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Trade Area Analysis of Select Wisconsin Counties Update for 1999

By

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Select Wisconsin Counties
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Introduction

The development of a community's retail market should be an integral part of the community development process. Some, however, might argue that the retail sector develops naturally following other types of economic development such as growth in the manufacturing sector or an influx of tourists. To a degree this is true. Several factors, however, may prevent this process from being completely efficient. First, the process used by many franchise retail businesses tends to be biased toward medium and large size cities. While some retailers, such as Wal-Mart and Hardee's have succeeded by focusing on smaller rural markets, the trend toward volume retail limits the appeal of smaller communities.

Second, the same site selection process tends to focus on the optimal location within a community, not necessarily the optimal community. If local development practitioners can provide compelling evidence that their community's suitability, they may have provided the retail firm with vital information that it either could not or would not develop on its own.

Third, for whatever reason, there appears to be a lag between industrial development and retail expansion. In all likelihood this is due to an imperfect flow of information. Because many retailers are worried more about site selection, they are unlikely to be aware of the increasing potential of the community.

Finally, for many small rural communities, retail development is fostered not by national franchises, but by local entrepreneurs. Unfortunately, many of these entrepreneurs lack the marketing background required to identify opportunities or, more importantly, sell their business idea to local investors.

The benefits of developing a strong local retail sector are numerous. Naturally, tax revenues, either through the property tax and/or the sales tax, will increase. Jobs will be created and dollars earned in the community through the industrial base will be retained, hence maximizing the economic impact of industrial development. The quality of life in the community will be enhanced. Studies of perceived quality of life suggest that access to local viable retail markets is important to the overall quality of life within the community. In addition, a vibrant downtown signals a vibrant and healthy community. Indeed, research suggests that quality of life is playing a greater role in industrial development and a healthy local retail market may induce additional industrial development.

Although the benefits are significant, there are costs associated with the development of local retail markets. A successful downtown revitalization effort will increase auto traffic, resulting in noise, dirt and perhaps safety concerns. In addition, will taxes will increase, the demands placed on local public services such as police protection will also increase. Whether the increased revenues are sufficient to offset new expenditures is a difficult question to answer and needs to be addressed on a case-by-case basis. Finally, many argue that the types of jobs created through retail development are low paying with few if any benefits. But again, any community development effort should pay close attention to the job skills of the local labor force and the demands of the types of businesses being promoted.

Despite these negatives, it is generally worthwhile for local economic development practitioners to explore the opportunities in retail development. The benefits usually outweigh the costs, resulting in a net increase in income in the community as well as enhancing the overall quality of life for the residents of the community.

The first step in advancing a retail development program usually entails an analysis of the strengths and weaknesses of the existing retail market. By better

understanding the performance of the local retail market local leaders and development practitioners can foster a more conducive environment for retail business development. It is also hoped that current and future business operators will develop more informed business plans and capitalize on areas of opportunity.

To achieve this end, numerous research tools have been developed and refined over the years to help identify local strengths and weaknesses. Some of these tools include location quotients, population:employment ratios, and retail market thresholds. In this report we review the tools of Trade Area Analysis as development by Ken Stone and Jim McConnon at Iowa State University and latter refined by Ron Hustedde, Ron Shaffer and Glen Pulver at the University of Wisconsin. In addition to constructing an overall measure of local market performance ("pull factors"), the tools of Trade Area Analysis allow the analyst to estimate net inflows ("surpluses") and outflows ("leakages") of retail dollars. By estimating actual dollar flows, local retail business operators have a tangible dollar estimate that can be used in refining their business plans. Indeed, in several states, rural bankers have adopted the tools of Trade Area Analysis as a viable means for estimating the revenue potential of any particular retail venture.

