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Increases in Rural Income May Not Help Smalltown Retailers

Higher incomes and increased consumer spending will not necessarily help small rural communities hang onto their retail stores. Analyzing data from 10 counties in southwest Minnesota, we traced how changes in local income affected retail sales between 1979 and 1986. Increases in income generally led to increased total spending in the larger towns of the area but lower total spending in its smaller towns. Reason? With improved income, consumers seem to be more attracted to the greater selection of goods in the larger towns.

Rural retailers used to be able to rely on spending by local farmers and their households. Many of the Nation's 35,000 rural communities were established as retailing centers to serve the farm population and were sited so as to draw on a population that could travel to town and get back to the farm within a day.

But now the farm population has shrunk, and the rural economy depends much less upon the farm sector. The rural economy has diversified to rely more on manufacturing, retirees and their steady flow of income, and retailing. Retailing, in fact, accounted for nearly 20 percent of all wage and salary income in farm-dependent counties during the early 1980's. And the automobile and a modern road system have given rural people alternatives to the local merchant.

Continuing changes in the sources of income, spending patterns, and makeup of the population, as well as within retailing itself, may jeopardize the viability of the retail sector in small rural communities. Rural consumers now shop at many individual communities within a larger area-wide retail network. The network offers consumers a more complete choice of retail services than is offered in most of the smaller communities. If an item is unavailable in a small community, for instance, the consumer will probably be able to find it in a larger community in the area. The clustering of rural retail networks means the effect of changes in rural income may not be the same for the different sized communities within an area-wide retail network.

Rural development efforts that alter income levels can affect the structure of the existing retail distribution system by changing people's spending patterns. The changing patterns affect the sales of the many retail businesses in different ways and thereby affect which kinds of businesses are the most viable in the various communities. To gain a better understanding of these relationships, we examined the effect of shifts in the level of personal income from farming, manufacturing, and transfer payments on retail sales in 10 nonmetro counties in southwest Minnesota between 1979 and 1986.

While the unique characteristics of the study area limit the direct application of the results to other rural areas, the analysis clearly suggests that changes in the level of basic incomes change consumer expenditure patterns, which in turn affect the distribution of retailers within rural areas. For example, our results indicated an increase in farm, manufacturing, or transfer income tended to increase retail sales at restaurants in the larger rural communities and to reduce restaurant sales in the smallest communities in the study area. The same pattern appears to have occurred in the opposite direction when rural income decreases: a decline in manufacturing income in the area generally led to sales declines at furniture stores in the largest towns and increased sales at furniture stores in the smallest towns over the 7-year period.

Rural Consumers Spread Purchases Between Local and More Distant Retailers

Changes in personal income affect the goods consumers purchase. When personal income rises, consumers spend more money in two ways that can increase retail sales. They spend more on the type of goods they had

When consumer income goes up, retailers in small towns like Tracy, Minnesota, often see their sales go down. Consumers prefer to travel farther to larger towns for a wider selection of goods.

Photo © Mike Reimer, Marshall Independent

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purchased before their income changed, and they increase the array of goods they buy. Conversely, when income falls, consumers purchase less of some goods and tend to stop purchasing more expensive items altogether.

Changes in personal income also change consumer expenditure patterns by changing the location where rural consumers make their purchases. The nature of the contemporary rural retail distribution system is that not all retail goods are for sale in all communities. When a change in income induces rural consumers to change the array of goods they consume, they may begin to shop more in one size of community than another.

For instance, when personal incomes increase, and rural consumers expand the selection of goods they buy, some of the new goods they desire may be available only in a larger community. While shopping in the larger community, the consumer will probably purchase other goods previously bought at a smaller community closer to home. The consumer minimizes shopping time and transportation expenses by purchasing as many goods as possible in one shopping trip. This kind of change in rural expenditure patterns from an increase in income could increase retail sales in larger communities and reduce sales in smaller communities.

Conversely, if personal incomes fall, and rural consumers can no longer afford some goods that are for sale only in the larger community, they may shop there less frequently. The rural consumer would not engage in as many multi-purpose shopping trips to the larger community and would begin to shop more frequently in the smaller communities closer to home. This kind of change in spending patterns from a decrease in income could reduce retail sales in the larger communities and increase sales in smaller communities.

