

*Stemming Retail Leakage with a Sense of Community:
Leveraging the Links between Communal Ties and Shopping Decisions*

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Abstract: Retail business development is a broad goal for both private business interests as well as local policymakers, yet the goal of retail opportunities for local residents themselves is often seen as secondary. This paper considers the argument that retail opportunities and sense-of-community are in fact linked in important ways, links that reinforce the social fabric of a community and/or neighborhood. The paper first briefly reviews the inherent linkages between retail shopping and local development patterns, and then considers the sense of community in the contextual Garfield County in western Colorado. Based on the key questions derived from this background, we formally test the inter-relationship between local retail spending and sense of community from detailed survey data, then more broadly consider the factors that critically shape a locality's "sense of community." These findings shape several important policy implications.

KEYWORDS: Sense of Community; Economic Development

I. Perspective

Despite often widely varying geographic, policy, and resource contexts, both urban and rural communities share a range of fundamental priorities. The broad goal of economic prosperity is common to the smallest of towns to the largest of cities, as well as individual neighborhoods within each of these areas. The successful sustainable development of private business is the common means to these ends, across a range of sectors. While often derided as a secondary, low-wage industry on the surface, retail development in particular is often key to attaining a community's fiscal goals as a primary conduit for sales taxes as well as a major indicator of local quality-of-life through the convenient and proximate availability of food, clothing and other vital necessities. A variety of retail shopping options in a given community is further seen by many residents and visitors as simply an attractive feature in itself, with world-class cities boasting well-known corridors of niche boutiques, delicatessens, and complementary service outlets.

Local government is thus often faced with the question of whether it can help foster such desirable forms of retail development. Individual businesses often seek particular favorable property tax terms, other forms of direct subsidy, or cost-reducing consumer-friendly amenities such as free proximate parking. Others underscore the complementary provision of public goods, such as parks, museums, regulations to harmonize architecture and building standards, and community policing. Similarly, business owners and community leaders often encourage an outward-orientation towards visitors and tourists, with retail effectively becoming a type of export industry even in smaller towns/communities.

Yet providing local shopping opportunities for local residents may in itself be a worthwhile rationale, from both fiscal and competitive perspectives. Having residents shop locally avoids the leaking of valuable income-generating spending, thus raising the multiplier effect of any given external stimulus to the economy. Furthermore, local residents make up the most devoted, consistent, and predictable market for retail establishments. These features are particularly noteworthy, and are in fact reinforced, during periods of increased transport costs, such as the recent leap in gasoline prices.

These characteristics hint at the virtuous cycle that can make retail development for residents a self-sustaining and valuable component of economic development itself. Residents' ties to a place and its people are strengthened by local shopping habits, commitments and relationships which in turn reinforce residents' ties to a community. In that sense, a sense of community itself can develop from local retail options, laying the foundation for further beneficial relationships which themselves heighten a binding sense of community. While such a virtuous cycle may indeed reflect a form of a social capital investment (e.g. Coleman, 1988; Putnam, 2000), our focus here is on the narrower, arguably more quantifiable, community

psychology concept of a locality's sense of community which provides a set of eventual foundations and incentives for such social capital investments (Pooley, Cohen, and Pike, 2005).

This paper evaluates the relevance of this link between local shopping patterns and sense of community. Given this background, we explore the concept of "sense of community" in greater detail in the context of Garfield County in western Colorado, with an eye towards those quantifiable factors that indicate such communal ties. The analysis takes advantage of a particularly detailed survey of rural communities' assessment of their local quality-of-life in the mountain region of Colorado. Rural areas provide a natural geography for testing shopping patterns and community ties, given their relatively well-defined and atomistic spatial structure. These results can thus also help illuminate shopping decisions in more complex urban environments.

The following section provides a brief background on rural shopping patterns, along with additional detail for our sense of community metric within the context of Garfield County, Colorado. The third section then explicitly tests two hypotheses by first assessing the relationship between sense of community and local shopping patterns before considering what factors determine a town/neighborhood's own "sense of community." A fourth section outlines the implications of the findings for both private and public decision-makers based on these Garfield County findings.

II. Shopping and Sense of Community

Rural Retail shopping and local development

Retail development strategies traditionally focus on the sector's potential role as a source of regional export earnings through visitors and tourists (Thilmany, McKenney, Mushinski, and Weiler, 2005). However, local customers provide a much more proximate, stable, and consistent

market. As noted above, outflows of local income to external retail businesses create a distinct form of retail leakage, which not only drains potential economic vitality from a community but also effectively reduces the multiplier effect of other unrelated stimuli to the local economy. Studies show that such retail leakage is in fact an important characteristic in both urban neighborhoods and rural regions, constraining potential growth opportunities (e.g. Weiler and Mushinski, 2002).