In the remainder of this study, I outline, potential sources of data, the tools of Trade Area Analysis and report the results of a Trade Area Analysis of selected counties in Wisconsin using data from 1999. While a wide range of data are available, such as the Census of Retail and Services and a number of private marketing firms such as Woods and Poole, Inc, the best source of information is generally drawn from sales tax receipts. Given that Wisconsin law allows counties to adopt a local option sales tax, detailed and timely data for a number of Wisconsin counties are available for analysis. This study uses these sales tax data for those counties that have elected to implement the tax. The data is available from the Wisconsin Department of Revenue, County Sales Tax Reports on the web at *www.dor.state.wi.us/ra/co01coun.html*

It is important to note that while the tools of Trade Area Analysis provide insight into the strengths and weaknesses of local retail markets, they represent only one piece of information. Much the same as location quotients or market threshold estimates, these tools should not be used as stand alone analysis. These tools should be viewed as a means of refining our questions and pointing the direction of future analysis. When at all possible, analysts should uses the tools of Trade Area Analysis in tandem with location quotients, population:employment ratios and market threshold estimates. Only when the results of the analysis are consistent across each of these research tools should a business operator consider moving to the next level of analysis.

It is also equally important to keep the market analysis study in perspective: the study is but one part of a larger, more comprehensive development process which is considering multiple aspects of the community. Too often development practitioners become engrossed in the study at hand and loose sight of the overriding objectives of the effort and the role of the study in the development process. Development processes often start out of a) the desire to "do something" and a market area analysis can help identify market strengths and weaknesses and resulting opportunities or b) new information is brought to the attention of local decision makers, business leaders, and residents. The intent of this study is to provide practitioners with potentially new information that can supplement current efforts or spur new discussions.

Tools of Trade Area Analysis

The most important component of Trade Area Analysis is the estimation of a retail market's potential. While there are several complex methods that may be used to estimate market potential, the method used here is perhaps the simplest. It should be kept in mind that Trade Area Analysis is based on averages. Many times there are mitigating circumstances, such as proximity to large population centers,

interstate highways, or regional shopping centers, that will cause market potential to deviate substantially from actual market conditions. Hence, these tools should be viewed as only one means to examining local retail markets. Still, previous application of these tools in numerous states (e.g., Illinois, Iowa, Maine, Kansas, and North Dakota) suggests that the method provides satisfactory results in most cases. Indeed, many market analysts have found that the simplicity of the tools is what makes them so appealing: the average community resident can understand the tools, hence are more likely to embrace the results of the analysis. The key terms and basic measures used include:

REGIONAL PER CAPITA EXPENDITURE

This rate is defined by dividing the reference region's, usually the state's, actual level of retail sales by the region's population.

INDEX OF INCOME

This is a proxy measure for the relative wealth of the community. It seems reasonable to expect that wealthier communities may have a higher expenditure rate than the regional average. Similarly, poorer regions may have lower expenditure rates. The index of income is a simple measure to adjust local expenditure rates and is simply the ratio of local per capita income to the regional per capita income.

TRADE AREA CAPTURED

Trade area captured is defined as the number of full-time customer equivalents being serviced in a particular retail market. Trade area captured is calculated by dividing actual retail sales by state per capita sales adjusted for income differences as measured by the index of income.

PULL FACTOR

The pull factor, or index of pulling power, is a proxy measure of the relative strength of the community's retail market. The pull factor is calculated by comparing the trade area captured for the community to its population.

Consider a community with a population of 1,000 persons. Suppose that the calculated trade area captured is 1,500 persons. The computed measure of 1,500 indicates that the community's retail businesses are effectively servicing 1,500 persons. The pull factor is calculated by dividing the trade area captured by the population. In this example, the community has a pull factor of 1.5.

Intuitively, this hypothetical community is attracting, or pulling 500 persons into its retail market. These persons may be from surrounding towns, or tourists from greater distances. A pull factor less than one indicates the town is losing customers to other retail markets

POTENTIAL SALES

Potential sales are an estimate of the sales level that a community should achieve if it were performing on par with a state-wide average, after adjusting for income. A community's potential sales are calculated by multiplying state per capita sales by the community's population and an index of the community's buying power. Here the community's buying power is the ratio of the community's per capita income to the state's per capita income.

