

Patterns of retail change: A comparison of metropolitan and nonmetropolitan counties in Indiana 1972 to 1992

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Abstract. This study examines differences in growth of retail trade between metropolitan and nonmetropolitan counties using data for Indiana counties from the five most recent volumes of the *Census of Retail Trade* (1972 to 1992). Results of the Mann-Whitney procedure comparing median growth rates indicate that the number of retail establishments, the total retail sales, and the number of retail employees grew significantly faster in metropolitan counties than in nonmetropolitan counties. Policy makers attempting to arrest economic decline in nonmetropolitan areas should address the slower growth rate of retailing in these counties.

1. Introduction

Much has been written about the difference between urban and rural America. Between 1880 and 1990 the United States changed from a country that was one quarter urban and three quarters rural to a country where three quarters of the population live in urban areas and only a quarter of the population lives in rural areas (Lindsey 1995). Many sociologists have viewed the urbanization of America negatively (Johansen and Fuguitt 1984). The loss of small town values and other positive aspects of rural society are viewed with alarm, especially when viewed against the many urban problems noted in America's cities (Salamon and Davis-Brown 1990; Willits, Bealer, and Crider 1982).

The major reason for the transition from a rural to an urban society has been economic. Jobs and economic growth have left rural areas and have moved to cities (Wardwell and Brown 1980). Efforts to revitalize the rural economy have not achieved great success, and rural growth in the 1980s was minimal (Johansen 1993). Agriculture, the traditional economic mainstay of rural America, is no longer the predominant employer in rural America. As early as 1974 retail and other service industries were the major source of employment for nonmetropolitan males (29.0 percent); followed closely by manufacturing (27.7 percent); with agricultural employment a distant third (13.6 percent) (Tweeten 1982). The decline in agricultural employment continued throughout the 1980s and into the 1990s (Ilg 1995).

Rural America faces difficult economic problems. Personal incomes are lower in rural areas, averaging \$10,200 in rural areas compared to \$13,700 in urban areas.

Additionally, rural areas are not benefiting as much as urban areas from the overall trend to a service-based economy (Henry, Drabenstott, and Gibson 1988). Policy makers should address these economic problems because "rural economic viability is of enormous importance to the social health of rural places" (Castle 1993 p. 16).

Policy makers are looking for ways to initiate an economic and demographic turnaround in rural America (Gilford, Nelson, and Ingram 1981). Some analysts believe that retail and service industries should be in the forefront of new rural development. According to Harris and Shonkwiler (1994), "expansion of local services and the retail sector addresses the economic development strategy" of rural areas (p. 143). Johansen and Fuguitt (1984) indicate that "the dominant economic activity of the American village has been in the retail and service sector" (p. 107).

This study focuses on retail growth rates of urban and rural counties in Indiana between 1970 and 1992. Nonmetropolitan counties are assumed to constitute rural Indiana (Henderson 1990; Henry, Drabenstott, and Gibson 1988; Johnson 1985; Tweeten 1982). A nonmetropolitan county is one that is not located in a standard metropolitan statistical area (SMSA) as defined by the Office of Management and Budget. Indiana has a few metropolitan core cities, but is largely rural.

Although the population of Indiana has been stable, the state has shown tremendous economic growth in the period under review. The state's population between 1970 and 1990 increased only 7 percent compared to national population growth of 22 percent (Bureau of the Census 1994b). Between 1972 and 1992 state domestic product grew nearly 75 percent, from \$59 billion to \$103 billion in constant 1987 dollars (Beemiller 1994; Renshaw, Trott and Friedenbergl 1987), compared to a national growth rate of over 110 percent.

This study examines the differences in retail growth rates between metropolitan and nonmetropolitan counties. The combined factors of a stable population, economic growth, and having both metropolitan and nonmetropolitan counties make Indiana an appropriate location for this study.

2. Survey of literature

The expectation that retail trade will be found in rural areas is based on central place theory. Central place theory assumes that markets for goods will situate in a location central to the population of consumers. From the seller's viewpoint, each specific good has a threshold range that contains enough customers to keep the retailer of that good in business. Low order goods, such as groceries and hardware, will have the smallest range. Higher order goods, such as appliances or works of art, have a much larger threshold range (Young 1983).