Such leakages occur not only in lower-margin, high-turnover items, but also higher-margin goods and services that can help reinforce each other. Multi-purpose shopping trips in fact have become the norm in an era of higher transport costs, alongside a constantly rising opportunity cost of time through higher consumer wages and a range of alternative recreational activities. The evolutions of shopping patterns and good/service complementarities tend to heighten the stakes involved in retail capture, with certain areas/communities having first-mover advantages in creating retail/service corridors that can entrench shopping habits to the detriment of those areas that cannot provide these opportunities.

How can communities re/capture the loyalties of local customers? The key to answering this question is understanding the factors determining shopping behavior. In most settings, the closest available opportunities that meet consumers' needs tend to be preferred, *ceteris paribus*. Such proximity is again reinforced by recent increases in transportation costs. Such factors are similar in both rural and urban contexts, with rural areas experiencing even greater sensitivity to transport costs given the longer travel distances involved. Yet urban shopping can be similarly fraught, due to greater amounts of congestion (particularly at peak traffic/shopping periods) and the higher opportunity costs of time in high-wage/high-cost urban settings. Anecdotal evidence

indeed suggests that the bonds created by regular shopping in local establishments provides consumers with a more secure sense of place in the spirit of Bolton's seminal work (1992).

In that sense, local customers are potentially the most loyal. This geographic loyalty has an additional feature that makes local shopping capture even more attractive to businesses. First, local shopping opportunities provide a small but significant amount of pricing power, as local customers face a transport-cost-wedge between local stores and more distant options. This pricing power could allow smaller shops to compete with higher volume stores that might otherwise have prohibitive price advantages. Yet this local market area and its greater grip on local customers also can benefit these shoppers in more subtle ways. Clear recognition of a local clientele can allow local stores to better target the needs/desires of those consumers, orienting product and service lines more precisely to these shoppers. Such orientation benefits both customers and store owners, allowing simultaneous maximization of both consumer surplus, through specific targeting of product variety, and business profits, through the leveraging of geographic market power. In contrast to the usual pernicious effects of market power, this local context actually reduces risk and raises both utility and profits by providing both businesses and customers with a stable, focused market.

Sense of Community within the Survey

This keenly felt sense of customer loyalty can have additional non-pecuniary effects as well. First described by McMillan and Chavis (1986), *sense of community* is a concept that attempts to capture both a territorial as well as a relational cohesiveness. Through such variables as membership, influence, integration and fulfillment of needs, and shared emotional connection, community residents encounter a feeling of belonging and commitment.

With this concept in mind, the residents of Garfield County, Colorado were asked to participate in a community survey to assess the strength of their sense of community as defined by McMillan and Chavis (1986). In 2008, Garfield County contracted with Venturoni Surveys & Research, Inc. (VSR) to perform the survey analysis. The Garfield County voter registration list was used to sample local residents. Random sampling techniques were employed to select the samples. Letters were sent to potential respondents directing them to go to the internet to fill out the survey. All respondents were assigned identification numbers to assure that no duplicate responses were counted. After two weeks, if the potential respondent had not filled out the internet survey, they were sent a reminder letter, paper copy of the survey and postage paid return envelope.

Samples:	Sample Frame	Mailed	Delivered	Completed Surveys	%	*Standard Error
Voter Registration	22,622	4,275	4,070	1,048	25.7%	2.96%
Total		4,275	4,070	1,048	25.7%	

** 95% Confidence Level*

The table above details the size of the original sample frame, the number of surveys that were mailed, the number of surveys delivered (surveys not delivered were returned by the post office as “undeliverable”), the number of surveys completed and the number of surveys returned, % response, and resulting margin of error of 2.96%.

Residents were asked to assess the importance of 21 issues using a 5 point Likert scale and then asked to assess how successfully their own community was in addressing these issues. The issues included in the survey included: Economic Development, Affordable housing, Open space, Animal control, Sense of Community, Public safety, Air quality, River access, County road maintenance, Public transportation, Cultural integration, Water quality/quantity,

Scenic/visual quality, Shopping opportunities, Historic preservation, Public land access, Biking trails, Recreational opportunities, Traffic, Hiking trails, and Recycling services.

The following table illustrates how specific issues identified in the survey questions directly correlate to specific components of McMillan and Chavis's sense of community concept.

