hard times
COMMUNITIES IN TRANSITION

Commercial Sector Development in Rural Communities: Trade Area Analysis

THOMAS R. HARRIS
Assistant Professor Department of Agricultural Economics
University of Nevada Reno

Economic development strategies have traditionally concentrated attention on the attraction of basic or export industries. Export industries include the agricultural, mining, and manufacturing sectors,[1] with most development strategies focusing on bringing manufacturing plants to a region. Development professionals encourage attraction of these firms because export industries provide a multitude of economic activities through the multiplier effect.[2] However, development strategy focusing solely on export promotion overlooks increasing the multiplier effect through development of a region's commercial sector.[3]

Historically, rural communities lose retail and service sales to large metropolitan communities. These lost sales, called "leakages," reduce the size of a community's export base multiplier because respending activities occur outside the community. Also the Bureau of Labor Statistics projects that almost 75 percent of all new jobs created between 1982 and 1995 will be in the commercial sector. (19) Therefore, a development strategy which focuses entirely on attracting manufacturing firms to a region may be an incorrect strategy given that many manufacturing firms are relocating in Far East countries such as Taiwan, Korea, and Singapore. A more comprehensive development strategy for contemporary and future time periods would be one which not only encourages the attraction of export industries but also emphasizes developing the community's commercial sector. This paper, therefore, addresses the importance of developing a rural community's commercial sector for economic development by providing some analytical tools. Specific objectives are: to develop procedures for estimating commercial sector activity in a community; to estimate commercial sector activity for various counties within a state (Nevada is used as an example); and to develop strategies for strengthening activity in a rural community's commercial sector.

Trade Area Analysis

Several studies have been completed which determine commercial sector activity in rural areas. (1-15) This paper will focus on trade area analysis as developed by Stone and McConnon at Iowa State and Pulver at the University of Wisconsin. (15,8). For trade area analysis, two measures are used: trade area capture and pull factor.

Calculation of Trade Area Capture

Trade area capture is determined by dividing the county's actual retail or service sales by the state per capita expenditures adjusted by the relative per capita income between county and state. The equation is:

$$\text{Trade Area Capture} = \frac{\text{Actual Retail Sales of Merchandise Type i in County j}}{\text{State Per Capita Expenditures for Merchandise Type i} \times \frac{\text{County j Per Capita Income}}{\text{State Per Capita Income}}}$$

Most trade area models assume that a community's market area is solely a function of population and distance. Trade area capture explicitly incorporates income and expenditure factors which also affect the community's trade area. The underlying assumption of trade area capture is that local tastes and preferences, regardless of income differences, are similar to the state's.

Trade area capture estimates usually are derived for more than one time period and more than a single county. By comparing a county's trade area capture estimates through time with changes in the county's population and income, the county's ability to capture trade at a similar rate as the county's population or income grows or declines is derived. Also, by comparing

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changes in trade area capture for counties of similar demographic and economic structure, the county's relative commercial sector activity can be estimated.

Example Calculation

For this example, trade area capture and pull factor values for Humboldt County, Nevada will be derived. From the *Census of Retail Trade*, total retail sales for Humboldt County in 1977 were $36,380,000. The state per capita expenditures for retail sales in 1977 were $4,526.12. County per capita income for Humboldt County in 1977 was $6,311 and state per capita income was $7,808. Plugging these numbers into the formula derives a value for trade area capture (T.A.C.) or:

$$\text{T.A.C.} = \frac{\$36{,}380{,}000}{\$4{,}526.12 \times \frac{\$6{,}311}{\$7{,}808}}$$

$$= \frac{\$36{,}380{,}000}{\$4{,}526.12 \times 0.8083}$$

$$= \frac{\$36{,}380{,}000}{\$3{,}658.46 \times 9{,}944}$$

The trade area capture value for Humboldt County indicates that there were retail sales equal to 9,944 people if they had purchased retail products at an average rate similar to all state residents while adjusting for relative income levels. The estimate is not the actual number of people who made retail purchases in Humboldt County but rather an equivalent number.

How to Interpret These Numbers

If the trade area capture is larger than the county population then it means that 1) the county is attracting consumers from outside its boundaries or 2) people who reside in the county are spending more for these retail items. If the trade area capture is less than the county population, then the county is 1) not even capturing the retail/service purchases of its own residents or 2) county residents are spending relatively less than the statewide average. For all of these occurrences, further analysis is required such as a consumer survey in the county.

Trade area capture estimates are an aggregate figure made up of both local and non-local shoppers. To estimate the amount of sales that were to outside shoppers, a pull factor is derived. Pull factor is a ratio which explicitly derives the portion of consumers that are from outside the county boundaries.