From a consumer viewpoint, each good has a maximum range beyond which a buyer will not travel to purchase the good. This range is based on the price of the good, the cost of transportation and other factors (Young 1983). The equilibrium between the retailer's threshold range of a good and the consumer's maximum range results in a hierarchy of central market places. From smallest to largest, these market locations are delineated as "hamlet, village, town, and city" (Marshall 1969; Young 1983).

With the increased mobility of rural residents, traditional central place theory has come under scrutiny. Parr and Denike (1970) suggest that central place theory needs to be adjusted due to changes in technology, improvements in transportation, and population changes. Economists recognize that improvements in transportation systems provide rural residents with alternatives to local merchants (Henderson and Hines 1990).

The changing nature of the rural retail marketplace has been researched by Johansen and Fuguitt (1984) and Johnson (1985). Their studies examine national interrelationships of economic activity in rural villages and nonmetropolitan counties. They find that the rural economy, including the retail industry, is not growing as fast as the urban economy and that many nonmetropolitan counties are suffering population and retail economic losses. In a study of the rural village, Johansen and Fuguitt (1984) find that "villages suffered a serious loss of retail outlets during the period of study. With over three-fourths of all sampled villages losing establishments between 1950 and 1970, the importance of the village as a shopping center has clearly been diminished" (p. 134).

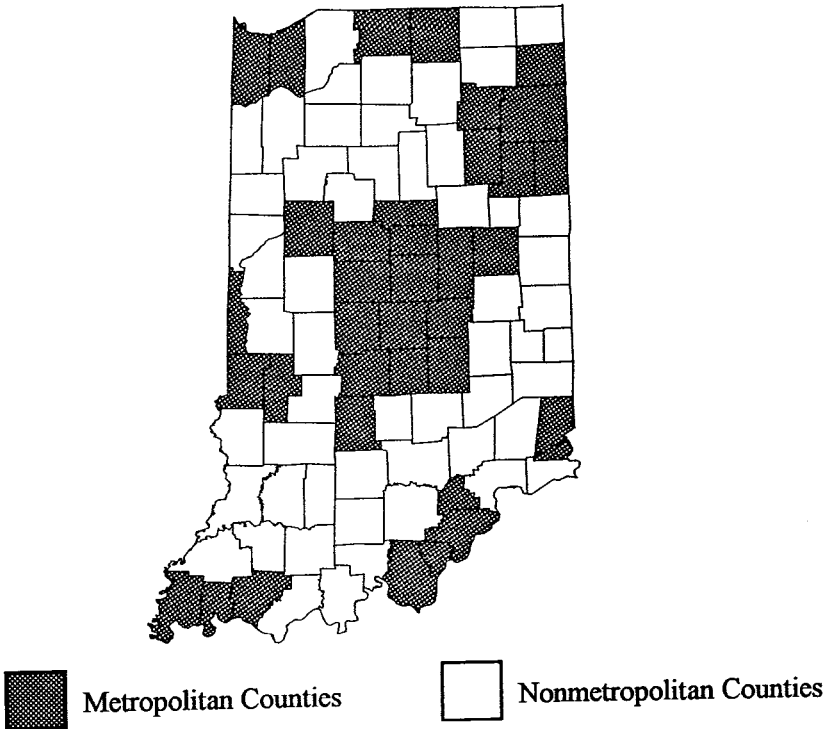
Johnson (1985) finds that rural retail spending, the number of rural retail establishments, and rural retail employment all grew more slowly than the growth that occurred nationally from 1929 to 1972. He finds that population change exerts a substantial causal impact on three retail growth measures. He also notes, however, that "the increased mobility and affluence of the rural population lead many of them to bypass small local retail centers and travel to larger regional shopping centers. Data indicate that retail losses were most severe in declining counties without a large urban place" (Johnson 1985 p. 58).

Studies by Gruidl and Andrianacos (1994), Harris and Shonkwiler (1994), and Yanagida, Johnson, Young, and Lundeen (1991) have calculated individual county retail pull factors and note consistent retail leakage from nonmetropolitan counties. A retail pull factor is a mathematical measurement of whether a county is obtaining its proportional share of a state's overall retail business. Pull factors above unity indicate that a county is importing sales from outside its boundaries. Pull factors below unity indicate that the county is suffering retail leakage to other areas. The studies indicate that nonmetropolitan counties, particularly those without a large central community, are losing retail business to urban counties.

