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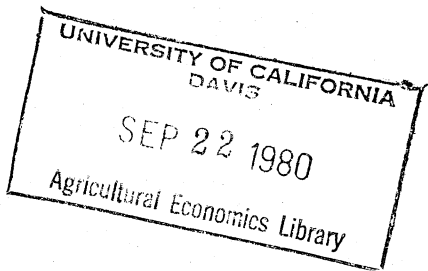
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Retail
Trade

1980



ABSTRACT

Retail Sales Migration
in the Midwestern United States

by

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Retail sales migration was traced for all counties in Iowa, Kansas, Missouri and Nebraska from 1958 through 1977. Rural areas have been experiencing leakages while metropolitan areas have gained. Impacts on consumers include inconvenience and increased energy costs. Impacts on communities, including new and existing businesses are discussed.

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Retail Sales Migration
in the Midwestern United States

Biographical Sketch
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Kenneth E. Stone is an Associate Professor of Economics at Iowa State University. He received his B.S. in Agricultural Engineering from the University of Illinois, his M.M.S. in Management Science from Texas Christian University and his Ph.D. in Agricultural Economics from the University of Illinois in 1976.

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RETAIL SALES MIGRATION IN THE MIDWESTERN UNITED STATES

Compared to 20 years ago, shopping for consumer goods and services has become more inconvenient and expensive for many rural residents in the Midwest. The number of retail businesses in the majority of small towns has decreased over the last 20 or more years. Many residents of small towns now must travel to larger towns to purchase essential merchandise and services that once were available in their own town. What has caused this turn of events?

The decline of rural shopping centers has been caused primarily by:

- 1) Reduction of local economic bases caused by the outmigration of farmers.
- 2) Improvement in mobility of local residents brought about by:
 - a) Improved automobiles
 - b) Improved roads
 - c) The Interstate Highway System
- 3) The introduction of regional shopping malls.

A study for the 1980 White House Conference on Small Business indicated the extent of the problem for four midwestern states (Iowa, Kansas, Missouri and Nebraska) and is drawn upon for this paper. The study examined retail sales migration for the four states for the period 1958 through 1977.

MODELS AND METHODOLOGY

This study revolves around the methodology for determining potential sales for counties. Potential sales were compared to actual sales to determine if counties had leakages or surpluses of retail sales.

Procedure for Determining Potential Retail Sales

For this study, county potential sales were based strictly on the characteristics of the population within the county. County retail sales potential was determined by multiplying county population by state per capita retail sales expenditures. This product was further multiplied by index of income to take into account differing county income levels. The equation is:

$$P_{rs} = CP \times SE \times I$$

where: P_{rs} = County Potential Retail Sales

CP = County Population

SE = State Expenditure (per capita) for retail sales

I = Index of Income.

County population, CP, was found in Survey of Buying Power. It is based on the last U.S. Census of Population and is updated annually.

State expenditure (per capita) is derived by the following equation:

$$SE = \frac{TS_s}{SP}$$

where: TS_s = Total state retail sales

SP = State population.

Total state retail sales were found in Census of Business and in Market Guide, a commercial data source.

Index of income was determined by using the following equation:

$$I = \frac{CI}{SI}$$

where: CI = County average income

SI = State average income

The following example illustrates the procedure for determining potential retail sales for a hypothetical county.

ASSUME: County Population (CP) = 12,000

Total State Retail Sales (TS_s) = \$10,000,000,000

State Population (SP) = 3,000,000

State Average Income (SI) = \$6,000

County Average Income (CI) = \$5,500

THEN:
$$P_{rs} = CP \times SE \times I$$
$$= CP \times \frac{TS_s}{SP} \times \frac{CI}{SI}$$
$$= 12,000 \times \frac{10,000,000,000}{3,000,000} \times \frac{5,500}{6,000}$$
$$= 12,000 \times 3,333 \times 0.917$$
$$= \$36,676,000$$

Procedure for Determining Leakages or Surpluses:

After potential county retail sales were determined, a comparison was made to actual sales. When potential sales were greater than actual sales, the difference was considered a "leakage". When actual sales were greater than potential sales, the difference was considered a "surplus".