How Are Pull Factors Calculated?

The pull factor, for retail goods and services, is the trade area capture estimate divided by the county's population.

$$\text{Pull Factor} = \frac{\text{Trade Area Capture Estimate}}{\text{County j Population}}$$

The division by county population removes the influence of population change within the county and focuses attention on the county's ability to draw outside customers. With the trade area capture estimates for Humboldt County in 1977 being 9,944 and a county population of 7,600, the pull factor is derived:

$$\text{Pull Factor} = \frac{9{,}944}{7{,}600} = 1.31$$

For 1977, this means that Humboldt County is experiencing an inflow of retail sales customers.

Commercial Sector Analysis for the State of Nevada: An Example

Using the trade area capture and pull factor equations, a trade area analysis for any number of counties in an area, state, or region can be developed. This section shows a trade area analysis for the seventeen counties in the state of Nevada. For this example, Nevada's total county retail sales, as well as state, were derived from the *Census of Retail Trade* that is published every five years (e.g., 1977 and 1982). Also, if the researcher wishes to do an annual analysis, total county and state retail sales are presented in annual issues of the *Sales and Marketing Management* magazine. (10) If the researcher is unable to obtain issues of the *Sales and Marketing Management* magazine and the researcher's state has a sales tax, it may be possible to obtain annual county and state gross taxable sales to develop a complete data base. With annual data, the effects of "boom and bust" economic cycles on an area's trade area activity can be derived.

For the Nevada example, county and state retail sales values were derived from the *Census of Retail Trade*. (16) State per capita expenditures for retail items were derived by dividing state retail sales for 1977 and 1982 from the *Census of Retail Trade* by state population figures from the Bureau of Economic and Business Research at the University of Nevada Reno. State and county per capita income and population values for 1977 and 1982 were also obtained from the Bureau of Economic and Business Research at the University of Nevada Reno. Another source of information pertaining to state and county population and per capita income values is the publications and computer tapes of the Bureau of Economic Analysis. (17, 18) From these data sources and using the trade area capture and pull factor equations, trade analysis for Nevada was accomplished.

Table 1 shows trade area capture and pull factors for each of the seventeen counties in Nevada from 1977 to 1982. The two SMSA or Metropolitan counties in Nevada are Clark and Washoe Counties. The remaining counties are classified as non-SMSA, non-Metropolitan, or rural counties. Of the rural counties, the counties of Humboldt, Ormsby, Pershing, and White Pine showed inflows of customers in 1982 because of a pull factor that was greater than one. These are also counties recognized as retail hubs for rural residents.

Of the seventeen counties from 1977 to 1982, five increased their pull factor, eleven had decreases in pull factor, and one remained unchanged. For example, Douglas County experienced a 5 percent increase in real retail sales and 38 percent increase in trade area capture, but experienced a 3 percent decrease in pull factor. With gains in county population and per capita income, a possible explanation of Douglas County's decline in pull factor may be residents shopping in other retail centers such as Reno.

For this example, total retail sales by county were used for trade area analysis; however, retail sales are further delineated by the *Census of Retail Trade* into ten retail establishment subgroups.[4] Also, if one used the *Sales and Marketing Management* magazine, retail sales are delineated into nine sub-groupings.[5] However, for some retail establishment sub-groups in both data sources, the problem of data disclosure exists. This is why if gross taxable sales data are available from your state taxation office, a more detailed trade area analysis can be made.

TABLE 1: TRADE AREA ANALYSIS FOR THE SEVENTEEN COUNTIES OF NEVADA, 1977–1982

	Retail Trade — 1982^			Retail Trade — 1977		
Counties	Total Retail Sales ($1,000)	Trade Area Capture	Pull Factor	Total Retail Sales ($1,000)	Trade Area Capture	Pull Factor
Churchill	42,191	13,018	0.93	43,528	11,640	0.96
Clark	1,923,566	519,165	1.02	1,708,529	391,010	1.00
Douglas	53,505	12,611	0.62	46,692	9,140	0.64
Elko	72,746	19,130	0.98	64,949	15,320	0.99
Esmeralda	2,062	740	0.62	1,111	320	0.47
Eureka	1,782	580	0.41	1,481	480	0.42
Humboldt	47,356	17,297	1.54	36,380	9,940	1.31
Lander	9,669	3,019	0.64	9,139	2,570	0.78
Lincoln	5,346	1,747	0.47	8,541	2,940	0.98
Lyon	28,536	8,712	0.59	23,580	6,150	0.56
Mineral	13,705	3,956	0.68	16,301	4,600	0.76
Nye	25,360	8,213	0.63	15,891	4,260	0.73
Ormsby	136,166	35,911	1.04	130,308	29,400	1.08
Pershing	17,466	5,834	1.58	14,404	3,720	1.24
Storey	2,780	1,053	0.62	3,257	880	0.85
Washoe	945,450	216,397	1.04	904,814	173,960	1.04
White Pine	26,411	8,752	1.01	40,260	10,770	1.25

