

# Trees in the Small City Retail Business District: Comparing Resident and Visitor Perceptions

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ABSTRACT

Many small cities and towns are located near resource lands, and their central business districts serve both residents and visitors. Such quasi-rural retail centers face competitive challenges from regional shopping malls, online purchasing, and big box discount retailers. District merchants must strategically enhance their market position to prevent outshopping. Streetscape trees are a physical improvement that can be used to attract and welcome consumers. A national survey evaluated public perceptions, patronage behavior intentions, and product willingness-to-pay in relationship to depictions of trees in retail settings. Results suggest that consumer behavior is positively associated with the urban forest on multiple cognitive and behavioral dimensions. Forest amenities of both wildland and built environments can be used to strengthen local economies.

**Keywords:** urban forestry, retail business, small city, public perception

Central business districts are a quintessential part of the character of small cities and towns, many of which are located near public lands that are popular tourism and recreation sites. The retail business centers of cities once served as both civic center and primary retail source, but have now become but one of a number of shopping choices for small city residents. To retain or restore a local customer base and to attract visitors from more distant locations, business associations must strategically assess and develop a coherent retail identity. Regional tourism programs, such as Scenic Byways, offer a framework for retail improvements within individual communities and across connected towns. This study explored the influence of trees and green streetscapes within retail environments in small cities and towns. Psychological and economic metrics were used to assess potential consumer response to the urban forest in retail districts.

## Background

Small cities (defined as a population of 10–20,000 for this study) may be exurban communities that are near but not socially or economically integrated with adjacent metropolitan areas, or may be quasi-rural places that are geographically distinct. Most have downtown business centers and may contain a regional service, such as the county seat or a small university. Such communities have some economic diversification and resilience, usually more so than smaller rural towns (defined by US Census as less than a population of 2,500).

Nonmetropolitan cities face two major economic challenges. First, some have grown with and are dependent on a resource-based industry (such as timber or mining). Decline of any primary industry (such as farming, resource extraction, or manufacturing) generates a need for new economic strategies. Such communities may turn to retirement attraction, tourism, or

destination retail as an element of new economic development.

In addition, the rapid proliferation of giant discount and chain stores and direct purchasing (online and catalog) has dramatically altered the competitive situation of local retail merchants. Retail alternatives increase the level of “outshopping,” causing a decline in the ability of local merchants to capture the purchasing power of trade area residents (Miller and Kean 1997). The small independent retailer is unable to effectively lower prices or broaden product assortments. More realistic strategies (Porter 1980) are differentiation (offering unique products or services) or focus (concentrating on a well-defined product or market segment).

Small communities were once fairly self-contained, having a generally well-defined and stable retail trade area. Today’s retail markets are more dynamic and ongoing shopper recruitment strategies are needed. Efforts are aimed at retention of the local consumer base and appeal to highly mobile tourists who are pursuing interesting and restorative experiences.

White and Marks (1999) advocate a “resourceful communities” approach to rural community development that combines natural resource conservation and community organizing with economic development practices to strengthen local economies and environments. Likewise, Flora and Flora (2003) outline how small communities can effect necessary change by mobilizing different, yet interrelated, forms of capital—cul-

tural, social, human, political, financial, built, and natural. In both of these change process systems natural capital is considered as either a source of physical products for sale on markets or the indigenous natural areas that offer marketable recreational and scenic amenities. The role of “constructed” natural amenities, such as a forested retail streetscape, usually is overlooked.

Economic development coordinators and advisors (such as the National Main Street Program) offer guidance for retail enhancements. Strategies can include development of a destination image that includes events and thematic site improvements, place marketing, and associated physical improvements of the retail district. Streetscape trees and district landscaping can be included. A community forest is planned or expanded to create a district character that complements other retail enhancements. The direct costs of street tree planning and planting are fairly simple to estimate. The indirect return on investment can be uncertain. What are the benefits to retail communities of creating and managing civic natural capital?

A study was conducted to evaluate the effects of the community forest on consumer response to retail business districts. The study was a replicate of research done in large city contexts (Wolf 2003) and addressed these research questions:

1. What is the relationship between the retail community forest and consumer perceptions?
2. Are there any differences in consumers’ patronage behavior related to a shopping environment’s visual amenities?
3. Does the presence of trees in retail environments influence what consumers would be willing to pay for products?
4. What demographic factors are associated with differences in district perceptions, patronage behavior, and pricing valuation?

## Methods and Procedures

Data were obtained in a spring 2004 mail-out survey. Two groups of respondents were targeted: residents of small cities that have Main Street shopping districts and potential visitors to these communities from nearby large cities. The survey contained four elements: photo preference, tree attitudes, scenario response, and demographics. Scenario and demographic responses are reported here.