Analysis Within States

Counties in each state were classified according to the size of the largest city in the county as follows:

<u>County classification</u>	<u>Population of the largest city</u>
1. Rural	less than 2,500
2. Small semi-rural	2,500-4,999
3. Large semi-rural	5,000-9,999
4. Semi-metro	10,000-49,999
5. Metro	50,000-149,999
6. Large metro	Greater than 150,000

Surpluses and leakages were estimated for each county in all of the four states included in the study. Counties were then grouped according to the above classification

system and an average surplus or leakage was determined for each county classification.

Limitations of Methodology

Since potential retail sales is the main determinant in this study, it is important to understand the methodology used in its calculation. If the population was uniform in its makeup and if it were uniformly distributed, the technique used here would be extremely accurate. The technique is probably accurate for a certain portion of the population, however, the model does not take into consideration the age of the population. Also, proximity to larger population centers is not considered in the model. Other factors such as tourism and geographic location of the population within the county are also not included. A much more detailed study would be necessary to include these desired variables.

The assumption that retail sales per capita varies directly with people's incomes is not completely accurate. We know that different people have different consumption functions, but in lieu of this specific knowledge, potential sales as calculated herein are believed accurate enough for our purpose for most of the counties.

Results

The findings of the retail migration study for the four midwestern states are presented in tables 1-4.

Table 1. Iowa Average Retail Sales Leakages or Surpluses for 1958 and 1977, by County Classification-Current Dollars

<u>County Classification</u>	<u>No. of Counties</u>	<u>Average Leakage () or Surplus</u>	
		<u>1958</u>	<u>1977</u>
Rural	21	\$(903,000)	\$(5,389,000)
Small semi-rural	28	754,000	(4,228,000)
Large semi-rural	29	455,000	(4,693,000)
Semi-metro	14	(655,000)	2,467,000
Metro	6	(4,851,000)	24,783,000
Large metro	1	23,070,000	163,377,000
	<u>99</u>		

Iowa--Table 1 presents the average leakages and surpluses in current dollars for the six county classes for 1958 and 1977.

The 21 rural counties had an average leakage of \$903,000 in 1958. By 1977 this had grown to \$5,389,000 or \$2,571,000 in 1958 dollars.

The 28 small semi-rural counties went from an average surplus of \$754,000 in 1958 to a leakage of \$4,228,000 in 1977. 1977 leakage, adjusted for inflation, was \$2,017,000.

Large semi-rural counties (N=29) also went from an average surplus in 1958 to a deficit in 1977. In 1958 the surplus was \$455,000 and 1977 leakage was \$4,693,000. Constant dollar leakage in 1977 was \$2,239,000.

Semi-metro counties (N=14) averaged a leakage of \$665,000 in 1958. This improved to an average surplus of \$2,467,000 in 1977. The 1977 surplus, adjusted for inflation was equal to \$1,117,000 in 1958 dollars.

For the six metro counties in Iowa an average leakage of \$4,851,000 was experienced in 1958. By 1977, the situation had changed to an average surplus of \$24,783,000. In real terms this was equivalent to \$11,824,000 in 1958 dollars.

Iowa has only one county classified as large metro. That is Polk County (Des Moines) and it recorded a surplus of \$23,070,000 in 1958. This grew to \$163,377,000 in 1977, or \$77,947,000 in real terms.

Kansas--Table 2 presents the 1958 and 1977 leakages and surpluses for Kansas counties in current dollars.

The 48 rural counties in Kansas averaged leakages of \$345,000 in 1958. By 1977 the leakages increased to \$1,757,000. The 1977 leakage in terms of 1958 dollars was \$833,000.

The 23 small semi-rural counties averaged surpluses of \$833,000 in 1958. In 1977 this had reversed to a leakage of \$2,121,000. When adjusted for inflation, the 1977 deficit was \$1,012,000.

