Estimating Market Potential Using Published Data:
A Trade Area Analysis Example

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Overview

As small agricultural businesses do not often have the resources to conduct market research using primary data, secondary data, (data that has been previously published on the local, regional, or national economy), can be used to help business owners in their decision making. In particular, economic analysis can identify voids in the local or regional market that can possibly be filled by expanding business or implementing new products. Trade area analysis, including pull factor and trade capture, can be very useful in identifying particular businesses, or products for which there may be significant local demand. These businesses are primarily covered by the commercial sector which are local groceries, apparel, general merchandise, restaurants, accountants, and other retail and service businesses. The following fact sheet provides an overview of trade area analysis, sources of such data for such analysis, and additional business and/or product development strategies.

Trade Area Analysis

Several studies have been completed which determine commercial sector activity in rural areas. For this fact sheet, the trade area analysis procedures developed by Stone and McConnon (1984) and Pulver (1984), and modified by Harris et al. (1990) is discussed. For trade area analysis, two measures are used: trade area capture and pull factor. The trade area analysis procedures have been extended by estimating commercial sector opportunity on a square foot basis (Center for Community and Economic Development, 2001).

Trade Area Capture

Sales retention is an area of economic development strategy that attempts to capture potential local retail sales. One approach to estimating retail sales potential is to estimate the number of people buying from local merchants (Hustedde et al., 1984; Stone and McConnon, 1984; Harris, 1985; Darling and Tayyem, 1991; Woods, 1991; Shaffer, Deller, and Marcouiller, 2004). Trade area analysis uses trade area capture and pull factors to measure the extent the local commercial sector is capturing local and non-local commercial sector demands.

Trade area capture is a surrogate estimate for the number of customers, or customer equivalents, who purchase a specific type of merchandise in a given region. Trade area capture is determined by dividing the county's actual commercial sector sales by the state's per capita expenditures, adjusted by the relative per capita income between county and state. Trade area capture (TAC_{ij}) is estimated below as:

$$TAC_{ij} = \frac{AS_{ij}}{(AS_{sj}/P_s) \cdot (Y_c/Y_s)} \qquad (1)$$

where:

TAC_{ij} represents trade area capture for retail sector j in county i measured by customer equivalents,
AS_{ij} represents annual taxable retail sales in sector j in county i,
AS_{sj} represents annual taxable retail sales in sector j for the state,
P_s is the state population,
Y_c is county per capita income, and
Y_s is 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 affects the community's trade area. State and county population and income data can be obtained from the Regional Economic Information System (U.S. Department of Commerce, 2007) and annual taxable sales data by economic sector are available from state sources if the state imposes a sales tax such as the state of Nevada (State of Nevada Department of Taxation, 2005).

Interpretation of Trade Area Capture
    If trade area capture exceeds population for a given county, either the county is capturing outside trade or local residents have higher spending patterns than the state average. If trade area capture is less than county population, either the county is losing potential trade or local residents have lower spending patterns than the state average. Comparison of trade area capture estimates between specific commercial sectors and county population can provide insights into which commercial sectors are attracting or losing customers in that county. If possible, estimating trade area capture through time can provide information as to the dynamic change occurring in a local commercial sector. Completing a trade area capture analysis through time is a way to detect important information about trends within a commercial sector.

Pull Factor
    Trade area capture measures purchases by both residents and nonresidents. The pull factor is the ratio of county trade area capture to county population, which creates a measure of the county's drawing power. Pull factor makes explicit the proportion of consumers that a county draws from outside its boundaries. Over time, the pull factor ratio removes the influence of changes in county population when determining changes in drawing power. For economic development, a pull factor analysis can help identify selected retail sectors that may be targeted for retail sector development. Most often a pull factor below 1.0 indicates a retail sector opportunity. However, this assumes that the low pull factor is due to local residents shopping outside the county, which is not always true. Analogously, if a pull factor is above 1.0, it may suggest that the county is drawing in residents from neighboring counties to shop. Pull factor is calculated as:

$$PF_{ij} = \frac{TAC_{ij}}{POP_i} \qquad (2)$$

where:
    PF_{ij} is the pull factor value for commercial sector j in county i,
    TAC_{ij} is the trade area capture value for commercial sector j in county i,
    POP_i is population in county i.

