

In Search of a Theory of Shopping Value: The Case of Rural Consumers

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Although the challenges facing rural retailers have been attributed to competition and decreasing population, this paper defines the problem from rural consumers' perspective. It argues that consumers select shopping location on its shopping value, determined by its attractiveness and accessibility. The results indicate that locations closest to the consumer's residence offer the highest shopping value for groceries and other low-order goods. They also show that increasing gasoline prices favor local retailers. Rural retailers may use these results to implement differentiating strategies that increase their attractiveness, accessibility, and consequently their competitiveness.

Declining number of rural retail stores across the United States is creating policy concerns about maintaining access to services for rural residents. Many researchers have shown that when the local population falls below a particular threshold, marginal revenue from retail activities falls below marginal cost, leading to closures (Mulligan, Wallace, and Plane; Bresnahan and Reise; Shonkwiler and Harris). Additionally, it has been shown that the arrival of large retailers such as Wal-Mart stores in towns relatively close to small towns and rural communities often accelerate the demise of retailers in these communities (Goetz and Swaminathan; Artz and Stone; Parr and Denike). These perspectives attempt to explain the problem from the supply side, assuming the consumer as a given.

This paper attempts to explain the challenges facing small town and rural retailers from consumers' perspective, arguing that consumers' decisions about shopping locations are defined by their search for value from the shopping experience. Therefore, the paper extends central place theory and gravitational law of retailing research by focusing not on why retailers locate in particular locations but on the factors that motivate consumers to shop at particular locations. By focusing on the demand side of the retail exchange, the paper seeks to develop a theory of shopping value that would help local policy makers and retailers

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identify competitive retail offerings for rural communities. The paper's model is tested using a small Western Kansas community as a case example. The results from the case are used to develop some insights into strategies that could enhance rural retailers' competitiveness.

A Need for Demand Side Perspective

The original purpose of central place theory (Lösch; Christaller) was to explain the size and distribution of towns as markets, recognizing population, and income as critical variables. Huff (1966), for example, defines the probability of a consumer at one location traveling to another to shop as a direct function of the size of the shopping center and an inverse function of travel time. However, it is well established in the literature that retail locations need to exceed a minimum population threshold in order to be sustainable (Berry and Garrison; Shonkwiler and Harris). Thus, Bresnahan and Reise show that the population of local areas largely determines the entry of retail firms while Shonkwiler and Harris show empirically the negative relationship between population and number of retail firms. Indeed, Kohsaka argues that consumer population and its characteristics (demographic, socioeconomic, shopping behavior, and potential expenditures) are the most important factors in the spatial clustering of retail firms.

Population is identified as an important variable in central place theory but the theory's focus has undeniably been the retailer (Dökmeci; Kohsaka; Toregas and ReVelle). This focus has contributed to the principal definition of the retail problem within the context of profit maximization. Yet, recognizing the interconnections in retail markets, Thill suggests that it is important to incorporate both demand and supply components of markets into central place theory analyses in order to understand the size and scope economies associated with retail locations. Scope economies, for example, engender jointness in production of retail goods and services, which helps consumers to minimize total shopping costs, including travel costs.

Eaton and Lipsey note that consumers, the products they purchase and their transportation choices are indivisible. For example, it does not cost any more to transport a box of toothpaste than to transport a box of toothpaste and a bag of potatoes (indivisibility of transportation), and toothpastes and potatoes can only be purchased in specific sizes (indivisibility of product), while the consumer shopping for the potatoes and the toothpaste are one and the same. These indivisibilities, they argue, create economies of time-costs that offer advantage of association (clustering of firms) at a central place that affords consumers the opportunity to co-consume or indulge in "multipurpose shopping" (Eaton and Lipsey, p. 59). As such, once consumers have established their shopping objective and selected a location to do the shopping, Eaton and Lipsey suggest they procure all goods and services that they need to achieve the shopping objective and minimize their shopping cost. Similar observations were made by Fotheringham, Thill and Parr and Denike.