Table 2. Kansas Average Retail Sales Leakages or Surpluses for 1958 and 1977, by County Classification-Current Dollars

County Classification	No. of Counties	Average Leakage () or Surplus	
		1958	1977
Rural	48	\$(345,000)	\$(1,757,000)
Small semi-rural	23	833,000	(2,121,000)
Large semi-rural	9	3,385,000	6,308,000
Semi-metro	22	(1,667,000)	928,000
Metro	1	8,016,000	43,774,000
Large metro	2	(1,964,000)	50,855,000
	105		

There are nine large semi-rural counties in Kansas. They experienced average retail sales surpluses of \$3,385,000 in 1958. That grew to a \$6,308,000 surplus in 1977. However, when adjusted for inflation, the 1977 surplus was \$3,010,000, a slight decrease from 1958.

The 22 semi-metro counties in Kansas averaged leakages of \$1,667,000 in 1958. That changed to a \$928,000 surplus in 1977. In constant 1958 dollars, the 1977 surplus was \$443,000.

There is only one metro county in Kansas and its trade surplus in 1958 was \$8,016,000. This county experienced an increase to \$43,774,000 in 1977. In real 1958 terms this was \$20,885,000.

The two large metro counties in Kansas experienced average leakages of \$1,964,000 in 1958. These two counties also experienced changes to average surpluses of \$50,855,000 by 1977. This was \$24,263,000 in 1958 constant dollars.

Missouri--Table 3 presents the 1958 and 1977 leakages and surpluses for Missouri in current dollars.

The 50 rural Missouri counties averaged leakages of \$23,000 in 1958. This declined to current dollar leakages of \$4,207,000 in 1977. Corrected for inflation, the 1977 leakages were \$2,007,000.

For the 23 small semi-rural counties, the average leakage was \$2,270,000 and this further declined to current dollar leakages of \$9,917,000 in 1977. Adjusted to 1958 dollars, the 1977 leakage was \$4,732,000.

Table 3. Missouri Average Retail Sales Leakages or Surpluses for 1958 and 1977, by County Classification - Current Dollars

County Classification	No. of Counties	Average Leakage () or Surplus	
		1958	1977
Rural	50	\$(23,000)	\$(4,207,000)
Small semi-rural	23	(2,270,000)	(9,917,000)
Large semi-rural	19	(1,304,000)	(19,161,000)
Semi-metro	17	2,922,000	(4,530,000)
Metro	3	1,736,000	37,844,000
Large metro	2	9,103,000	368,068,000
	115		

The 19 large semi-rural counties experienced average leakages of \$1,304,000 in 1958. By 1977 that had increased to \$19,161,000 in current dollars or \$9,142,000 in constant 1958 dollars.

The 17 semi-metro counties in Missouri went from a \$2,922,000 average surplus in 1958 to a \$4,530,000 average leakage in 1977. In 1958 constant dollars, the 1977 leakage was \$2,161,000.

Missouri has three metro counties that averaged retail trade surpluses of \$1,736,000 in 1958. In 1977 the surpluses averaged \$37,844,000. The 1977 surplus adjusted for inflation was \$18,055,000.

The two large metro counties in Missouri (St. Louis City and Kansas City) averaged trade surpluses of \$9,103,000 in 1958. The surplus increased to \$368,068,000 in 1977. The 1977 amount adjusted for inflation is \$175,605,000.

Nebraska--Table 4 presents the average leakages and surpluses in current dollars for 1958 and 1977. Nebraska has 52 rural counties that averaged \$632,000 leakages in 1958. The leakages increased to \$2,802,000 in 1977. The 1977 leakage adjusted for inflation was \$1,337,000.

The 11 Nebraska small semi-rural counties had retail trade leakages averaging \$649,000 in 1958. Leakages increased to \$1,625,000 in 1977. The 1977 leakage in 1958 dollars was \$775,000.

There are 19 large semi-rural counties in Nebraska and they had average retail

Table 4. Nebraska Average Retail Sales Leakages or Surpluses for 1958 and 1977, by County Classification-Current Dollars

County Classification	No. of Counties	Average Leakage () or Surplus	
		1958	1977
Rural	52	\$ (632,000)	\$(2,802,000)
Small semi-rural	11	(649,000)	(1,625,000)
Large semi-rural	19	(1,400,000)	2,493,000
Semi-metro	9	5,202,000	23,478,000
Metro	0	----	----
Large metro	2	10,538,000	11,262,000
	93		

sales leakages of \$1,400,000 in 1958. Sales improved to an average of \$2,493,000 surplus in 1977. Constant dollar surplus in 1977 was \$1,189,000.