A major issue of concern to small towns and rural merchants is the growth of discount retail chain (DRC) stores, particularly Wal-Mart (Gann 1993; Rawn 1990). These retailers tend to draw customers from a much larger geographic range than other establishments. In a study encompassing Arkansas, Missouri, and Oklahoma (Ozment and Martin 1990) the presence of a DRC is found to positively affect retailing in the counties with DRCs while negatively affecting retailing in nearby counties without DRCs. In Indiana all but two of the metropolitan counties have at least one discount store within their boundaries. Nearly half of the nonmetropolitan counties, however, are without a discount store.

Acknowledging the disparity in per capita income in metropolitan and non-metropolitan counties, Henderson (1990) and Henderson and Hines (1990) address the impact of income on rural retail expenditures. After examining the impact of rural

Figure 1. Indiana: metropolitan and nonmetropolitan counties



Source: *Census of Retail Trade: Geographic Area Studies: Indiana, 1994*

income on rural retailing in Minnesota between 1979 and 1986, they find that increases in income in a nonmetropolitan county do not always increase retail spending, particularly in counties without a major retail center. More affluent residents are more likely to travel to larger communities to obtain a wider selection of goods.

As stated by Ayres, Leistriz, and Stone, “whatever the causes, the effect of declining retail sales volume can be devastating to small towns” (1992 p. 1). Their study of 37 rural communities in three Midwestern states shows that “developing or maintaining a healthy retail sector in a rural community is an uphill battle” (p. vi). They state that additional research is necessary.

In summary, the literature suggests that retail growth differs between urban and rural or metropolitan and nonmetropolitan counties. Identification of these differences can aid regional economic planners and developers in determining appropriate action to improve rural economies. Ten growth measures in three categories are compared:

- 1) Overall growth;
- 2) Retailing ratios; and
- 3) Combined retailing and population ratios.

3. Data and methodology

Data for the study were drawn from the last five volumes of the *Census of Retail Trade* (Bureau of the Census 1974, 1979, 1984, 1989, 1994). Title 13 of the United States Code directs the Census Bureau to take an economic census every five years, covering years ending in 2 and 7 (Bureau of the Census 1994a). The *Census of Retail Trade* includes information on firms engaged in retail trade as defined in the *Standard Industrial Classification Manual* (Office of Management and Budget 1987). All data are converted to constant 1987 dollars using the retail trade index of real gross domestic product by industry (Industry Economic Division, Bureau of Economic Analysis 1976, 1989, 1993, 1995).

The sample unit used is the county. Each of the 92 counties in Indiana is identified as metropolitan (urban) or nonmetropolitan (rural) in 1992 (Bureau of the Census 1994a). The resulting sample consists of 37 metropolitan counties and 55 nonmetropolitan counties (Figure 1).

Population data for Indiana counties in 1970, 1980, and 1990 are obtained from *Population Trends for Indiana Counties, Cities, and Towns 1970-1990* (Highway Extension and Research Project for Indiana Counties and Cities 1991). County population census data in the years 1970, 1980, and 1990 are matched with county retail census data for the years 1972, 1982, and 1992, respectively. A limitation of the study is that each county is treated as an equal sample unit despite the proportional differences in county population and retail trade.

The growth rate in several retail related categories is obtained for the time period 1972 to 1992. The Mann-Whitney procedure is used to compare the medians of several measures of growth in metropolitan and nonmetropolitan counties. The Mann-Whitney procedure is a nonparametric analogue to a two sample t-test and is used when the sample groups are from a population that is not normally distributed (Schlotzhauer and Littell 1987). The following measures were examined:

- Population;
- Number of retail establishments;
- Retail sales in constant dollars;
- Number of retail employees;
- Sales per store;
- Employees per store;
- Sales per employee;
- Sales per 1,000 population;
- County retail sales as a percentage of county income; and
- Retail employment as percentage of population.

4. Descriptive statistics

4.1 Overall growth

A high correlation between population growth and retail growth has been observed (Johnson 1985), and the results of the study are consistent with this obser-