Consumers' shopping objectives are defined by their needs at particular times, implying that the selection of a shopping location is influenced by shopping needs at the decision time. As the needs change, so may the shopping locations chosen by the consumer. Based on the foregoing, it is plausible to argue that consumers'

choice of any shopping location is first based on that location's ability to meet their supply threshold for their defined shopping objective. Supply threshold may be perceived as the minimum level of supply of goods and services necessary to satisfy the consumer's shopping objectives.

Christaller postulates a hierarchy of goods in the marketplace, arguing that low-order goods are purchased with as minimum cost as possible while high-order goods are purchased from centers that offer the highest value. Consumers generally make several shopping trips annually to purchase low-order goods such as groceries and other consumables and make fewer trips to purchase high-order goods such as clothing and household appliances. Thus, the number of shopping trips made is inversely proportional to the order level of goods.

Against this background, consumers' shopping problem may be defined as one in which they make their shopping decisions to maximize utility from the shopping activity by selecting shopping locations given their accessibility and their attractiveness. Accessibility is defined to include travel cost associated with getting to and from the shopping location. This is a function of gas prices, fuel efficiency of the consumer's automobile, average travel speed, travel time and the opportunity cost of shopping. It also includes the opportunity cost of undertaking the shopping activity. Attractiveness, on the other hand, is the perceived value offered by a shopping location, defined to encompass relative product prices, retail mix, and the efficacy of completing shopping tasks. In selecting a shopping location, therefore, consumers may trade off particular attractiveness and accessibility characteristics against each other, but the trade-offs may vary by shopping objectives. Consumers improve their shopping decisions by learning (through trial and error) that particular locations offer better shopping value for certain shopping objectives than others. This learning often leads to the development of consumer loyalty to specific locations for specific shopping objectives (Cadwallader).

Based on the foregoing, consumers' shopping decision may be presented as a two-stage sequential process of first identifying the order level of the goods triggering the shopping decision (which defines the money budget for the shopping trip) and then choosing shopping locations that they believe or know to meet their supply threshold. This perspective differs from Hubbard's in which the budget allocation and choice of location are independent of each other but is similar to ideas presented by hierarchical consumer choice researchers (Fotheringham; Borgers and Timmermans).

Suppose, after Eaton and Lipsey, that consumers maintain an inventory of goods and go shopping only when that inventory falls below a certain critical level. Suppose also that consumers do not coconsume low-order goods with high-order goods but coconsume high-order goods with low-order goods. That is, while consumers may shop for groceries while shopping for furniture, they may not shop for furniture when grocery shopping is the objective for a shopping trip.

Based on the foregoing, consider a consumer, i , who needs to shop for a particular order level of goods, $k = 1, 2, 3$ (where 1 is low-order, 2 is medium-order, and 3 is high-order goods), which can be done in locations $j = 1, 2, 3 \dots n$, (where $j = 1$ is the consumer's home location). The decision to shop at any location given the shopping objective in any time period, t , is dependent on the location's ability to offer the highest utility subject to its attractiveness and accessibility

constraints. The probability, π_{ijkt} , that consumer i chooses location j' for shopping order k , therefore, obeys the following choice rule: $\pi_{ijkt} = 1$ when $U_{ij'kt} > U_{ijkt}$; and $\pi_{ijkt} = 0$ otherwise. Since utilities are unknown, the probability of a location being selected is defined by its ability to generate the highest shopping value, V_{ijkt} , for the identified shopping objective such that

$$(1) \quad V_{ijkt} = V(s_{ijt}, p_{ijt}, w_{ijt}, r_{it}, D_{it} | \alpha_{ikt}),$$

where s_{ijt} is the supply threshold for consumer i in location j and time t and p_{ijt} is the perceived value of the location given the shopping objective. Together, these two variables define the attractiveness of location j in time t for consumer i . The consumer's perception of the location's accessibility is defined by w_{ijt} and r_{it} , the travel cost and opportunity cost for performing the shopping activity. The consumer's demographic characteristics in time t are defined by D_{ij} . The order level of goods triggering the shopping trip, k , defines a minimum budget allocation, α_{ikt} , for the shopping trip such that $\alpha_{i1t} < \alpha_{i2t} < \alpha_{i3t}$. That is, high-order level goods command higher budgets than low-order level goods. The theoretical expectations about these variables, based on the first order conditions of equation (1) are such that $V'_s, V'_p > 0$ and $V'_w, V'_r < 0$. Thus, shopping value is increasing in attractiveness and decreasing in accessibility.