Table 2. Comparison of our Survey and SoC Components	
Issue Addressed in Survey Question	Coordinating SoC component
Q96 - Public safety	Integration and fulfillment of needs
Q83 - Scenic/visual quality	Shared emotional connection
Q13 - Sense of community	Shared emotional connection
Q6 - Why live in Garfield County? A15 Friendliness	Membership
Q88 - Traffic	Integration and fulfillment of needs
Q16 - River access	Membership
Q98 - Historic preservation	Shared emotional connection
Q87 - Recycling services	Influence
Q50 - Growth control A3 About the same rate of growth as at the present	Influence

Sense of community encompasses a variety of experiences and the survey attempts to capture respondents' attachment to Garfield County within a variety of contexts. For example the membership component can be seen in questions regarding river access and residents' friendliness. River access is an example of a freely available local recreational amenity. It provides experiences that are shared by several groups--fishermen, boaters, picnickers—and consequently creates a common experience, regardless of a specific activity. Likewise, survey questions regarding recycling services and growth control indicate that respondents are both forward-looking and altruistic. In this sense, they feel they have input in shaping the community. Integration and fulfillment of needs is shown by respondents' feelings regarding the issue of Public Safety in that respondents' sense of security and sense of community go hand in hand. The Traffic variable also falls into this group with the same direction of relationship.

Finally, the ways in which residents bond with each other indicate a shared emotional connection. Respondents indicated how important such issues as Scenic/Visual quality, valued sense of community, and historic preservation questions were as well as how well their community was addressing these issues. Clearly, attempts to preserve shared history and maintain shared values increase the bonds of connections.

Garfield County--Background and Motivation

Garfield County, located in Western Colorado, stretches over 3,000 square miles from Glenwood Canyon to the Utah border and is known for year-round recreational opportunities and related services. Essential components of the local economy include agriculture, mineral and energy development and limited manufacturing and construction activities. There are six municipalities within Garfield County; Rifle, the largest, has a population just under 9,000 people and the estimated 2008 population of the entire county is only 58,120 people.

However, Garfield County is predicted to grow to an eventual population of 126,050 people by 2030 posing real issues for open space, water, economic stability and recreational availability. With an expected influx of new residents, Garfield County needs to know what issues are important to its residents in contributing to its sense of community and how it can build on its current strengths to address these coming challenges. An assessment of a region-wide sense of community by evaluating intra- and inter-regional shopping behavior with other sense-of-community characteristics may provide a uniquely valuable perspective to understand critical community ties (Chavis and Pretty, 1999).

III. Analysis

The survey determines how strong the sense of community is while also quantifying the amount of retail leakage. We believe that a strong sense of community is significantly and

negatively correlated with retail leakage. In other words, the more strongly a local resident feels connected to his or her community, the less likely that person is to shop outside his or her community.

To delineate communities within Garfield County, boundaries were drawn to better reflect each municipality within Garfield County to which residents in that area may feel most connected. By considering topography, restricted access due to public land, the location of the municipality, housing clusters and the road networks in an area, we kept the number of households within each municipality as high as possible to avoid nonviable results from our survey.¹

To statistically test the relationship between sense of community and retail leakage, the survey's shopping questions were transformed to create a binary indicator of a respondent's inclination to shop locally. When answering the shopping questions, the respondent indicated the region in which he predominantly purchased goods by categories such as groceries, gasoline, office supplies, etc. The choices were each of the 6 areas encompassing a municipality within Garfield County, the closest urban area to the west (Grand Junction), the closest urban area to the east (Denver), by mail order/internet, or by some other, unnamed method. The respondent's answer was recoded as a binary indicator of shopping locally. That is, the transformed answer was a '1' if the respondent shopped for the category of merchandise in his own area; otherwise

¹ Prior to analysis, standard data preparation steps were taken. Each survey question was reviewed to understand the data type of the possible answers: binary, ordinal, continuous, write-in. Questions with write-in responses were not incorporated into the analysis. Next, it was noted for each question how non-answers or missing responses were coded so that a missing response could be standardized as such across all survey questions. Lastly, the distributions of each question's responses were tabulated, mainly as a reference for determining the questions/answers that were rare or did not have meaning across all respondents.

its value was a '0'. Also, a transformation was done to individual categories of merchandise.

They were grouped by frequency of occurrence:

Table 3. Local Retail Shopping Categories		
Shop for frequently	Shop for periodically	Shop for rarely
Groceries	Clothing	Appliances
Gasoline/diesel	Office Supplies	Automobiles
Medical prescriptions	Hardware and building supplies	
Entertainment and Restaurants	Gardening supplies	
	Sports and recreational equipment	

The goal of creating the binary indicator for shopping locally and for grouping the categories of merchandise was to obtain a single data field that could represent *Retail Leakage* or those *frequent* retail purchases taking place outside the local community within Garfield County.