Structure of Retailing System Outgrowth of Overall Economic Structure

Expenditures from personal farm income are only one part of total receipts for rural retailers. Spending by residents who are employed in other sectors, like manufacturing, also constitutes part of the total receipts at retail stores. The elderly and others, who are unemployed but rely on transfer payments, also contribute to the total receipts of retailers.

Changes in spending patterns associated with a change in a personal income may be different for different sources of income. For instance, a change in net farm income may increase farm household spending in a certain size of community while the same level of change in manufacturing or transfer income may lead to reduced spending in the same size of community by households dependent on those sources of incomes. If the relationship between different sources of personal incomes and consumer expenditures varies by community size, then the effect of changes in the different income sources will differ in the rural retail distribution system.

The results of our analysis in the 10-county area suggest that consumer spending in rural areas does vary by source of income (see table 1). This probably occurs because families who derive their income from transfer payments are at a different level of income and have different preferences than families who derive their income from manufacturing employment or farming. The table shows that some of the differences are very subtle while others are more pronounced.

Table 1 shows how retail sales are expected to change in southwest Minnesota given a 1-percent change in

Table 1—Increases in personal income generally favor large-town retailers at expense of smalltown retailers (Elasticity of retail sales with respect to income)

Community size/ income source	Sales from[1]							
	Building material stores (SIC 52)	General merchandise stores (SIC 53)	Grocery stores (SIC 54)	Automotive stores (SIC 55)	Apparel stores (SIC 56)	Furniture stores (SIC 57)	Eating places (SIC 58)	Total retail sales (All SIC)
	Percent change in retail sales (elasticity) given a 1-percent increase in income							
Largest communities (2)								
Farm	-0.03*	0.06*	0.01	-0.33*	-0.25*	0.33*	0.11*	0.02*
Manufacturing	.09*	-.01	-.02*	-.16*	-.24	.15*	.14*	.01*
Transfer	-.32*	-.12*	.13*	-.82*	-.25*	.43*	.01*	.04*
Mid-size communities (10)								
Farm	-.56*	-.13*	.25*	-.17*	-.14*	.28*	.01*	.01*
Manufacturing	-.19*	-.17	-.07*	.02*	-.15*	-.19*	-.04*	-.02*
Transfer	-1.17*	-.96*	3.49*	-.87*	.31*	.05*	-.62*	-.05*
Smallest communities (67)								
Farm	-1.34*	--	.28*	-1.55*	--	.32*	-.13*	-.53*
Manufacturing	-.92*	--	.63*	-.65*	--	-.47*	-.34*	-.46*
Transfer	-3.32*	--	5.63*	-4.91*	--	.68*	-3.28*	-1.33*

[1] SIC = Standard Industrial Classification code.
* Indicates the estimates are statistically significantly different from zero at 1-percent level.
-- = Elasticities could not be estimated for the smallest communities for SIC 53 and SIC 56.

Photo © Mike Reimer, Marshall Independent

When consumer income goes down, smalltown retailers, including restaurants, may see an upswing in their sales as customers do more of their shopping close to home.

one of the three sources of personal income. The estimates indicate that a 1-percent increase in personal farm income increases expenditures at eating and drinking places by 0.11 percent in the largest communities and by 0.01 percent in the mid-sized communities, but reduces expenditures at eating and drinking places by 0.13 percent in the smallest communities. This implies that farm households spend more on eating out in the larger communities and less on eating out in the smaller communities when their net incomes rise. To see the effect of a fall in income by 1 percent, simply reverse the signs on the numbers in table 1.

Drop in Net Farm Income Increases Total Retail Sales in Smallest Communities

Real net farm income in the area declined from $36.9 million in 1979 to $26.9 million in 1986. Much of the decline in net farm income over the period resulted from a decline in gross farm cash receipts (crop sales, livestock sales, and government payments). Farm revenues declined by 22 percent from $1.2 billion in 1979 to $1 billion in 1987 as crop sales dropped by $143 million, livestock sales dropped by $232 million, and direct government payments increased by $99 million.