Viewed within the context of selecting locations with the highest shopping value on the basis of their attractiveness and accessibility allows the shopping value model to explain why consumers shop at different locations for the same things at different times as well as why they shop for different things at different locations. With the increasing importance of online shopping, the shopping value model is also able to analyze online shopping as a location based on its attractiveness and accessibility for specific shopping objectives.

The foregoing model differs from Huff (1964) by focusing on the sequential process of identifying a shopping objective, which defines the allocated budget for the shopping trip, and then selecting a shopping location based on its expected shopping value. The model also fits the analytical framework of Becker, Weenig and Maarleveld, as well as Tubbs, Roy, and Burton because the consumer, constrained by time, selects shopping-related time to maximize shopping value. However, in this case, the shopping objective defines locations within a set of alternatives that meet the consumer's supply threshold, thereby justifying their inclusion in the choice set (Fotheringham). Finally, unlike Kohsaka, Shonkwiler and Harris, and other central place theory researchers who define the problem from retailers' perspective, this model focuses essentially on consumers and their attempts to maximize shopping value by selecting locations on the basis of their attractiveness and accessibility.

Under well-known McFadden construction of the choice problem, the probability of the consumer choosing location j' may be estimated using a multinomial logit model, a common approach used in choice modeling. Indeed, because of the consumer's perceived attractiveness and accessibility constraints, the location alternatives under each shopping objective are well known, making the application of a nested logit formulation of the choice problem feasible. Alternatively, a simulation method may be applied to estimate the shopping value of alternative locations, instead of their probabilities of being chosen. Under this approach,

the location with the highest V_{ijt} for the specified shopping objective is selected. The simulated variables of interest are the components of the attractiveness and accessibility of the different locations meeting the consumer's supply threshold.

Applying the Shopping Value Model: A Case Example

Gove, Kansas is a small community of about ninety-four people and forty-two households (U.S. Census Bureau). The community's median age is 39.8 and citizens eighteen years and over account for about 70% of this population. About 94.4% of Gove residents who are twenty-five years or more have attained high school or higher education compared to 80.4% in the United States, but only 20.8% of this age group have a bachelor's degree or higher compared to 24.4% U.S. average. Median household income in the community in 1999 is about \$23,438 compared to \$41,994 for the United States. (U.S. Census Bureau).

After the only retail store in the community closed, Gove's community leaders decided to open a community grocery store to serve its citizens. The success of the new grocery store, like the one before it, depends on its ability to meet consumers' needs and win their loyalty for particular order levels of goods in which it is strategically competitive (Ayres, Leistriz, and Stone). That is, the retailer must deliver a higher shopping value to Gove's consumers based on its attractiveness and accessibility for specific order level of goods than can be delivered by any other retail store in their set of alternative shopping locations. The shopping value model presented above allows for the determination of the supply threshold as well as the order level of goods that offer the Gove store an advantage in shopping in order to be the choice of Gove's citizens as well as become competitive against neighboring locations. A simulation approach is used to test the supply threshold, order level of goods and other accessibility and attractiveness variables on the shopping value generated by the Gove store as an example of how the model may be applied.