**Tree Canopy**



**No Trees**

**Figure 1. Urban forest variations.**

Two hypothetical scenarios of business districts were constructed using photographic composites (Figure 1). Scenarios differed with respect to quantity, location, and maturity of trees. Secondary visual distractions (such as litter, building age, and utility lines) were avoided. The *No Trees* district scenes contain no vegetation, showing uninterrupted rows of storefronts. The *Tree Canopy* scenario depicts a similar street scene with street trees of mature height. No conflicts of trees with structures or infrastructure are apparent.

A nested sampling procedure focused first on targeting small cities (population of 10–20,000) in the United States that have central business districts, recruited via national meetings and professional networks (such as National Main Street program and National Scenic Byways). Nearby large cities were then identified using census data. Resident addresses were purchased from a commercial list broker by zip code and were randomly sampled by city for survey mailing. Fourteen small cities were included, distributed within seven states; 12 large cities were sampled from nine states.

**Table 1. Perceptual categories compared by scenario.**

Category	Mean	SD	Mean no trees	Mean with trees	Loading	Variables
Place character	5.1	1.54	3.8	5.8	0.881	Has a pleasant atmosphere
Cronbach's alpha 0.95			$T = -13.52;$ $df = 301$ $P < 0.000$		0.876 0.865 0.837 0.781	Attractive to tourists Has a positive image A good place for an evening out Would like to live near here
Products and merchants	4.7	1.05	4.4	4.9	0.704 0.785	Comfortable street spaces Wide selection of products and services
Cronbach's alpha 0.91			$t = -3.56;$ $df = 295$ $P < 0.000$		0.774 0.758 0.758 0.747	Goods and services are fairly priced Products are well made and reliable Shopkeepers are informative Good customer service
					0.625	Merchants will do special orders

Likert scales for response items: 1 = strongly disagree; 7 = strongly agree; 4 = neutral. Statistical comparisons: independent samples *t*-test; alpha = 0.05/2.

Three sets of variables measured consumer response. Each participant received a survey containing a randomly assigned scenario. Participants provided ratings on perceptual descriptions of the district, and reported their likely behavior on five patronage variables. A final section presented a contingent valuation method exercise, asking respondents to indicate their willingness-to-pay (WTP) values for a list of goods and services. Contingent valuation is an economic analysis tool typically used to assess values for nonmarket, environmental public goods (such as wildlife conservation, clean air, and environmental protection). In this study the tool was applied to an urban environment.

After pretesting 1,750 self-administered surveys were produced and mailed to residents of small cities, 1,750 to residents of nearby large cities. Initial mailings were followed by one round of reminder cards. For small city residents, 156 surveys were non-deliverable or returned without response and were subtracted from the mailing count. One hundred sixty-one reasonably complete questionnaires were returned, generating a response rate of 10.1%. Mailings to large city residents resulted in 193 nondeliverable packets, and a 9.9% response rate. Sommer et al. (1990) reported an expected 20–25% rate of return for surveys of city residents without follow-up procedures. A low response rate may have been due to the more difficult task of assigning prices in the survey (Mitchell and Carson 1989). Interestingly, the return rate for surveys containing forested scenarios was almost twice as high for both large and small city mailings.

**Respondent Traits.** The last section of the questionnaire contained a number of demographic and background items. Fifty-two

percent of resident respondents were in their 40s and 50s and 29% were 60 years or older. The low (less than \$25,000) and high income brackets (more than \$100,000) each included 17% of the respondents. The largest group (38%) had incomes from \$50,000 to \$100,000. The female-to-male ratio was 47% to 53%. Most responding households (45%) were made up of two persons; 42% contained three or more persons. Compared with US census data, the respondents had a higher proportion of people from multiple-person households, were older, and were more likely to be in upper middle class income brackets.

Forty-nine percent of respondents were from small towns, and 51% were from nearby larger cities, representing potential resident and visitor samples. Some differences were found between city groups. Large city respondents were generally younger (Pearson's  $\chi^2 = 12.91; P < 0.024$ ), more likely to be from households of three or more people (Pearson's  $\chi^2 = 9.07; P < 0.011$ ), and were more affluent than small city residents (Pearson's  $\chi^2 = 34.26; P < 0.000$ ).

## Analysis and Results

While viewing one of two scenarios each respondent was asked to respond to perception, patronage, and WTP variables. Data analysis included response frequencies and distributions, data reduction procedures, and descriptive statistics.

Ratings for 21 place perception variables were analyzed using principal axis factor analysis with varimax rotation. This data reduction approach relies on underlying correlations to distinguish highly interrelated sets of response items, based on a priori decision rules (Kaplan and Kaplan 1989). Re-

sulting categories are inspected and labeled. Two categories, *place character* and *products and merchants*, accounted for 68% of the total variable variance. Individual variables were combined to construct dummy variables, and means were compared between scenarios (Table 1).