SURPLUS OR LEAKAGE

By comparing the potential sales of the community with the actual sales realized a measure of retail surplus or leakage can be estimated. If actual sales are greater than potential sales, the community can be said to have a retail trade surplus. If potential sales are greater than actual sales, the

community is said to have a retail trade leakage. Alternatively, the surplus and leakage measures places a dollar value on the relative size of the pull factor where retail surpluses are associated with pull factors greater than one and leakages are associated with pull factors less than one.

A Numerical Example

To compute *trade area captured*, first determine actual sales within the community, second, determine state per capita sales for the particular business type, third, determine the index of income for the community. For illustrative suppose

1. $1,000,000 = actual sales for eating and drinking places;
2. $750 = state per capita sales for eating and drinking establishments;
3. $7,500 = community per capita income;
4. $10,000 = state per capita income and;
5. 2,000 = community population

The trade area captured for this hypothetical community is:

$$\text{Trade Area Captured} = \frac{\text{Actual Sales}}{\text{State Per Capita Sales} * \text{Index of Income}}$$

$$\text{Trade Area Captured} = \frac{\$1,000,000}{\$750 * (\$7,500 / \$10,000)} = 1,778$$

In this example, the community's eating and drinking establishment market is supporting 1,778 full-time customer equivalents.

To compute the *pull factor*, simply divide the community's trade area captured by the community's population. Or:

$$\text{Pull Factor} = \frac{\text{Trade Area Captured}}{\text{Community Population}} = \frac{1,778}{2,000} = 0.889$$

For this community, trade area captured is less than the community's population, hence the pull factor is less than one, or the restaurant market in this community is loosing customers to surrounding markets.

To calculate *potential sales*, no additional information is required. Potential sales is estimated by the formula:

$$\text{Potential Sales} = \text{State Per Capita Sales} * \text{Community Population} * \text{Index of Income}$$

$$\text{Potential Sales} = \$750 * 2,000 * (\$7,500 / \$10,000) = \$1,125,000.$$

The community's sales *surplus* or *leakage* for the restaurant market is calculated by comparing potential sales to actual sales.

$$\text{Surplus (Leakage)} = \text{Actual Sales} - \text{Potential Sales}$$
$$= \$1,000,000 - \$1,125,000 = -\$125,000$$

Because potential sales are greater than actual sales in this example, this community is said to have a $125,000 leakage in this retail market. *In other words, the dollar value of the pull factor being less than one is approximately $125,000.* But, it must be kept in mind that a pull factor less (or greater) than one does not necessarily mean that the difference between actual and potential sales will be a negative (positive) estimate.

By multiplying the ratio of leakage to potential sales by the community's population the leakage can be expressed in terms of the number of full-time customer equivalents that are being lost. In this example, 222 full-time customer equivalents are being lost ($125,000 / $1,125,000 times 2,000).

By computing retail market strengths (surpluses) and weaknesses (leakages) by specific commodity groups, detail market policies can be formulated. For example, leakage data can be combined market threshold estimates, can be used to determine possible areas of market development within specific commodity groups. In our example, the lost customer equivalents of 222 when match to simple threshold estimates for eating and drinking establishments (460 people)[1] suggests that the market "gap" coupled with the potential revenues ($125,000) may be sufficiently large to justify a local retail development strategy targeting an eating and drinking establishment.

While these tools are relatively simplistic, hence perhaps an over simplification of complex regional markets, the tools of Trade Area Analysis have proven useful on two fronts. First, their wide use in many extension educational programs in numerous states has created a track record of reasonable reliability. Second, and perhaps more importantly, the tools are easily explained to and understood by local business people. Extension educators have found that because local people can grasp the concepts, they are much more likely to "trust" the analysis, hence actually use the information provided. But because the target audience realizes the simplicity of the tools, they appreciate that the analysis provides only partial answers to complex questions.