The nine semi-metro counties in Nebraska showed surpluses of \$5,202,000 in 1958. The surpluses widened to \$23,478,000 in 1977. The 1977 constant dollar surplus was \$11,201,000.

There are no Nebraska counties in the metro classification. However, there are two large metro counties, Douglas and Lancaster whose major cities are Omaha and Lincoln, respectively. On the average these two counties enjoyed retail trade surpluses of \$10,538,000 in 1958. However, the average surplus increased to only \$11,262,000 in current dollars in 1977. The 1977 surplus in constant dollars was \$5,373,000.

Implications of Findings

The findings of this study verify what many people intuitively have felt; there has been considerable migration of retail sales from less populated areas to bigger population centers. It was not the purpose of this study to determine why, but one can speculate as to some reasons.

The continual reduction in the farm population has brought about a reduction in the economic base in the more rural areas. Consequently, many types of stores that once were viable are no longer able to remain profitable. One needs only to drive down the main streets of many small rural midwestern towns and observe the

vacant and converted stores to verify this fact. Once a store terminates business in a smaller town, the town becomes an even less attractive shopping place, even less attractive as a place to start a new business, even less attractive as a place to live.

Improved mobility of rural residents has probably been another factor in the migration to bigger shopping centers. This has been brought about through better highways, in particular the interstate system, and through better vehicles.

Shopping malls also appear to be a strong factor in attracting people from rural areas. The large anchor stores and the vast selection of certain types of merchandise also appear to provide strong attractions to shopping malls. In addition, the malls offer plenty of free parking, convenient shopping hours and controlled climate, all of which are hard to find in smaller towns.

Impact on Existing Businesses--The impact of retail trade migration on some existing businesses in small towns is painfully obvious. This seems to be most acute in merchandise lines where selection is a prime factor in buying. Clothing stores, shoe stores, variety stores and jewelry stores are examples of businesses most severely affected by outmigration. The stores become victims of the proverbial vicious cycle. The decline in economic base causes a reduction in the number of customers which causes the store manager to reduce stock which causes the store to have less appeal, which causes more existing customers to leave, which causes the store manager to reduce stock even further, etc.

Many stores offering services or merchandise where convenient location is a factor in buying, often continue to thrive in the face of a shrinking economic base. Examples of these businesses are hardware stores, lumber yards, farm supply stores, plumbing and heating services, automobile repair shops, etc.

Impact on New Businesses--The outmigration problem presents special challenges to individuals establishing new businesses, especially in smaller towns. Many new businesses are started in small towns with the knowledge that the trade area popula-

tion is sufficient to provide the volume of customers needed for success. But, failure to recognize the migration patterns of shoppers is a shortcoming of many new business people. Unless the new store is truly comparable to its big city competition, many shoppers will not give it a second try. For example, a small fabric shop in a small town in the shadow of a big city shopping center probably does not have much chance for success. The larger selections and possibly better prices in the city stores are strong attractions for customers.

Conversely, a well managed repair shop in a small town could have an advantage over its city competition in the form of lower prices because of lower overhead and operating costs. It could also be more convenient and provide more personalized service.

Impact on Transportation and Energy Costs--After an examination of tables 1-4, it is fairly obvious that many consumers in the Midwest are traveling long distances to purchase goods and services that in earlier times would have been purchased much closer to home. This migration for shopping is typically accomplished through the use of personal vehicles and probably results in a large amount of extra mileage. Without further study it is not clear what the net energy increase would be. However, a hypothetical example may serve to illustrate the magnitude of the problem. Assume the following for a state with 100 counties.