The analysis indicates the relationship between farm income and total retail sales was positive for the largest and mid-sized communities, but negative for the smallest communities. That is, the recent decline in real farm income caused a decline in aggregate spending by farm households in the largest communities and the mid-sized communities, but increased aggregate spending by farm households in the smallest communities. As farm income declined, the farm population began to spend less in the more distant, larger communities and more in the closer, smaller communities.

The relationship between farm income and community retailing varied by type of retail business. The decline in farm income increased expenditures by farm households at building material, automotive, and apparel stores in the largest communities as well as at building material, general merchandise, automotive, and apparel stores in the mid-sized communities. The increase in farm household spending at some business types was less than the decline at other retail business types so the net effect was a decline in total farm consumption expenditures in both the largest and the mid-sized communities. The decline in farm income caused a decline in farm household purchases at grocery and furniture stores in the smallest communities, even though total farm household spending rose in the smallest communities. The declining sales at grocery and furniture stores in the smallest communities implies that when farm income again increases, some businesses in the smallest communities will see their sales jump.

Drop in Personal Manufacturing Income Likewise Boosts Total Retailing in Smallest Communities

Real income from employment in manufacturing in the study area fell 18 percent from $15.4 million in 1979 to $12.5 million in 1986. A large part (43 percent) of the manufacturing in the area is in the food and kindred products industries, which is directly related to the level of agricultural output in the area. About a third of the drop in manufacturing income was in the food and kindred products industries as the value of crops and livestock produced in the area fell by 30 percent over the period.

The results of the analysis suggest the decline in manufacturing income reduced total spending in the largest communities, but increased total spending in the mid-sized and smallest communities. About a fifth of the area's manufacturing jobs are in the largest communities, where spending declined. The drop in manufacturing income led to increased total spending in the mid-sized communities and in the smallest communities from which some residents commute to the larger communities for employment. As manufacturing income declined, people employed in manufacturing likely spent less of their total income in the largest communities and more of their total income in the mid-sized and smallest communities.

Retail purchases increased at all types of business in the smallest communities, except grocery stores, and at all business types in the mid-sized communities, except automotive establishments. The general inverse relationships between retail expenditures from manufacturing income and retail sales for the two smaller community groups imply that most of the increase in total retail sales stemming from an increase in rural manufacturing income is likely to occur in the largest communities. Even though

Study Area

The 10-county study area is located in the southwest corner of Minnesota and is part of the western Corn Belt. The settlement pattern in the study area is typical of other parts of rural America (table A). Population in the largest communities rose steadily until 1970 and then stabilized at about 20,000. Population in the mid-sized communities rose to about 33,000 by 1960 and then stabilized. The combined population of the smallest communities has been stable at about 35,000 residents since 1940. The stable population in the smallest communities indicates they still retain their residential function even though their retail sales function has been in constant decline.

The largest communities serve the dual function of a retail distribution center and a rural labor market center. Both retail sales and employment declined as the size of a community declined in the study region. The area represents a relatively self-contained consumption and labor market area with an estimated 90 percent of discretionary income earned in the region spent on goods sold there and 92 percent of the regional labor force employed in the region. The average number of businesses by type of business was the highest in the largest communities and the lowest in the smallest communities (table B). The smallest communities had no general merchandise stores (Walmart for instance) at all. While the middle tier of the community hierarchy contained the same business types as the largest communities, the counties with the largest communities contained a wider variety of retail stores. In other words, the variety of business types in a community increased as the size of the community increased.