^ Deflated to 1977 prices according to the Consumer Price Index

Strategies for Strengthening a Community's Commercial Sector

In and of themselves, trade area capture and pull factor estimates may not tell rural decision makers anything they might not already intuitively feel about their community's commercial sector. One might ask, "How can trade area capture and pull factor estimates be effectively used?" One use of trade area capture and/or pull factor estimates is to develop a history of these estimates. Through a history of pull factors, rural decision makers and retailers can see if their community is losing shoppers to outside counties. However, the major benefit of trade area analysis is that it stimulates communities to examine reasons why they have lost pulling power and assess options available to recapture lost trade.

In order for a community's commercial sector to improve capture of local dollars, suggested strategies, as proposed by Pulver might be appropriate. (8,12) One: Identify market potential or retail outlets through a survey of consumer demands and buying habits. As mentioned earlier, of and by themselves, trade area capture and pull factor estimates only initiate discussion of a community's commercial sector. A detailed survey of the community's customers is needed to develop appropriate strategy. Two: Improve share of retail market capture through downtown analysis and renewal. By this strategy, comments of local businesspeople are used to develop retail strategy. Three: Aid employers in developing employee training programs to improve the quality of service. A factor often overlooked is that a customer's first impression of a retail store, and sometimes of the community's entire commercial sector, is the attitude and sales service of the retail establishment's employees. Four: Expand purchases by non-local people through appropriate advertising. If a community's commercial sector does not advertise, then potential customers, especially non-resident customers may not be aware of establishments in the area. For many tourist states, appropriate out-of-state advertising is beneficial. Five: Encourage local citizens and businesspeople through informational programs to buy locally. This strategy is often referred to as import substitution. Through an analysis of consumers and industries, local decision makers and businesspeople may become aware of possible business ventures where sales are flowing to outside counties. Through such a program, sales leakages are reduced and the export base multiplier is strengthened. Six: Collective action through the formation of organizations such as the local Chamber of Commerce. In order to improve local dollar capture, especially in a rural community, collective action must be used to initiate development in the community's commercial sector.

Conclusions

An avenue of community development often overlooked by economic development strategists is the promotion of the community's commercial sector. These economic sectors, usually classified as non-basic or secondary sectors in export base theory can contribute to a community's level of economic activity. By strengthening the community's commercial sector, the export base multiplier may also be increased.

For commercial sector analysis, several procedures can be used; but, for this paper, trade area capture and pull factor estimates were developed. These trade area analysis tools in and of themselves only indicate commercial sector activity in the community. The major benefit of trade area analysis is that it initiates discussion by rural decision makers and businesspeople about their community's commercial sector and helps them assess options to capture or recapture lost trade.

Footnotes

1. In a referenced study by Smith (13), it was shown that retail sectors of a local economy also can be exporters of goods and services to outside counties.
2. A report "Understanding Your Local Economy: Economic Base Analysis and Local Development Strategies," by Bruce A. Weber, Steven M. Smith, Ronald C. Faas, and Gary W. Smith, forthcoming from the Western Rural Development Center (20), explains the process of local employment and income generation, shows how to estimate the local economic base, and suggests how information on economic structure can be used to help select more appropriate economic development strategies.
3. For this paper, the term "commercial sector" covers firms in the wholesale, retail, and service industries.
4. *Census of Retail Trade* delineates retail sales into ten groups: Building Materials, Hardware, Garden Supplies, and Mobile Home Dealers; General Merchandise Group; Food Stores; Automobile Dealers; Gasoline Service Stations; Apparel and Accessory Stores; Furniture, Home Furnishings, and Equipment Stores; Eating and Drinking Places; Drug Stores and Proprietary Stores; and Miscellaneous Retail Stores.
5. *Sales and Marketing Management* magazine breaks down retail sales into nine groups: Food Stores; Eating and Drinking Places; General Merchandise Stores; Apparel and Accessories Stores; Furniture, Home Furnishings, and Appliance Stores; Automobile Dealers; Gasoline Service Stations; Building and Hardware Dealers; and Drug Stores. Since the aggregate of these nine sub-groups does not equal total county retail sales, the calculated residual can be designated as Miscellaneous Retail Stores.

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