Trade Area Capture by Square Footage

Sometimes valuable information about trade area potential can be derived from using trade area capture, potential sales, and pull factor estimates to calculate trade potential by square footage. Employing the trade area capture formula, commercial sector potential sales for a given commercial sector in a selected county can be presented as:

$$PS_{ij} = P_i \cdot SSPC_j \cdot \frac{PCI_i}{PCI_s} \qquad (3)$$

where:
PS_{ij} is potential sales for commercial sector j in county i,
P_i is population for county i,
$SSPC_j$ is state sales per capita for commercial sector j,
PCI_i is per capita income for county i, and
PCI_s is per capita income for state s.

Comparing estimates of potential sales for commercial sector j in county i to realized sales of commercial sector j in county i, one could derive a value of captured or lost commercial sales for that sector and county. However, comparing potential and realized commercial sector j sales for county i might not be too meaningful to the local public. An alternative approach would be to convert potential commercial sales into demand for commercial sector square footage. Comparing potential and available commercial sector square footage provides local economic development practitioners information to formulate local commercial sector development targets.

Trade Area Analysis Example: Mineral County, Nevada

Using information from Table 1 and Equation 1, Trade Area Capture for the General Merchandise Sector in Mineral County is derived below:

$$TAC = \frac{\$1,011,060}{\dfrac{\$3,799,963,834}{2,412,301} \cdot \dfrac{\$26,363}{\$35,744}} \qquad (4)$$

$$TAC = 870 \qquad (5)$$

In 2005, Mineral County's trade area capture for general merchandise was estimated to be 870 customer equivalents (i.e. a surrogate for the number of customers that includes nonlocal customers such as tourists and residents of neighboring counties). Since the trade area capture estimate is less than the county population of 4,896, it may be concluded that Mineral County is not capturing the general merchandising purchases of its county residents. This implies that on balance, general merchandising stores in Mineral County are not capturing local customers to the extent possible.

The trade area capture value is an absolute value that many researchers find difficult to use in developing a local commercial sector targeted program. It is difficult to compare trade area capture estimates between counties of different size, and to assess trends over time. For these reasons, the pull factor is used.

Table 1: Required Data for Estimation of General Merchandise Sector Trade Area Analysis for Mineral County, Nevada, 2005

Mineral County Population	4,896
State of Nevada Population	2,412,301
Mineral County per Capita Income	$26,363
State of Nevada per Capita Income	$35,744
Mineral County Sales for General Merchandise	$1,011,060
State of Nevada Sales for General Merchandise	$3,799,963,834
Urban Land Institue Sales per Square Foot for General Merchandise Sector	$176.18

Source: U.S. Department of Commerce, State of Nevada Department of Taxation, and the Urban Land Institute

Using Table 1 and Equation 2, the pull factor for the General Merchandising Sector in Mineral County is derived as:

$$PF = \frac{870}{4,896} \qquad (6)$$

$$PF = 0.1777 \qquad (7)$$

Mineral County's 2005 pull factor for the General Merchandising Sector was 0.1777. With a pull factor less than 1.0, this means Mineral County's General Merchandising Sector is losing local sales. The low pull factor signifies that there is opportunity for potential general merchandising sector development, but again, also indicates that difficulty exists in developing a target commercial sector program.

Using procedures outlined by Center for Community and Economic Development at the University of Wisconsin (2001), Equation 3 and data from Table 1, potential sales for the General Merchandising Sector in Mineral County is shown below as:

$$PS = (4,896) \cdot \left(\frac{\$3,799,963,834}{2,412,301} \right) \cdot \frac{\$26,363}{\$35,744} \qquad (8)$$

$$PS = \$5,688,281 \qquad (9)$$

Using the potential sales value from Equation 9 and sales per square foot for General Merchandising Sector from Table 1 (a value of $176.18), the total demand for square foot space for the General Merchandising Sector in Mineral County becomes:

$$PSQFT = \frac{\$5,688,281}{\$176.18} \qquad (10)$$

$$PSQFT = 32,287 \text{ sq. feet} \qquad (11)$$

Therefore, Mineral County's total demand of commercial square footage for the General Merchandising Sector is 32,287 square feet. Local economic development practitioners using county-level assessor and/or Geographic Information System data can estimate the general merchandising sector square footage already in use along with square footage currently available to determine if enough space is available to target this commercial sector for development. Also, this analysis may show if a shortage of commercial space or square footage will create a hindrance in targeting this commercial sector for future economic development. If square

footage is available, this information could provide impetus for targeting the General Merchandising Sector for economic development in Mineral County.

Business Development/Assistance Strategies

Anchor Business Strategy

Often a single good or service is the initial lure that attracts customers. All community businesses benefit from this key good or service. In shopping centers, that key merchant is referred to as the shopping center "anchor." When a county examines its retail trade sector, there are three types of businesses to consider (Kivell and Shaw, 1980). The first type is the generative business that produces sales by itself or attracts customers to the county, such as the shopping center anchor. The second type of business to consider when examining a retail trade sector is the shared business that secures sales from the generative power of nearby businesses; an example is a small specialty store located near a large merchandise store. The third type of business to consider is the business whose sales are a coincidental occurrence to other activities. Such businesses do not generate sales themselves, nor from association with nearby shops. Examples are small ice cream shops, t-shirt shops and cafes in a shopping mall. For an area to realize its retail trade potential, a balance among the different categories of retail shops must be struck.

Management Assistance Programs

Many local businesses are owner-operated, earn low profits and have difficulty obtaining financing. For example, a business may need help in preparing a business plan to qualify for financing to start or expand its operation. Business owners often need additional education and training in improving business management skills such as accounting, finance, planning, marketing, customer relations, merchandising, personnel management, and tax procedures. Additional education and training assistance can be provided through seminars and one-on-one aid. Sources of assistance include the Small Business Development Center Program (sponsored by the Small Business Administration), vocational technical centers, Service Corps of Retired Executives (SCORE) and the Cooperative Extension Service. The intent of these programs is to aid small businesses in becoming more competitive.

Incubator Programs

Establishing a business incubator is another way to assist new businesses. An incubator is a building with shared space or service requirements that help to reduce start-up costs for new businesses. Incubators have been successful in many locations, but are not right for every town. A successful incubator must have long-range planning, specific goals, and good management in order to identify markets and entrepreneurs. A successful incubator must have long-range planning, specific goals, and good management in order to identify markets and entrepreneurs (Allen and Daugherty, 1987; Weinberg, 1987; Bearse, 1993, Rushing and Woods, 1995; Woods and Rushing, 1995).

Other Assistance Strategies

Small businesses often have difficulty obtaining long-term bank financing for expansion because they lack asset to mortgage, cannot obtain affordable terms or rates, and/or cannot present a strong business plan. A business development program can identify public loan

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programs (such as Industrial Development Bonds) and package them with private loans to make projects feasible, as well as provide assistance in undertaking joint projects for the business district. Joint business development projects may include:

- Improving street appearance
- Improving management of a commercial area
- Building renovation
- Preparation of design standards
- Joint promotions and marketing
- Organizing independent merchants
- Special activities and events
- Fund raising
- Improving customer relations
- Uniform hours of operation

Undertaking these projects requires cooperation, organization, and efficient management. These projects can improve a business district's competitive position and attract new customers. The Main Street Program provides many good examples of towns working for economic revitalization. The Main Street Program, developed by the National Trust for Historic Preservation, is built around four points: organization, design, promotion, and economic restructuring (National Trust for Historic Preservation, 1996).

Conclusions

Small agricultural businesses often do not have the time or resources available to conduct costly primary research in their area. The analysis of secondary data collected by another source can be beneficial to these small businesses by providing additional information about markets and consumers. Trade area analysis is an example of how businesses can use existing data to learn more about how their business power can be strengthened, by providing information about the number of customers in their county, their sector's pull factor in the region, and potential sales in their area. This information can all be used to create a plan or strategy for agribusiness owners.

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