Figure 1

A Minnesota community hierarchy

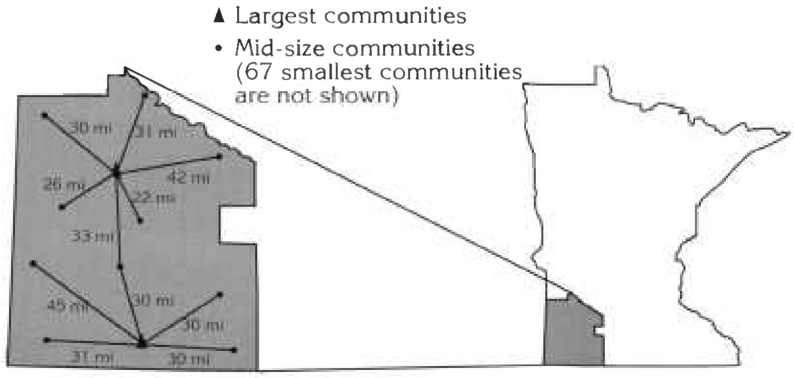

Table A—Largest communities have most retailers, smallest communities have fewest

Business type/(SIC)[1]	Largest communities (2)	Mid-sized communities (10)	Smallest communities (67)
		Number[2]	
Building materials (52)	13	9	5
General merchandise (53)	7	5	0
Grocery store (54)	11	6	4
Automotive stores (55)	28	14	5
Apparel stores (56)	19	6	4
Furniture stores (57)	24	9	5
Eating places (58)	29	12	5
Miscellaneous (59)	88	40[3]	12[3]
Community average	219	101	40

[1]See the 1987 Standard Industrial Classification Manual, Office of Management and Budget for a complete description of retail businesses (in parentheses) included in study.
[2]Average number of businesses by community size over the 1979-86 period.
[3]Includes some other retail stores that were collapsed into Miscellaneous retail to avoid disclosure when fewer than four establishments existed in business type in a given year.

Table B—Selected characteristics of 10-county area, southwest Minnesota, 1980

Area	Total population	Total employment	Manufacturing employment	Retail employment
		Number		
Region (10 counties)	150,692	63,198	8,135	9,483
Urban (>2,500 population)	47,198	22,183	3,685	5,040
Largest communities (2)	21,404	10,586	1,866	2,652
Mid-sized communities (6)	25,794	11,587	1,819	2,388
Rural (<2,500 population)	103,494	47,015	4,450	4,443
Mid-sized communities (4)	9,179	NA	NA	NA
Smallest (67)	34,652	NA	NA	NA
Open country	59,663	NA	NA	NA
Commuting patterns				
Total area commuters	62,144	NA	NA	NA
Within county of employment	48,211	NA	NA	NA
Within the study region	56,948	NA	NA	NA
Outside the study region	5,196	NA	NA	NA

NA = data not available in 1980 Census of Population.

total retail sales fell in the largest communities as manufacturing income declined, sales at building material stores, furniture stores, and eating and drinking places rose. This implies that not all stores in the largest communities benefit equally when income from manufacturing employment increases in the study area.

Increase in Transfer Income Boosts Total Retail Sales in Largest Communities

Real transfer payments in the area rose 36 percent from $20.6 million in 1979 to $27.9 million in 1986. Most of that, 85 percent, went to social security recipients. Of the social security transfer payments, 21 percent went to residents in the largest communities and another 29 percent went to residents in the five urban (population greater than 2,500) mid-sized communities.

The analysis indicates the increases in transfer payments increased total consumer expenditures in the largest communities, but reduced total expenditures in the mid-sized and smallest communities. The disproportionate share of social security payments to residents in the largest communities is directly related to the increase in total expenditures from transfer payments at businesses in the largest communities. The decrease in expenditures in the mid-sized and smallest communities indicates that transfer payment recipients in the smaller rural communities are shopping in the larger urban communities. This implies that as transfer income increases, those who receive transfer income spend more in larger communities and less in smaller communities.

As real transfer payments increased, spending declined at building materials, general merchandise, and automotive establishments in all communities and increased at grocery and furniture stores in all communities in the study area. One explanation for the decline may be that consumers traveled to building material, general merchandise, and automotive stores in larger cities outside the study area. If that is so, then increases in transfer payments may divert consumer spending away from the smaller rural communities and into larger cities in neighboring metro markets (perhaps Sioux Falls, SD, in this case).

Most of the shift in consumer shopping patterns associated with transfer payments appears to occur between communities in the study area. For instance, increases in transfers reduced sales at eating and drinking places in the mid-sized and smallest communities, but increased sales at eating and drinking places in the largest communities.