Those individuals who exclusively purchase Groceries, Gasoline/Diesel, Medical Prescriptions, Entertainment and Restaurants locally would receive a 4 while a resident who exclusively purchases such goods outside Garfield County would receive a 0. In this way, we are able to measure the extent of retail leakage along a scale of 0-4.

We find that there is a significant, negative, linear relationship between retail leakage and a sense of community rating in our survey results. In other words, if a resident frequently purchases goods locally, he or she also has a higher *Sense of Community* (SoC) rating. We used two statistical measures to determine this relationship. We used the Pearson correlation to measure a linear relationship between retail leakage and sense of community. Our Pearson correlation measure, r , is equal to 0.20 which is significant at the 0.05 level. Similarly, the chi-squared statistic, a measure of a potentially non-linear relationship between these variables, is equal to 61.1 and is significant at the 0.05 level. This result indicates the distribution of survey responses is significantly different from what is expected if a respondent's *Sense of Community*

and *Retail Leakage* were independent and unrelated.² Armed with this finding, our next goal was to understand the factors that may affect a resident's *Sense of Community* rating.

A linear regression model was built to identify and quantify the underlying factors that comprise the *Sense of Community* concept. By using factors identified by a modeling algorithm in weighted combination, we formed an estimate of each survey respondent's SoC. A good model produces SoC ratings close to the respondent's actual SoC ratings and a useful model identifies factors that are understood, make sense, and suggest ways a community can take action to improve its residents' SoC.

Using SAS, the dependent variable, SoC, was regressed on the independent variables taken directly from the survey as well as variations and transformations of those original survey variables. These variations allowed us to examine factors that weren't explicitly identified in the survey. (For example, *age when moved to the area* can be derived by taking current age minus length of residence).

This modeling process pulled 5 random samples with 600 respondents each. For every sample, a stepwise regression to maximize the r-squared was run, noting significant variables at the 0.05 level. After all 5 models were run, only variables that were significant in 2 or more samples were used as possible candidates in a final model. Variables excessively correlated with each other were also eliminated, thereby avoiding redundancy. The end result is a 9 variable model that accounts for 38% of the observed variation in *Sense of Community*. These variables are shown in the table below in order of their standardized estimates with *Public Safety* carrying the most weight. As shown earlier in Table 2, these variables clearly match key components of the *Sense of Community* concept, namely integration and fulfillment of needs, shared emotional

² For a comparison of the survey responses and retail leakage, please see the Appendix.

connection, membership, and influence. It is notable that none of the variables' weights are excessively large in comparison to the others suggesting that no single variable dominates survey respondents' determination of *Sense of Community*.

Variable Name	Parameter Estimate	Standard Error	t Value	Pr > t 	Standardized Estimate
Intercept	-0.66067	0.22378	-2.95	0.0033	0
Q96 - Public safety	0.22903	0.04176	5.48	<.0001	0.20292
Q83 - Scenic/visual quality	0.1968	0.03766	5.23	<.0001	0.18613
Q13 - Sense of community	0.16187	0.03202	5.05	<.0001	0.17509
Q6 - Why live in Garfield County? A15 Friendliness	0.39817	0.08153	4.88	<.0001	0.16464
Q88 - Traffic	0.15246	0.03462	4.4	<.0001	0.15342
Q16 - River access	0.11405	0.02719	4.19	<.0001	0.14421
Q98 - Historic preservation	0.15017	0.04399	3.41	0.0007	0.12519
Q87 - Recycling services	0.08837	0.03028	2.92	0.0037	0.10076
Q50 - Growth control A3 About the same rate of growth as at the present	0.20053	0.07815	2.57	0.0106	0.08649

For an illustration of how the model would predict an individual's SoC rating, the parameter estimates are multiplied by the individual's responses to the survey questions and then summed. The following table demonstrates this process for an individual respondent:

Variable Name	Parameter Estimate	Individual's Survey Responses	(Parameter Estimate) * (Survey Response)
Intercept	-0.66067	1	-0.66067
Q96 - Public safety	0.22903	4	0.91612
Q83 - Scenic/visual quality	0.1968	4	0.7872
Q13 - Sense of community	0.16187	5	0.80935

Q6 - Why live in Garfield County? A15 Friendliness	0.39817	0	0
Q88 - Traffic	0.15246	2	0.30492
Q16 - River access	0.11405	3	0.34215
Q98 - Historic preservation	0.15017	4	0.60068
Q87 - Recycling services	0.08837	3	0.26511
Q50 - Growth control A3 About the same rate of growth as at the present	0.20053	1	0.20053
Total Sum = Predicted SoC			3.56539

Our model predicts this individual would rate his SoC as 3.56. If in actuality, he reported a 4, then the model's prediction error would be the difference: $4 - 3.56 = .44$. The regression algorithm used strives to minimize this prediction error across all respondents.