Imagine one of Gove's forty-two household heads makes grocery shopping plans every week, and let s_{it} be her supply threshold, defined to include not only products below household inventory level that need to be purchased on this particular shopping trip but all the products and services that could be considered on the shopping trip. For example, while the household may need a gallon of milk, the consumer may want to shop where there are also half gallons of milk and products from different suppliers available in order to maintain her sense of choice. The supply threshold, therefore, defines the psychological demand for choice (Gourville and Soman) and what Nicholls et al. refer to as the consumer's "greater concern for merchandise selection." Thus, it is to be expected that s_{it} will vary by shopping objective and differ among consumers in the community at any time. This variability implies that the allocated budget for the shopping trip, α_{ikt} , may also be expected to vary among consumers and across time.

Suppose that the locations meeting the supply threshold of Gove consumers are those within two hours driving. The principal ones are Gove, Colby, Hays, Garden City, and Goodland. The main characteristics of each of these locations are summarized in table 1. Because each of them has a larger product and service slate and more stores, they may all be deemed by a consumer to more attractive than Gove. For example, Garden City, Hays, and Colby each has a Wal-Mart

Table 1. Characteristics of alternative shopping locations

Characteristics	Gove	Colby	Hays	Goodland	Garden City
Total retail establishments ^a	1	159	177	48	44
Food & beverage retailers ^a	1	21	12	4	3
Number of SKUs	300	4,000	5,000	4,000	5,500
Population (2007) ^b	91	4,826	20,106	4,349	26,629
Median household income (1999) (\$) ^b	23,438	34,615	31,501	31,356	37,752
Distance from Gove (Miles) ^c	0	52.84	77.5	87.3	112.07

Source: ^aBusiness and Industry pages of Census Bureau (www.census.gov).

^bPopulation Census pages of Census Bureau (www.census.gov).

^cMapquest.com (www.mapquest.com).

Supercenter and at least one Dillon's store (member of the Kroger Group) while Goodland has a Wal-Mart Discount Store. However, Gove has an accessibility advantage as defined in the shopping value model.

To operationalize the shopping value model, it was simulated over a year for a single Gove household. In doing this, it was assumed that the consumer shops weekly for groceries and about six times a year for clothing, household furnishing and other medium- and high-order level goods. Data from the Bureau of Labor Statistics Consumer Expenditure Survey (2006) show that the average weekly household grocery expenditure in the Midwest region of the United States is \$74.32 and the average annual household furnishing and appliances expenditure is \$1,624. A random number generator, seeded by these estimates, was used to draw fifty-two shopping budgets with a focus on replicating the assumed consumption patterns over the year. For example, it was assumed that 61.5% of household and furnishing expenditure occurs in the weeks around Thanksgiving in November and the remainder on back-to-school and Christmas shopping in September and December. The supply threshold is assumed to be three times the forty to sixty items on the consumer's list for a typical week or holiday shopping, in line with Nicholls et al. and Gourville and Soman. The summary statistics for supply thresholds and budget allocations under alternative order levels of goods are presented in table 2.

Although consumers are able to rank location on the basis of their attractiveness through trial and error learning, the supply threshold requirement of the household is uncertain in any week. Therefore, it was randomly generated using the assumed levels of between 120 and 180 to seed the process and maintain the "psychological demand for choice" for the specific periods when medium and high-order goods are consumed. Accessibility, by definition, depends on the variables influencing travel, in-store, and opportunity costs. Travel cost is a function of driving time, speed, fuel efficiency, and gasoline prices. Fuel efficiency is a function of speed and type of vehicle. Therefore, assuming that the consumer drives a 2005 Ford F-150 or equivalent (a common automobile among Western Kansas residents), the EPA-estimated fuel efficiency is 15 miles per gallon at or below 60 mph (www.fueleconomy.gov). The EPA also estimates that fuel efficiency

Table 2. Summary statistics for supply thresholds and allocated budget by order level of goods ($k = 1, 2, 3$)

Order Level Statistics	$k = 3$ ($p = 3.85\%$)		$k = 2$ ($p = 7.69\%$)		$k = 1$ ($p = 88.46\%$)	
	Supply Threshold	Allocated Budget	Supply Threshold	Allocated Budget	Supply Threshold	Allocated Budget
Minimum	180	120.00	180	120.00	61	64.38
Maximum	290	998.76	280	432.62	119	85.00
Mean	235	559.38	228	276.31	87	73.92
Std. Deviation	78	621.38	55	180.49	17	5.77

