. The sign of the coefficient on, population growth, income growth, and the proportion of the population in poverty are as expected, but are not statistically significant at the 5 percent level.

Retailing

Demand side variables are the most important predictors of where retailing growth takes place. Urbanization economies are not statistically significant. Rather population, income levels, and population growth are the determinant of employment growth in retailing. Producer services and retailing are the services most sensitive to local incomes.

Consumer Services

Localization economies are the only supply side variables that are statistically significant in the consumer services equation. The coefficient on urbanization economies (population density) is negative and significant at the 10 percent level of significance. As in the case of retailing, this negative value may represents the suburbanization of higher income residents. It is reasonable to expect agglomeration economies to be less important for both retail and consumer service than for producer and non-profit services because retailing and consumer services require a relatively unspecialized labor force, unspecialized inputs, face to face contacts with consumers, and generally reach minimum average costs at low levels of output.

On the demand side, local population and incomes appear insignificant factors in explaining growth. Rather growth in consumer services is occurring in counties with in the counties with the greatest concentration of tourism.

In few of the cases is the change variable, including the change in population and change in income, statistically significant. The one exception is population change in the retail services equation. One reason may be that the year of change in the independent variable are coincident with the years of change in the dependent variable. The startup or expansions of a business can take several years, and therefore the growth in service employment is most likely a response to increases in demand that occurred in an earlier period. Time series data is necessary to determine the lag between increases in demand and supply responses.

Implications for Rural Service Growth

There are four conclusions with relevance to rural service growth. Results reported earlier indicate producer services continued to centralize, between 1980 and 1986, eventhough manufacturing employment was decentralizing to rural counties. The results of the producer services equations is consistent. Producer services employment is attracted to agglomeration economies on the supply side, and service markets on the demand side. Both of these factors would pull producer services towards urban centers. There is no evidence in the equation that producer services are pulled towards manufacturing and consequently towards rural areas.

One explanation is the improvements in telecommunications have permitted the decentralization of manufacturing, while allowing manufacturers to continue communication with producer service inputs in distant urban areas. Producer services are pulled to the urban areas, by their need for a skilled labor force, and face to face contacts with suppliers and service markets, and these ties are stronger than the need for proximity to manufacturing.

A second finding with important implications for rural areas is that the services most likely to follow decentralizing manufacturing are distributive

services. This suggests that distributive services growth is a potential source of additional employment for some rural counties. Although not tested here, the distributive services industry most likely to follow manufacturing is most likely wholesaling, rather than utilities and communications.

A third finding is that retailing and consumer services are driven more by demand rather than supply considerations. Aside from localization economies, none of the supply side variables are positively associated with retail and consumer service growth. Population and income are the most important factors in retail employment growth. Consumer services growth is driven primarily by tourism. In contrast, supply side factors are more important for distributive, producer, and non-profit services.

Finally, although income- per- capita is statistically significant in the producer, non-profit, and retailing equations, local income has the more important impact on employment growth in producer services and retailing. This implies that producer and retailing employment growth are especially highly dependent on the health and spending power of the local economy.

Bibliography

Fuguitt, Glen V., David L. Brown, and Calvin L. Beale *Rural and Small Town America*, New York: Russell Sage Foundation, 1979.

Heilbrun, James *Urban Economics and Public Policy*, New York: Macmillan Press, 1974.

Appendix 5-1
Description and Source of the Dependent and Independent Variables

Change in Employment, 1980 to 1986. Source: United States Establishment and Employment Microdata file, 1980 and 1986.

Government employment - includes total government employment including the county, municipalities, townships, school districts, and special districts in 1980. Source: *The County and City Data Book, 1988.*

Education, percent of the population with 12 years of education completed or more, 1980. (ED12) Source: *The County and City Data Book, 1988.*

Education, percent of the population with 16 years of education completed or more. 1980. Source: *The County and City Data Book, 1988.*

Income Per-capita, 1979 (IPC) - Money income is the sum of wages and salaries; net non-farm and farm self-employment; interest, dividends and net rentals; Social Security; public assistance; and other sources such as veterans payments, pensions, alimony. Value represents amount of income before taxes, medicare, union dues, etc. This value is divided by the resident population as enumerated as of April 1, 1980. Source of income data: *Census of Population and Housing, Summary Tape File 3c.* Source of population data: *Census of Population, 1980.*

Income Growth. 1979 to 1985 (INCCH) - Percentage change in money income. Source: *The County and City Data Book, 1988.*

Labor force change (LFC) - Percentage change in the civilian labor force, 1980 to 1985. Source: *The County and City Data Book, 1988.*

Manufacturing Employment, 1980 (MAN) - number of workers employment in manufacturing. Source: *The County and City Data Book, 1988.*