Table 1. Overall growth measurements

Population	1972	1977	1982	1987	1992
Metropolitan	3,705,681		3,884,690		3,962,446
Nonmetropolitan	<u>1,489,711</u>		<u>1,605,489</u>		<u>1,581,713</u>
State total	5,195,392		5,490,179		5,544,159
Number of retail establishments					
Metropolitan	20,733	21,355	21,283	23,406	23,808
Nonmetropolitan	<u>10,226</u>	<u>10,113</u>	<u>9,399</u>	<u>9,677</u>	<u>9,640</u>
State total	30,959	31,468	30,682	33,083	33,448
Retail sales in constant 1987 dollars (\$1,000)					
Metropolitan	16,533,870	18,647,657	23,205,782	25,950,926	28,788,585
Nonmetropolitan	<u>5,355,866</u>	<u>5,988,111</u>	<u>7,082,946</u>	<u>7,146,138</u>	<u>8,203,633</u>
State total	21,889,736	24,635,768	30,288,728	33,097,064	36,992,218
Number of retail employees					
Metropolitan	222,387	253,676	260,417	322,526	343,030
Nonmetropolitan	<u>68,855</u>	<u>77,929</u>	<u>77,436</u>	<u>89,940</u>	<u>99,081</u>
State total	291,242	331,605	337,853	412,466	442,111

vation. Table 1 shows that the population of Indiana grew from 5.20 million in 1970 to 5.54 million in 1990, a 6.7 percent increase. The proportion of the population who were either metropolitan or nonmetropolitan remained almost the same during the period. About 71 percent and 29 percent of the total population, were metropolitan and nonmetropolitan, respectively, in 1970 and 1990.

The number of retail establishments grew at a rate similar to the population growth. Table 1 reveals that the number of retail establishments grew from 30,959 in 1972 to 33,448 in 1992, a 8.04 percent increase. Despite the small increase in number of establishments, the amount of retail business grew 69 percent in constant 1987 dollars.

But the pattern of growth differed between metropolitan and nonmetropolitan counties. The number of retail establishments in nonmetropolitan counties declined, while the number of establishments in metropolitan counties increased. The number of nonmetropolitan retail establishments decreased from 10,226 to 9,640 between 1972 and 1992. During the same period the number of retail establishments in metropolitan counties grew from 20,733 to 23,808.

Growth in retailing can also be analyzed by number of retail employees. In 1972 retail employment in Indiana was 291,242 (Table 1). By 1992 retail employment had grown 51.8 percent to 442,111. The growth rate in metropolitan counties was more than 10 percent higher than in nonmetropolitan counties.

4.2 Retailing ratio growth

Change in size of retail stores may have been a factor in the changes in retail growth. Table 2 shows that annual sales per store overall, in constant 1987 dollars,

Table 2. Retailing ratio measurements

Sales per store in constant 1987 dollars	1972	1977	1982	1987	1992
Metropolitan	797,500	873,200	1,090,300	1,108,700	1,209,200
Nonmetropolitan	<u>523,700</u>	<u>592,100</u>	<u>753,600</u>	<u>738,500</u>	<u>851,000</u>
State average	707,100	782,900	987,200	1,000,400	1,106,000
Retail employees per store					
Metropolitan	10.7	11.9	12.2	13.8	14.4
Nonmetropolitan	<u>6.7</u>	<u>7.7</u>	<u>8.2</u>	<u>9.3</u>	<u>10.3</u>
State average	9.4	10.5	11.0	12.5	13.2
Sales per employee in constant 1987 dollars					
Metropolitan	74,300	73,500	89,100	80,500	83,900
Nonmetropolitan	<u>77,800</u>	<u>76,800</u>	<u>91,500</u>	<u>79,500</u>	<u>82,800</u>
State average	75,200	74,300	89,700	80,200	83,700

increased from \$707,000 to \$1,106,000, an jump of 56.4 percent. Overall the average number of employees per store increased from 9.4 to 13.2 between 1972 and 1992.

Nonmetropolitan stores had a smaller volume of sales and fewer employees in both 1972 and 1992 (Table 2). In 1972 metropolitan retail stores had annual average sales of \$797,000, while nonmetropolitan stores averaged \$524,000 in annual sales. By 1992 average metropolitan store sales volume increased to \$1,209,000, while nonmetropolitan store sales volume increased to only \$851,000. The number of employees at each metropolitan establishment increased from an average of 10.7 to 14.4 compared to 6.7 and 10.3 employees at each nonmetropolitan county store.

The amount of sales per retail employee grew 11.3 percent overall. Table 2 shows that each retail employee generated \$75,200 of sales in 1972; by 1992 this measure had increased to \$83,700. The amount of sales per store employee did not vary greatly between metropolitan and nonmetropolitan stores. In 1992 metropolitan retail employees generated \$83,900 of sales annually, while their nonmetropolitan counterparts generated \$82,800.