Table 3. Summary statistics for accessibility (location-dependent) variables

Variable	Statistic	Gove	Colby	Hays	Garden City	Goodland
Driving speed (miles/hour)	Mean	36.53	68.15	66.78	66.80	68.48
	SD	8.59	3.73	3.70	4.11	4.25
Fuel efficiency (miles/gallon)	Mean	15.00	14.43	14.53	14.52	14.41
	SD	0.00	0.26	0.26	0.29	0.30
Travel time (hours)	Mean	0.10	0.78	1.16	1.68	1.28
	SD	0.03	0.04	0.06	0.10	0.08
Shopping time (hours)	Mean	0.28	0.35	0.35	0.35	0.34
	SD	0.26	0.33	0.33	0.33	0.31

declines between 7% and 33% for every 5 mph over 60 mph. These estimates were used to randomly generate fifty-two weeks of estimates for each of the accessibility components for all the locations under consideration. Their summary statistics are presented in table 3. The opportunity cost of travel and in-shop time is assumed to be the 2006 average after-tax wage for all employment types of \$7.90/hour (Bureau of Labor Statistics). This may be interpreted as the wage the consumer would have earned or the implicit value of relaxation and recreation that would have been enjoyed but for *having* to shop, reiterating the assumption that shopping is a *chore* and not a fun activity (Tauber). Gasoline prices were obtained from the Energy Information Administration (EIA) for the fifty-two weeks between May 2007 and April 2008. Based on the foregoing assumption about attractiveness, gasoline prices, and accessibility indicators for the alternative locations, a simulation of the shopping value for each of the locations was conducted to determine the consumer's choice of shopping location for the different order levels of goods.¹

Shopping Value and Order Level of Goods

The simulation results, presented in figure 1, indicate that Gove offered a higher shopping value per trip for low-order goods (grocery) in all weeks but six—with values below zero—which were the periods when medium- to high-order

Table 4. Summary results of shopping value under alternative shopping objectives

	<i>N</i>	Minimum	Maximum	Mean	Std. Dev.
Lower-Order					
Gove	46	143.16	379.14	226.74	59.67
Colby	46	91.28	162.02	131.31	16.59
Hays	46	57.15	110.03	79.80	12.99
Goodland	46	33.66	95.67	61.13	11.51
Garden city	46	10.94	58.66	33.32	10.30
Medium-Order					
Gove	3	72.53	85.86	80.90	7.29
Colby	3	274.92	289.76	282.41	7.42
Hays	3	146.28	171.23	155.65	13.58
Goodland	3	68.90	77.42	73.72	4.37
Garden city	3	65.95	73.05	68.63	3.86
Higher-Order					
Gove	3	-10.65	-3.57	-7.86	3.77
Colby	3	301.61	731.81	450.36	243.87
Hays	3	353.85	1234.70	709.53	464.24
Goodland	3	207.75	603.89	341.36	227.37
Garden city	3	226.91	1009.34	545.41	410.99

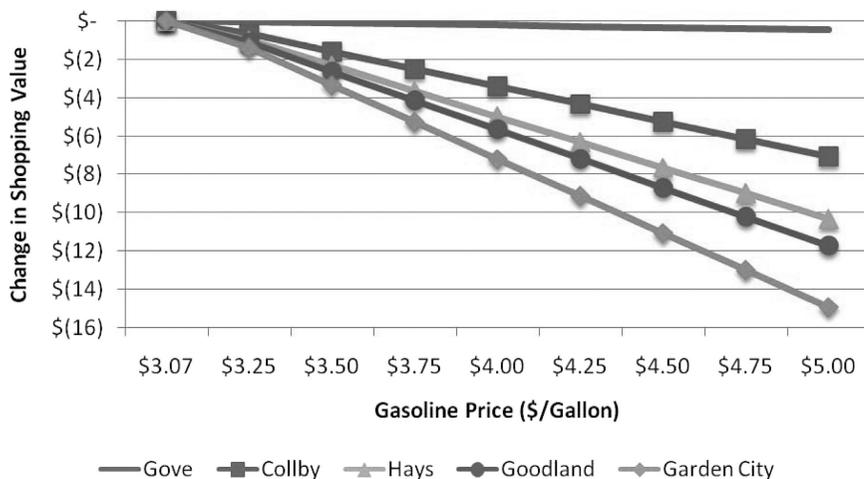
high-order objectives, the consumer would not consider Gove as a location of choice under the simulation assumptions presented in this case example.