Retail Success Depends as Much on Community Size as on Local Income

As income levels and spending patterns continue to change, the proportion of retail business types in communities of different sizes will shift as individual businesses compete to survive in the changing markets. The adjustment will occur because the profit level of businesses in the different size communities will change as rural consumers alter their shopping patterns. This implies that the distribution of businesses in the study area will change as some communities become better locations for retail businesses than others.

Part of the dynamics of retail business survival within the rural retail distribution system can be understood by taking a closer look at eating and drinking places. The results indicate an increase in any of the three personal income sources would increase rural purchases at the eating and

Model and Data

The purpose of the study was to assess how changes in retail sales were affected by changes in different sources of personal income by size of community and type of retail business in the study area. To examine the economic relationships, the model used real retail sales as a dependent variable and personal farm, manufacturing, and transfer incomes as independent variables in a multiple regression model. The regression technique controlled for the effects of changes in total population, price, and other personal income on retail sales and estimated the effects of changes in farm, manufacturing, and transfer incomes on retail sales.

The retail sales data were provided by the Minnesota Department of Revenue. The data covered the 1979-86 period and included annual gross retail sales by community by Standard Industrial Classification code. The data contained information on 79 communities that were divided into three mutually exclusive groups, on the basis of the number of retail establishments, to identify the community hierarchy of the region. Data for the independent variables for the study area were collected from the Census of Agriculture, Census of Population, and the Bureau of Economic Analysis of the Department of Commerce.

Two regressions were used. The first estimated the elasticity of total retail sales by community size with respect to the three sources of personal income. The second regression estimated the elasticity of retail sales for individual business types by size of community with respect to the three sources of personal income. The estimated coefficient on each of the three sources of income provided a basis for inferences about consumer spending over the period. A positive coefficient indicated that an increase in income led to higher consumer expenditures in that particular market over the period. A negative coefficient indicated that an increase in income led to lower consumer expenditures in a particular market over the period.

Other things equal, changes in consumer expenditures at community retailers increase or decrease total retail revenues (sales) and partially determine the profit of retail businesses in the different size communities. When profit levels of retail stores change within the rural retail distribution system, some communities become better locations for retail businesses than other communities. Over time, the retail distribution system of the area changes as the number of different types of retail businesses within the different size communities adjusts.

drinking places in the largest communities and reduce spending at eating and drinking places in the smallest communities. The increased spending at eating and drinking places in the largest communities will increase total sales and revenue at restaurants in the largest communities relative to the smallest communities. As the market adjusts, the increase in total revenues is likely to increase profits (total revenue minus total costs) and the probability of successful restaurant activity in the larger communities relative to the smaller communities.

The changing profit levels partially determine which business types will be most successful at which size of community in the regional retail distribution system. In the long run, as businesses in the retail distribution system adjust, the proportion of some business types will increase in some communities and decrease in others. Some business types may completely disappear, as general merchandising stores already have, from the smallest communities.

Implications for Rural Retailing

The success or failure of new or existing small retail businesses in the study area will be partially determined by changes in rural income and spending patterns. Changes in the components of rural income alter preexisting rural expenditure patterns and systematically influence the chances of successful retailing in communities of different sizes. This analysis suggests there are both winners and losers from changes in the basic sources of personal income. Most of the winners and losers operate the same type of business but are located in communities of different sizes.

The results of this study imply that spending patterns associated with farm, manufacturing, and transfer income are somewhat different from one another. If this same difference between sources of personal income and retail sales is present in other parts of rural America, then the retail distribution system in farm-dependent counties may be different from the retail distribution system in manufacturing counties, and both of these different from the retail distribution system in retirement counties. RDP

For Additional Reading...

Harley Johansen and Glenn Fuguitt, *The Changing Village in America: Demographic and Economic Trends Since 1950*, Ballinger Publishing Co, 1984.

David Henderson, "Rural Retail Sales and Consumer Expenditure Functions", *Journal of Agricultural Economics Research*, Vol. 42, No. 3, 1990.

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