Naturally, these data are suggestive and should be used simply as a means to point retail market development strategies in certain directions. When analyzing local markets one must always question the data and methods being employed. For example, research suggests that for larger urban markets the tools of Trade Area Analysis may be inappropriate. Use alternative types of data and tools of analysis to check and recheck the policy implications. Then challenge the assumptions upon which the analysis is constructed. In our example, is it possible that a neighboring community has a number of restaurants that would posse direct competition? Alternatively, are the existing restaurants in the community not effectively "closing the gap?" In other words, can existing businesses change their mode of operation to recover the observed leakage? Perhaps more directly, do the residents of the community simply prefer not to dine out? Only when questions of this nature have been asked and answered should the community consider moving forward.

Commodity Groups

For this study of regional retail and service markets, sales tax data for those Wisconsin counties that have elected to impose the tax are used. The data are collected and reported in both retail and select service sectors. These include:

GENERAL MERCHANDISE STORES

This major group includes retail stores which sell a number of lines of merchandise, such as dry goods, apparel and accessories, furniture and home furnishings, small wares, hardware, and food. The stores included in this group are known by such names as department stores, variety stores, general merchandise stores, and general stores.

[1] See Steven C. Deller and William Ryan, "Retail and Service Demand Thresholds for Wisconsin," Center for Community Economic Development Staff Paper 96.1 (April, 1996) University of Wisconsin-Extension.

BUILDING MATERIALS, HARDWARE, GARDEN SUPPLY

This major group includes retail establishments primarily engaged in selling lumber and other building materials; paint, glass, and wallpaper; hardware; nursery stock; lawn and garden supplies.

FOOD STORES

This major group includes retail stores primarily engaged in selling food for home preparation and consumption.

AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS

This major group includes retail dealers selling new and used automobiles, boats, recreational vehicles, utility trailers, and motorcycles including mopeds; those selling new automobile parts and accessories; and gasoline service stations. Automobile repair shops maintained by establishments engaged in the sale of new automobiles are also included.

APPAREL AND ACCESSORY STORES

This major group includes retail stores primarily engaged in selling new clothing, shoes, hats, underwear, and related articles for personal wear and adornment. Furriers and custom tailors carrying stocks of materials are included.

HOME FURNITURE, FURNISHINGS, AND EQUIPMENT STORES

This major group includes retail stores selling goods used for furnishing the home, such as furniture, floor coverings, draperies, glass and chinaware, domestic stoves, refrigerators, and other household electrical and gas appliances. Establishments selling electrical and gas appliances are included in this group only if the major part of their sales consists of articles for home use.

EATING AND DRINKING PLACES

This major group includes retail establishments selling prepared foods and drinks for consumption on the premises; and also lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. Restaurants, lunch counters, and drinking places operated as a subordinate service facility by other establishments are not included in this industry, unless they are operated as leased departments by outside operators.

MISCELLANEOUS RETAIL

This major group includes retail establishments, not elsewhere classified. These establishments fall into the following categories: drug stores, liquor stores, used merchandise stores, miscellaneous shopping goods stores, non-store retailers, fuel dealers, and miscellaneous retail stores, not elsewhere classified.

HOTELS AND OTHER LODGING PLACES

This major group includes commercial and noncommercial establishments engaged in furnishing lodging, or lodging and meals, and camping space and camping facilities.

PERSONAL SERVICES

This major group includes establishments primarily engaged in providing services generally to individuals, such as laundries, drycleaning plants, portrait photographic studios, and beauty and barber shops. Also included are establishments operating as industrial launderers and those primarily engaged in providing linen supply services to commercial and business.