The results of the simulation model suggest that when the supply threshold is met, accessibility is more critical than attractiveness when shopping for low-order goods, but attractiveness is the dominant variable when shopping for high-order goods. For example, Gove's attractiveness and accessibility costs for grocery shopping averaged about \$231 and \$4.01 and both were superior to the average attractiveness and accessibility costs of the other locations. On the other hand, Hays posted the highest attractiveness of \$759.40 among the locations, and even though its accessibility cost was higher than both Gove's and Colby's, it was the shopping location of choice. The foregoing results confirm Christaller's postulates about hierarchy of goods and its effects on the purchasing decision framework used by consumers.

Effect of Rising Gasoline Prices

Between January 2003 and July 2008, regular conventional retail gasoline price increased from \$1.424 per gallon to \$4.002, an increase of about 181% over the period (Energy Information Administration). Because gasoline price is a factor in the accessibility of shopping locations, it is important to assess its effect on selection of shopping locations based on shopping value. Gasoline price effects on average shopping value were simulated using prices that ranged from the average over the period considered in the model, that is, from \$3.07 to \$5.00/gallon,

Figure 2. Effect of gasoline price on average annual shopping value for low-order shopping objective



a very realistic price during the summer of 2008. Figure 2 shows that Gove's grocery shopping advantage increases with increasing gasoline price. An increase in gasoline prices from \$3.07 to \$4.25, for example, reduced the average annual shopping value per trip by \$9.15 for Garden City and by \$0.28 for Gove when the shopping objective was low-order goods. At \$5.00, the loss in shopping value for Garden City was almost \$15 per trip compared to \$0.45 for Gove. The estimated gasoline price elasticities of low-order shopping for the different shopping locations based on the simulation results are as follows: -0.1 for Gove; -2.2 for Colby; -4.2 for Hays; -7.4 for Goodland; and -11.3 Garden City. Because Gove is the only location exhibiting inelastic gas price elasticity with respect to grocery shopping value, rising gasoline prices enhances its competitiveness as a shopping location. This leads to the conclusion that for low-order goods such as groceries, increasing gasoline prices enhance the advantage of local retailers over others in consumers' location set as long consumers' supply threshold is met. When the supply threshold is not met, then this advantage becomes irrelevant in the choice decision.

Strategic Insights Resulting from the Model

While policy makers and community leaders concern themselves with maintaining retail shopping services in small towns and rural communities, the conceptual framework developed in this paper confirms that the success of these retailers depends on the relative shopping value they create for their local consumers relative given the competition from retailers in the consumers' shopping location set. A location's shopping value, it has been argued, is a function of its attractiveness and its accessibility. Attractiveness is defined to include its relative offerings and the consumer's perception of its value offerings vis-à-vis other locations in the consumer's shopping area. Accessibility, on the other hand, is defined

by travel and in-shop costs as well as the opportunity cost associated with shopping. The simulation analysis shows that the order level of goods shaping the shopping objective significantly influences the shopping value of locations and hence consumers' choice of shopping location. It shows that the shopping value of low-order goods are influenced more by the accessibility of locations while that of high-order goods are influenced more by the attractiveness of locations. The analysis also shows that increasing gasoline prices are likely to increase the competitiveness of locations with superior accessibility to start with.