The presence of trees enhances judgments of place character. Respondents infer that the green streetscape has more positive atmosphere, image, and comfort level, and would be a more favorable place to visit and dine out. Judgments of products and merchants are slightly more positive in forested places as inferences are made about shopping selection, product value, product quality, and merchant responsiveness. Trees impact obvious place qualities and provide cues of retail experiences for which there is no direct information.

Respondents were queried about potential patronage behavior by judging likely travel time, travel distance, duration of visit, frequency of visits, and parking fees. Response on all patronage variables is significantly related to tree presence (Table 2).

An inverse relationship was found for all patronage behaviors. *No Trees* responses are concentrated at the low end of each of the variables' categories and diminish in frequency moving toward the higher values. Conversely, responses for *Tree Canopy* are less frequent at the lowest end of the arrays, increase in frequency, and then slightly decline at the variables' higher value levels but remain at higher frequencies than the *No Trees* scenario. This pattern of decline in response may indicate thresholds to visitation and travel behavior associated with downtown retail centers. Respondents also indicated that they would spend more for parking in forested districts.

**Table 2. Categorical response distributions on patronage variables.**

	No trees	With trees	Test
Travel time			
<10 min	37	9	$\chi^2 = 38.31; df = 3; P = 0.000$
10–30 min	43	57	
30–60 min	15	26	
>1 hr	5	8	
% Total	100	100	
Travel distance			
0–2 mi	26	8	$\chi^2 = 28.77; df = 3; P = 0.000$
2–5 mi	14	8	
5–20 mi	49	55	
>20 mi	11	29	
% Total	100	100	
Visit duration			
0–30 min	36	10	$\chi^2 = 59.90; df = 3; P = 0.000$
30–60 min	30	13	
1–2 hr	27	49	
>2 hr	7	28	
% Total	100	100	
Return rate			
≥2/mon	28	35	$\chi^2 = 22.93; df = 3; P = 0.000$
Monthly	17	22	
Several times a year	29	37	
≤1 year	26	6	
% Total	100	100	
Acceptable parking fee			
Free	53	36	$\chi^2 = 38.31; df = 3; P = 0.000$
Up to 50 cents/hr	36	32	
50 cents to \$1 dollar/hr	5	15	
≥\$1/hr	6	17	
% Total	100	100	

Analyzed using Pearson's  $\chi^2$  and Cramer's V statistics (alpha = 0.05/5).

**Table 3. WTP values for products classes.**

Index	Mean	SD	Mean no trees	Mean with trees	t-Test
Convenience					
lunch sandwich, appointment book	6.98	4.19	5.93	7.48	$t = -2.97; df = 192; P < 0.003$
Shopping					
camera, jacket, watch	84.81	55.66	69.42	92.22	$t = -3.07; df = 168; P < 0.002$
Specialty					
family gift, glasses, nice dinner	71.79	37.27	63.96	74.32	$t = -4.16; df = 193; P < 0.000$

All values are US dollars.

Means comparisons: independent samples t-test; alpha = 0.05/3.

Finally, respondents were asked to indicate the price they would be willing to pay for each of nine items. Three index variables were constructed by combining values across product classes for each participant (Table 3). Product classes (Kinnear et al. 1995) were convenience goods (widely available and purchased with little deliberation), shopping goods (purchased after planning and comparison), and specialty goods (high brand recognition and loyalty).

Significant differences were found when comparing means across the types of goods. Respondents reported lower values for goods in the *No Trees* business district. Price differences between scenarios are considerable: approximately 20% for convenience, 25% for shopping, and 15% for spe-

cialty goods. Analysis using weighted standard scores across all products generated a more conservative 9.2% difference. An "amenity margin" in pricing represents potential revenues that can offset urban forest investment costs.

Statistical comparisons of small and large city respondents on perception, patronage, and pricing variables were conducted, followed by tests of demographics traits. No statistically significant differences distinguished the two city groups' response to perception. Patronage response to the scenario having trees varied; people from small cities were willing to travel longer ( $\chi^2 = 15.60, P < 0.001$ ) and farther ( $\chi^2 = 31.50, P < 0.000$ ) but are less willing to pay for parking ( $\chi^2 = 24.24, P < 0.000$ ). Consid-

ering pricing, people from small cities were not willing to pay as much for shopping goods in forested settings (means \$79/\$107;  $t = -2.704; P < 0.008$ ). Few relationships were identified between demographic traits and the perception categories.

Pricing response was of particular interest. Do respondents take into account their ability to pay? In contingent valuation, if pricing objects are nominal then biases based on budget or income constraints are minimal, as compared with valuation requests for major and costly programs and products (Mitchell and Carson 1989). Given the presentation of everyday, familiar purchases, few distinctions in price reports were revealed.