IV. Implications: Emphasis on Sense of Community

Our statistical analysis gave us the empirical foothold we initially sought, namely that retail leakage and sense of community were significantly negatively correlated. When retail activity leaks away from a region, the region's sense of community is systematically lowered, and likewise, where this sense of community is hampered, more retail leakage is also likely. These two characteristics clearly are linked, each endogenously shaping the other. Furthermore, by identifying specific components that contribute to an individual's perception of sense of community, we may address methods by which local governments may attempt to strengthen communal ties. This can be done by building on the factors we identified to strengthen community ties.

Typically, rural resort communities see orienting their goods and services towards outsiders as the way to grow the local economy through export earnings. Yet this narrow perspective ignores their most committed potential customer base, the local residents themselves. That locals often must travel further to satisfy basic shopping needs leads to critical leakages

from the local economy. With relatively little effort, shops can recapture this lost demand, increasing the local spending multiplier while also helping to foster a stronger sense of community. This reorientation can leverage local shop owners' superior knowledge of local tastes, allowing simultaneous increases in both consumer happiness and potential business profits, while simultaneously reinforcing a locality's sense of community. This mutual fulfillment of needs and bidirectional influence satisfies two components of sense of community—customers can keep local businesses open while local businesses remain open by stocking the goods and services their customers need.

The town of Carbondale provides an excellent example of this phenomenon. Carbondale residents reported the highest sense of community in Garfield County. Locals rated survey questions illustrating the membership component of sense of community, namely "Friendliness" and "Recreational Amenities," as important reasons for living in Garfield County. Interestingly, the types of recreational activities that people participated in were also significant, with Alpine Skiing, Hiking, Road Biking, Walking/Jogging, and Rafting/Kayaking/Boating, topping the list. It should be noted that these activities usually require specialized equipment that makes it easy to spot others who also do these activities, thereby building a common symbol system whereby members can recognize other members. This sense of belonging and identification helps establish membership within a group and ties locals not only to each other but also to the natural amenities that surround them. In addition, survey respondents also feel more positive about their sense of community, citing specifically contentment with the rate of economic growth and a general feeling that the county is moving in the right direction. This positive perception of Carbondale's direction also illustrates the bidirectional nature of influence and shared values.

Residents feel that the values of the community match their own and that their collective action is moving everyone in the right direction.

Local governments may also play a crucial contextual role by fostering membership within the community. Retail activity's social context engenders feelings of belonging by strengthening residents' social ties with one another. These social ties can further be strengthened if the local government pursues programs that simultaneously promote boundaries (making local residents perceive themselves as a distinct group from the outside world) while also inviting tourists to visit. In this way, the local government can focus on its natural comparative advantage, namely providing public goods (e.g. coordinating farmer's markets, community events, cultural/historical links, etc). These seemingly mutually exclusive goals can encourage a sense of community. By allowing local residents to see their own role in sustaining local, private businesses, local government can simultaneously strengthen its residents' economic and social ties to one another.

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Appendix

Survey respondents' reported sense of community Likert measures are correlated with their observed retail leakage. We contrast these with the expected numbers that would be expected based upon the row and columns in the observed section. Because these values are significantly different, we argue that there is a pattern between an individual's decision to shop locally and their perception of sense of community.

Categories Purchased Locally	Observed Sense of Community							Categories Purchased Locally	Expected Sense of Community						
	Likert Scale						Totals		Likert Scale					Totals	
		1	2	3	4	5			1	2	3	4	5		
0	6	21	30	15	2		74	5.1	13.6	27.8	20.5	7.0	74		
1	20	27	62	32	8		149	10.3	27.4	55.9	41.3	14.0	149		
2	22	44	72	52	12		202	14.0	37.2	75.8	56.0	19.0	202		
3	10	50	72	69	27		228	15.8	42.0	85.6	63.2	21.4	228		
4	12	44	143	112	46		357	24.7	65.7	134.0	99.0	33.6	357		
Totals	70	186	379	280	95		1010	Totals	70	186	379	280	95	1010	