These observations make it possible to craft "blue ocean" strategies to ensure and secure the competitive advantage (Kim and Mauborgne) of small town and rural retailers even as they confront competition from larger retailers within the location set of consumers (Ayres, Leistriz, and Stone). However, for these strategies to be effective, small town and rural retailers need to develop excellent understanding of local consumers and an appreciation of their needs at the different order levels. If consumers co-consuming high-order goods with low-order goods and not co-consuming low-order goods with high-order goods is maintained (Eaton and Lipsey; Cadwallader), then rural retailers may seek to enhance customer shopping value by focusing on supplying goods and services in which they can gain and sustain a competitive advantage. The results of the simulation analysis suggest that the number of SKUs required to reach the supply threshold is relatively low for low-order goods compared with high-order goods. Additionally, the shopping frequency for low-order goods is higher than for high-order goods. This higher frequency can compensate for the smaller customer base these retailers have. In other words, the population threshold identified in some central place theory research may be achieved through frequency and expenditure per trip. For example, in the simulation model presented above, the total annual expenditure on low-order goods in Gove is estimated at about \$3,400.44. This generates total revenue of about \$142,818 from Gove's forty-two households with only 300 SKUs. Contrarily, a total annual expenditure of \$2,224 is estimated for medium- and high-order goods requiring supply thresholds in excess of 4,000 and would generate a total of \$93,408 in potential revenue if the supply threshold of all of Gove's residents was met by the Gove store. The difference in gross revenue between these two approaches is about \$49,410 in favor of the low-order goods strategy. To address this shortfall with the medium- and high-order goods strategy, *ceteris paribus*, would require an increase of 22 or 52.4% in the number of households in Gove. Thus, a strategic focus on low-order goods seems like an effective approach to sustaining competitive advantage of small town and rural retailers.

Effective implementation of this differentiation strategy by small town and rural retailers would require them to develop new strategy maps of their competitive space to allow them to reduce and eliminate all products and services that do not add to their customers' shopping value on a consistent basis even as they increase and create offerings for the products and services that their competitors are currently not providing at all or not providing enough of. These approaches to competition, discussed extensively by Kim and Mauborgne and alluded to by Ayres, Leistriz and Stone, allow these small town and rural retailers to focus on their core competences in both products and services and consciously avoid

competition with larger retailers who can always offer lower prices. Their strategic thrust must be to reduce the role prices in the determination of a location's value and increase the importance of the other dimensions of consumer value perception (Desarbo, Jedidi, and Sinha). Thus, small town and rural retailers need to focus on enhancing their attractiveness to local and regional consumers in ways that allow it to overcome any accessibility challenges they might have. The model presented in this paper explicitly allows retailers to identify strategies that influence p_{ijt} for each order level of goods they choose to compete in. For example, given that grocery shopping is considered a chore, small town and rural retailers may increase p_{ijt} by transforming their store environments into *relaxation* destinations in their communities; offering call-ahead services that allow the store to pick and pack the customer's order before they come to the store, thereby saving them time; and/or offering delivery services for the sick, aged, parents with childcare needs, or those without transportation. However, the foregoing strategies are not going to emerge by default. For these initiatives to be designed and implemented, there is a need for policy makers to invest in training, technical assistance and education of local retail managers, entrepreneurs, and community leaders (Ayres, Leistriz, and Stone). It is not enough, as noted by Ayres, Leistriz, and Stone, to make these technical support and educational programs available, because they are. What is important is to ensure that these programs reach retailers and community leaders who need them in order that they may apply the knowledge to secure and enhance their communities' competitiveness.

Finally, the shopping value model presented in this paper shifts the focus of the problem from population loss and competition from larger retailers to providing customer value by supplying products and services in which a competitive advantage can be secured. As small town and rural retailers increase their efficacy at providing these products and services, they increase their potential of becoming a *central place* for consumers in other communities around them who currently do not have them in their location set but could increase their shopping value by shopping with them. This increases their customer bases and hence their potential profitability. Thus, they are able to increase their competitiveness by focusing on their capabilities and their customers in ways that help them to avoid direct competition. Their success has the potential of contributing to the economic development of their community, which can generate a positive feedback effect and further increase their competitiveness (Serman). This potential contribution to economic development is more important in most small communities because sales tax provides a significant proportion of local government revenues.