Average round trip travel increment to shop out of town = 70 miles

Number of families per county that migrate (1/3) = 2,000

Number of shopping trips per year = 12

Number of migrating counties = 60

This would amount to approximately 101 million additional miles per year. If vehicles averaged 17 miles per gallon, this would require approximately six million gallons of additional gasoline. In terms of additional cost to car owners, at 17 miles per gallon, the additional fuel cost would be approximately seven million dollars per

year at \$1.20 per gallon gasoline prices. Presumably, migrating shoppers feel at least one of the following.

1. They save more than the cost of the trip because of lower prices in the large shopping centers.
2. The satisfaction derived through larger selections is worth the additional travel costs.
3. They do not have a viable alternative.

Impact on Communities--There has been a significant impact on the retail sectors of many communities, especially those in the shadow of metropolitan centers. Unfortunately, this impact carries over to other segments of the community. For example, if a community has a leakage of retail sales of \$5,000,000 annually and a multiplier factor of two, the total revenue leaving the community would be \$10,000,000.

Often times communities are judged by the appearance of their retail districts. As appearances of smaller town business districts degenerates, so too do the chances of acquiring new industry, new medical professionals, new residents, etc. In general, the effect on smaller communities is debilitating.

Conversely, the effect of migrational shopping on larger shopping center towns has been growth enhancing. The large volume of customers presents a picture of vitality which is attractive to additional industry, additional retail business, additional professionals, and additional residents.

Conclusions and Recommendations

Based on this study it can be concluded that in general the rural areas of these midwestern states have been losing progressively more retail trade over the last 20 years. Conversely, most of the metropolitan areas, have been gaining trade over the same period. The losses are most severe for rural counties near metropolitan areas. Some rural areas in remote locations are holding their own and/or showing gains in retail sales.

The losses in retail trade appear to be heaviest in general merchandise, apparel,

food, home furnishings, and specialty items. The merchandise lines where rural areas are doing well are generally farm related. They are building materials, hardware and farm machinery.

There is a need to more precisely define potential sales. The method used in this study is generally satisfactory, however, it does not take into consideration the effect of factors such as distance to more populated areas, age of population, tourism, etc. An econometric study designed to determine the effects of these factors would certainly provide valuable information and would allow planners and policy makers to more precisely analyze retail trade migration.

A study to determine the optimal location of various types of shopping centers with respect to net energy savings would also seem to be of importance at this time. This could be based on feasible sized shopping centers located so as to provide needed goods and services to the maximum population while minimizing travel.

BIBLIOGRAPHY

Berry, Brian J.L. "Reflections on the Functional Economic Areas." In Iowa State University Center for Agricultural and Economic Development, Research and Education for Regional and Area Development. (1966): 56-64.

Fox, Karl A., and T. Krishna Jumar. "Delineating Functional Economic Areas." In Iowa State University Center for Agricultural and Economic Development, Research and Education for Regional and Area Development. (1966): 13-55.

Fox, Karl A. Social Indicators and Social Theory. New York: John Wiley, 1974.

Iowa Department of Revenue. Retail Sales and Use Tax Report, Des Moines, Iowa 1978.

Julius, Marvin. "Retail Sales Retention and Migration in Rural Counties in the North Central Region." Mimeo, Dept. of Economics, Iowa State University, 1975.

Market Guide, 1977 issue.

Sales and Marketing Management Magazine, Survey of Buying Power, 1959.

Sales and Marketing Management Magazine, Survey of Buying Power, 1968.

Sales and Marketing Management Magazine, Survey of Buying Power, 1978.

Stone, Kenneth E., An Analysis of the Outmigration of Retail Sales from Rural Areas of the Region, prepared for the White House Conference on Small Business, January, 1980, pp. 73-98.

Stone, Kenneth E., The Rural Retail Problem, presented at Rural Development Finance Conference, sponsored by the National Rural Center, Washington, D.C., March 1980, 28p.

Prescott, James R. and W. Cris Lewis. Urban-Regional Economic Growth and Policy. Ann Arbor: Ann Arbor Science, 1975.

U.S. Bureau of the Census. Census of Business, 1958, Retail Trade -- Area Statistics.

U.S. Bureau of the Census. Census of Business, 1967, Retail Trade -- Area Statistics.