## Discussion

The economic return of the retail urban forest is not generated by a one-time or periodic harvest and sale of trees but is the outcome of cumulative incremental consumer responses to the presence of trees. Enhanced revenues may occur in several ways. Reported patronage behaviors potentially enlarge a customer base for districts having trees. For instance, greater travel distances were reported for the scenario with trees, indicating an expanded trade area radius. Respondents also reported higher pricing for parking in green districts, which could contribute to district-wide improvements funding.

Many benefits of urban natural resources can not be bought or sold because of incomplete or nonexistent markets. Contingent valuation was used in this study to estimate the value of public goods associated with trees in retail settings. Respondents consistently reported greater WTP values for goods and services in the forested district. The additional 9% valuation for goods associated with a forested streetscape represents a satisfaction utility or amenity margin.

What is the basis for consumers' positive response to retail environments having trees? The literatures on public landscape assessment and consumer psychology yield insights. First, public assessment of many landscape settings confirms a preference for nature. Response is correlated with the relative balance between human influence and natural content, with more nature in a scene evoking higher preference (Kaplan and Kaplan 1989). The presence of trees generally enhances public judgment of visual quality in outdoor environments (Ulrich 1986). Evaluative appraisals (Nasar 1987)

and affective responses (Sheets and Manzer 1991) in city streets are boosted by tree presence.

In addition, consumer behavior is quite complex from a psychological perspective. Economists traditionally considered the primary behavior of consumers to be utilitarian and oriented to satisfying needs through purchases. A focus on cognitive or information processing in consumers has expanded to consider how emotion and attitude interact with evaluative appraisals (Bagozzi et al. 2002). Generally speaking, behavior can be produced spontaneously when an attitude or emotion is activated (Fazio 1986). Shopping motivations studies indicate that consumers consider more than the product or service being purchased. Shopping place choices also are based on anticipated experiences, entertainment value, and the social aspects that a site offers (Babin et al. 1994).

The district having trees was perceptually characterized as having a better character of place, including elements of atmosphere, image, comfort, and general appeal. Marketing researchers have studied the role of "atmospherics" in store interiors, finding that environmental elements, such as soft lighting or classical music, are associated with high image stores (Grewal and Baker 1994) which, in turn, influences consumers' perceptions of quality, value, and willingness to buy products (e.g., Dodds et al. [1991]). Pleasant store settings also are significant predictors of willingness to spend time in a store and of intentions to spend more money than originally planned (Donovan et al. 1994). In this study a forested landscape generated positive cues about goods selection, quality, and customer service, although respondents had to rely on indirect information for such judgments.

Other responses show the attitude-to-behavior linkage that can translate to business benefits. Respondents claimed increased patronage behavior in places with trees, including travel time, travel distance, visit duration, and return rate. Price values for convenience, shopping, and specialty goods were all higher with trees. Consumer price perceptions depend on a comparison of market prices with internal reference prices, which reflects past experience (Kalyanaram and Winer 1995) and are generally held in the mind as an accessible price range. Although there has been little study of factors that impact internal pricing, streetscape character may be one significant influence.

Several research limitations present op-

portunities for follow-up studies. Potential nonresponse bias is one limitation. Considerable effort was made to construct a comprehensive sampling frame, but response outcomes limit generalizability of the results. Response may have been reduced by the difficulty of the contingent behavior questions, the taken-for-grantedness of urban trees, or unfamiliarity with the survey task. Perhaps people previewed the survey and judged traditional business districts to not be relevant to their shopping habits. Such perceptions would have important implications for central business districts. Of greatest interest is the correlation between stated behavior in the survey and actual behavior in shopping districts. Verbal expressions of how people would behave differ consistently and significantly between the two scenarios. Such findings indicate that there could be real behavioral effects, but the magnitude of the differences expressed may not accurately predict actual behavioral differences. Marketing research methods could be used in future research to observe and track shopper behaviors in comparable districts that do and do not have a forested streetscape.

Small retailers now compete for customers with larger stores in regional trade areas and with direct selling firms (online and catalog). They must respond both individually and collectively to remain competitive. A viable retail sector can improve a community's ability to attract new employers and residents (Kean et al. 1998). Strategic innovation, promotions, and improved levels of service are necessary to attract shoppers from outside the community and reduce a community's retail leakage. Consumer attitudes about local retailers are a greater determinant of outshopping behavior than demographics, lifestyle, or socioeconomic attitudes (Hozier and Stem 1985). Streetscape trees shape retail attitudes and, in turn, may influence behaviors of both nearby shoppers and potential visitors. Although the processes of collaborative economic improvement are complex and require long-term commitment, urban forest planning and management can be an important component of district improvements.

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