Conclusion

This research was motivated by the need to understand how consumer perceptions about shopping value could be leveraged to enhance the competitiveness of retailers in small town and rural communities. The objective was to develop a framework that could lead to innovative strategies that reduced the effect of declining rural populations and competition from larger retailers on the competitiveness of small town and rural retailers. Drawing on existing literature and modifying the problem to maximize consumer shopping value, it was possible to identify specific variables that may be manipulated to achieve the paper's

purpose. By defining shopping value in terms of a retail location's attractiveness and accessibility, it was possible to develop specific relationships between shopping value and the components of attractiveness and accessibility. Attractiveness was defined as the perceived value offered by a shopping location defined to include product prices and retail mix given consumers' reference location, which could be their hometown. Accessibility, on the other hand, was defined to include travel and in-shop costs as well as the opportunity cost of shopping. Looking at shopping value through these lenses allow retailers to focus on the factors they can control to enhance their competitiveness.

The paper's analysis showed that the high shopping frequency for low-order goods, such as groceries, allows small town and rural retailers to overcome their low customer base, something they cannot do with high-order goods, despite having higher budgetary outlays. It was also shown that the advantage of rural retailers in low-order goods increases with increasing gasoline costs, suggesting that the current environment of increasing gasoline prices may indeed be beneficial to increasing their competitiveness.

This conceptual paper is an initial attempt to understand the competitive tools available to small town and rural retailers in a changing demographics and competitive market environment. Although the simulations conducted here have led to the development of some interesting results, they were based on very specific assumptions about the rural consumer. Further research along the lines defined herein requires empirical testing of the model's robustness using primary data from a number of diverse small towns and rural locations. It will be interesting, for example, to determine the factors that influence consumers' value perception of particular retail locations. Because the simulations focused on a single household in a single year, demographic characteristics were assumed to be constant over the simulation period. Yet, they are known to influence perceptions about attractiveness and accessibility and do change over time. Additionally, it is known that locations and culture affect consumption decisions testing the effect of changes in demographic, regional, and cultural characteristics could identify the necessary adjustments needed to enhance the model's robustness even as it helps determine the adjustments that may be needed for specific locations. Therefore, further research that allows for cross-sectional assessment of the effect of demographic variables could provide significant insights into how the changing demographics of small towns and rural communities affect the sustainability of their retailers.

Ultimately, the principal contribution of this research is the insights it has provided into how framing the rural retail problem from the consumer's perspective creates opportunities for retailers to enhance their competitiveness by effectively implementing strategies that enhance their attractiveness. However, it has also opened a new avenue of research to help address some of the population-related issues in rural communities and increase opportunities for identifying robust solutions in small towns and rural communities to encourage economic development.

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Endnote

¹A specific functional form meeting the first order conditions of equation (1) was used for the simulation. Recall that shopping value, $V = A - w$, where A is attractiveness and w is accessibility. Explicitly, $A_{ijkt} = \alpha_{ikt} p_{ijkt} \ln(s_{ijkt})$, all variables and subscripts are as defined, and s_{ijkt} (supply threshold) is stochastic. Also, $w_{ijt} = 2(g_t h_{ijt} f_{ijt} \epsilon_{ijt}) + r_{it}(2h_{ijt} + q_{ijt})$, where g is gasoline price (\$/gallon), h is travel time (hours), f is average speed (miles/hour), ϵ is fuel efficiency (miles/gallon), q is in-shop time (hours), and r_{it} is the unit opportunity cost of time (\$/hour), all subscripts are as defined. Accessibility is stochastic because all its variables are assumed stochastic with the exception of g and r . Demographic characteristics behave as shifters in the model and were assumed fixed for the simulation period.

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