4.3 Combined retailing and population ratio growth

Overall the amount of retail sales per 1,000 of the population increased and the proportion of employees engaged in retail sales also increased. Table 3 reveals that the amount of retail sales for every 1,000 population increased, in constant 1987 dollars, from \$4,213,298 to \$6,672,287, an increase of 58.4 percent between 1972 and 1992. The retail industry employed 5.61 percent of Indiana residents in 1972 compared to 7.97 percent in 1992.

Although the proportion of the Indiana population residing in metropolitan counties remained almost the same in 1972 and 1992, retail sales in metropolitan counties increased to 79 percent of total sales in 1992. The amount of retail sales per 1,000 population was 24 percent larger in metropolitan counties than in nonmetropolitan counties in 1972 (Table 3). By 1992 this difference had increased so that sales per 1,000 of population in metropolitan counties were 40 percent larger than

Table 3. Combined retailing and population ratio measurements

Sales per 1,000 population	1972	1982	1992
Metropolitan	4,461,763	5,973,651	7,265,357
Nonmetropolitan	3,595,239	4,411,707	5,186,550
State average	4,213,298	5,516,893	6,672,287
Retail sales as percentage of income			
Metropolitan	63.18 percent	52.81 percent	52.83 percent
Nonmetropolitan	60.81 percent	47.23 percent	45.40 percent
State average	61.76 percent	49.48 percent	48.39 percent
Retail employment as percentage of population			
Metropolitan	6.00 percent	6.70 percent	8.66 percent
Nonmetropolitan	4.62 percent	4.82 percent	6.26 percent
State average	5.61 percent	6.15 percent	7.97 percent

nonmetropolitan counties. Also, retail sales as a percentage of county income was higher in metropolitan counties in both 1972 and 1992.

Employment in retail was consistently less in nonmetropolitan counties. In 1972 6.0 percent of the metropolitan population was employed in the retail industry compared to 4.62 percent of the nonmetropolitan population. In 1992 8.66 percent and 6.26 percent, respectively, of the metropolitan and nonmetropolitan counties were employed in retailing (Table 3). In summary, the findings show growth in the retail segment of the Indiana economy. Although overall population increased only 7 percent between 1970 and 1990, the amount of retail sales overall, in constant dollars, increased 69 percent between 1972 and 1992.

5. Results of nonparametric tests

The Mann-Whitney procedure is used to compare the median growth rates of several measures of metropolitan and nonmetropolitan counties between 1972 and 1992. Nine measurements related to retail growth are analyzed. The results show that the retail growth rates of metropolitan counties are significantly higher than those of nonmetropolitan counties in most categories.

5.1 Overall growth rates

Table 4 shows that there was a statistically significant difference in the rate of population growth of metropolitan and nonmetropolitan counties between 1970 and 1990 ($p < 0.05$). Also, three retail growth measures for the period between 1972 and 1992 were significantly different ($p < 0.01$). Retail growth measured by number of retail establishments, retail sales volume in constant dollars, and number of retail establishments was significantly larger in metropolitan counties than nonmetropolitan counties.

Table 4. Overall growth rates 1972 - 1992^a

	Metropolitan	Nonmetropolitan	W-score	Probability
Number of counties	37	55		
Population	15.7 percent	6.1 percent	2,304	.0439 *
Number of retail establishments	12.1 percent	(9.9 percent)	2,060	.0001 ***
Sales in constant dollars	84.7 percent	46.4 percent	2,091	.0002 ***
Number of retail employees	62.2 percent	44.4 percent	2,224	.0080 **

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ ^aExcept for population growth rates which are for the period 1970 - 1990

5.2 Retailing ratio growth rates

Although overall growth differed significantly, no significant differences are found in the growth rates of the retailing ratio measurements (Table 5). Although metropolitan county establishments are larger than their nonmetropolitan counterparts, the amount of sales per store, the average number of retail employees per store, and the sales generated by each retail employee grew in a similar manner in both metropolitan and nonmetropolitan counties.

5.3 Combination retailing and population ratio growth rates

Factors that relate retail growth to county population are analyzed to determine the effect of population change on retail growth (Table 6). First, sales growth per 1,000 population for the period differed significantly between metropolitan and nonmetropolitan counties ($p < 0.01$). The next measure is retail sales as a percentage of income. Retail sales as a percentage of income declined 17.47 percent in metropolitan counties and 25.46 percent in nonmetropolitan counties. Although there was a decline in proportion of retail sales to income in both metro and nonmetropolitan counties, the rate of decline was significantly less in metropolitan counties ($p < 0.05$). Also, the percentage of retail employment compared to total population increased significantly faster for metropolitan counties compared to nonmetropolitan counties ($p < 0.01$).