Manufacturing Employment Change, 1980 to 1985 (MANCH) - the percentage change in employment. Source: *County and City Data Book, 1988.*

Population (POP) - total county population in 1980. Source: *The County and City Data Book, 1988.*

Population Density (DEN) - number of people per square mile in 1980. Source: *The County and City Data Book, 1988.*

Population Growth (POPCH) - the percentage change in population, 1980 to 1986. Source: *The County and City Data Book, 1988.*

The proportion of the county population in poverty, 1980 (POV) - Source: *The County City Data Book, 1988.*

Receipts of hotels, motels, and other lodging places, 1977. (RECL) Source: *The County and City Data Book, 1988.*

Receipts from hotels, motels, and other lodging places change - Percentage change in receipts of hotels, motels and other lodging places, 1977 to 1982. Source: *The County and City Data Book, 1988.*

Retail Employment Change - The percentage change in retail employment, 1977 to 1985. Source: *The County and City Data Book, 1988.*

Service Employment, total - Total employment in health, education and other professional services in 1980. Source: *The County and City Data Book, 1988.*

Appendix 5-2
Models of Local Service Growth, including the Size of 1980 Civilian Labor Force

	Distributive 2SLS	Producer 2SLS	Non-Profit OLS	Retail OLS	Consumer OLS
Intercept	1332.73	-9141.07**	5914.91*	-8265.80*	69633.82
	(1.68)	(-1.79)	(-2.19)	(-5.05)	(.61)
Level of Service Industry Employment.	-.15*	.10*	.06*	.24*	.09*
	(-7.49)	(2.85)	(1.29)	(5.70)	(2.00)
Supply Side Determinants of Growth					
1. Availability of Labor					
a. Size of Labor Force (1980)	.09*	.06	.06*	-.05*	-.01
	(7.49)	(1.58)	(5.04)	(-2.88)	(.74)
2. Quality of Labor Force					
a. Percent Population 12 yrs of Education or More	-28.94**	-	-	-.20	1.56
	(-1.85)	-	-	(-.77)	(.14)
b. Percent Population 16 yrs of Education or More	-	-120.34	3.28	-	-
	-	(-.89)	(.06)	-	-
3. Agglomeration Economies					
a. Population Density	-	.05*	.03*	-.01*	-.01*
	-	(2.41)	(5.58)	(-2.05)	(-2.47)
4. Cost of Land					
a. Population Density	-.02*	-	-	-	-
	(-2.84)	-	-	-	-
5. Government Service Provision					
a. Government	-	-	.10*	-	-
	-	-	(4.14)	-	-
Demand Side Determinants of Growth					
1. Market Size Among Final Consumers					
a. Population Size	-.03*	-.05*	-.03*	.02*	.003
	(-5.97)	(-2.41)	(-5.55)	(2.66)	(1.04)
b. Income Per-capita	-	1.63*	.30**	1.41*	.13
	-	(2.06)	(1.70)	(5.06)	(.99)
c. Percent of Population in Poverty	-	-	160.34**	-	-
	-	-	(1.87)	-	-
2. Market Growth Among Final Consumers					
a. Population Change	5350.33*	1084.80	4730.02**	3631.46	726.37
	(2.66)	(.17)	(1.82)	(1.39)	(.60)
b. Growth in Income Per-Capita	-	2457.97	2787.03	1707.33	403.44
	-	(.51)	(1.21)	(.88)	(.99)

Appendix 5-2 Continued

3. Tourism					
a. Receipts/Lodging	-	-	-	-	.02*
	-	-	-	-	(4.28)
b. Growth Receipts/Lodging	-	-	-	-	70918.58
	-	-	-		(.62)
4. Market Size-Intermediate Consumers					
a. Total Manufacturing Employment	.02	-.01	-	-	-
	(1.32)	(.09)	-	-	-
b. Total Employment in Retailing	-.05	-	-	-	-
	(1.08)	-	-	-	-
b. Total Employment in Services	-	.13	-	-	-
	-	(1.25)	-	-	-
c. Total Employment in Government	-	.10	-	-	-
	-	(1.31)	-	-	-
5. Growth-Intermediate Consumers					
a. Manufacturing Employment Growth (1980-85)	124.26	1370.36	-	-	-
	(.28)	(.97)	-	-	-
b. Retailing Employment Growth (1977-85)	-738.31	-	-	-	-
	(-1.57)	-	-	-	-
c. Service Employment Growth	.07*	.19**	-	-	-
	(2.77)	(1.84)	-	-	-
N = 166	R^2 = .91	R^2 = .86	R^2 =.67	R^2 =.78	R^2 = .81