6. Conclusions and implications

The concern over the loss of rural retail markets (Johansen 1993; Rogers 1982) appears to be supported by the results. Additionally, the results seem to confirm the changing nature of the retail marketplace and support Parr and Denike's (1970) suggestion that traditional central place theory may no longer be valid in the marketplace of today's mobile society.

The economy of Indiana showed strong growth in the 20 year period, and the retail industry shared in this growth. Growth in retail productivity, as measured by sales per store, employees per store, and sales per retail employee, is consistent between metropolitan and nonmetropolitan counties. This suggests that the basic

Table 5. Retailing ratio growth rates 1972 - 1992

	Metropolitan	Nonmetropolitan	W-score	Probability
Number of counties	37	55		
Sales in constant dollars per store	59.1 percent	64.8 percent	2,523	.7866
Retail employees per store	49.6 percent	58.6 percent	2,693	.2824
Sales per retail employee	9.8 percent	2.1 percent	2,329	.0694

nature of the retail industry in metropolitan stores compared to nonmetropolitan stores has not changed significantly between 1972 and 1992. Metropolitan counties, which began with a large retailing advantage over nonmetropolitan counties, however, showed significantly faster retail growth in number of stores, sales, and retail employees than did nonmetropolitan counties. Metropolitan counties experienced significantly greater growth compared to nonmetropolitan counties, even when population growth was taken into account. And although retail spending as a percentage of income decreased (perhaps due to greater affluence and increased spending on nonretail items such as housing and services), the decline was significantly less in metropolitan counties.

The greater growth shown in metropolitan counties in Indiana compared to nonmetropolitan counties is consistent with studies of other states that have shown that nonmetropolitan counties are losing retail sales to metropolitan counties. This study compares median retail growth rates in metropolitan and nonmetropolitan counties but does not analyze specific county by county changes. More detailed analysis is needed to determine which counties had the most retail leakage and to examine the impact of county population, income, the presence of discount retail chain stores, the changing configuration of retailing by type of store, urban accessibility, and other factors as they relate to the retail pull factor and calculation of retail leakages.

A limitation of the study is the analysis of only one state, Indiana. But the stable nature of the population and the economic growth sustained during the period under review made Indiana a suitable location for a comparison of metropolitan and nonmetropolitan retailing. Nevertheless, analysis of states or regions with more pronounced demographic differences may provide different results. For example, the Illinois economy is dominated by business in the Chicago area (Gruidl and Andrianacos 1994). Other states also may experience more pronounced differences between metropolitan and nonmetropolitan counties due to various factors, e.g., almost every county in Indiana is adjacent to a standard metropolitan statistical area (Figure 1), while this may not be the case in other states (e.g., Nebraska). Therefore, care should be taken when attempting to generalize from these findings.

This study has shown that between 1972 and 1992 metropolitan retail establishments became larger, employed more persons, and gained in sales at a rate that exceeded nonmetropolitan retail establishments. An appropriate area for further study would be to determine if these factors translate into greater business success for metropolitan stores. More studies such as Buss and Lin (1990) that measure business

Table 6. Combined retailing and population ratio growth rates 1972 - 1992

	Metropolitan	Nonmetropolitan	W-score	Probability
Number of counties	37	55		
Sales per 1,000 population	60.3 percent	44.1 percent	2,162	.0017 **
Retail sales as percentage of income	(17.47 percent)	(25.46 percent)	2,306	.0456 *
Retail employees as percent of population	48.8 percent	33.8 percent	2,210	.0057 **

* p < 0.05 ** p < 0.01

survival rates between metropolitan and nonmetropolitan firms are necessary to identify the impact of location on business success.

The results add to the body of research that shows that rural society is not sharing equally in the economic growth of the retail industry. If retailing is truly one of "the most important component of the local business infrastructure in nonmetropolitan counties" (Johnson 1985 p. 45), then rural development policy should place more emphasis on improving the retail industry in nonmetropolitan counties. It is possible that the increased accessibility of metropolitan retail centers and the growth in the number of discount retail chain stores have made the traditional small town merchant outdated. New approaches for promotion, merchandising, and sales growth of nonmetropolitan retailers should be considered to reverse the trend toward metropolitan shopping.

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