BUSINESS SERVICES

This major group includes establishments primarily engaged in rendering services, not elsewhere classified, to business establishments on a contract or fee basis, such as advertising, credit reporting, collection of claims, mailing, reproduction, stenographic, news syndicates, computer programming, photocopying, duplicating, data processing, services to buildings, and help supply services.

AUTOMOTIVE REPAIR, SERVICES, AND PARKING

This major group includes establishments primarily engaged in furnishing automotive repair, rental, leasing, and parking services to the general public. Similar facilities owned and operated by concerns for their own use and not for the general public are treated as auxiliary establishments.

MOTION PICTURES, AMUSEMENT AND RECREATION SERVICES

This major group includes establishments producing and distributing motion pictures, exhibiting motion pictures in commercially operated theaters, and furnishing services to the motion picture industry. The term motion pictures, as used in this major group, includes similar productions for television or other media using film, tape, or other means. This major group also includes establishments engaged in providing amusement or entertainment services, not elsewhere classified.

Analysis for Wisconsin

A detailed analysis of county level retail and service sales for the 52 Wisconsin counties that has imposed a local sales tax is provided in a set of appendices to this report. Attention is limited to data for 1999 for brevity. The analysis is presented in tabular form as well as graphically in the form of several maps. Two specific measures of Trade Area Analysis are presented: pull factors and surplus/leakage.

Issues to Consider

In addition to the direct use of these tools for small business development, such as the eating and drinking establishment case outlined in the numerical example above, strengths and/or weaknesses in certain commodity groups can point to the underlying structure of local markets. For example, strength in eating and drink establishments, hotels and lodging places as well as miscellaneous retail and to some extent gasoline and service stations often point to strong tourist economies. Areas with strong sales in building materials can point to areas experiencing overall growth as measured through construction activities. Thus, certain commodity groups can be used as indicators of particular sectors of the economy beyond the broad retail markets.

When interpreting these estimates of market strengths and weaknesses one must keep in mind the nature of the particular commodity group. Some goods are often labeled “convenient” because of the frequency in purchasing patterns. These goods, like milk and bread, gasoline, and hardware items, are purchased on such a regular basis that people will tend to make their purchases as close to their residents as possible. People are usually unwilling to travel great distances to purchase convenient goods. Hence, nearly every community has a grocery store, hardware store and gasoline station. For these categories, one would generally expect the pull factor to be close to one indicating that local businesses are satisfying local demands. Weak performance in these types of commodity groups generally point to opportunities while strengths may indicate a strong tourism sector. Generally, those commodity groups with low population threshold estimates are considered convenient goods.

Conversely, larger ticket items that are purchased on a much less frequent basis, such as furniture and automobiles, people are often willing to travel great distances in pursuit of a "good deal" or just the right item. Note that in casual observation, car dealership, appliance stores, furniture stores tend to cluster together in larger urban markets. If one again considers threshold estimates, these types of goods generally require much larger market populations to support a particular business.

The Wisconsin Analysis

As noted above the results of the analysis of the 1999 data are reported in a set of appendices to this report. The state-wide per capita expenditure rates that are used are as follows:

Building and Materials	$	786
General Merchandise	$	1,025
Food stores	$	533
Auto Dealers & Service St.	$	1,655
Apparel & Accessory	$	358
Furniture & Home Furnishing	$	468
Eating & Drinking Places	$	968
Misc. Retail Stores	$	1,518
Lodging	$	255
Personal	$	91
Business	$	470
Automotive	$	458
Amusement, Movie, & Recreation	$	198
Other	$	301

The index of income used in the analysis is available from the author.

The results of the analysis are reported in Tables 1 through 4. Pull factors for retail sales are provided in Table 1 while pull factors for taxable service sales are reported in Table 2. Estimates of surplus and leakages for retail sales are reported in Table 3 and for services in Table 4.

Although space limitations preclude a detailed discussion of all of the results of the Trade Area Analysis, some interesting patterns appear to emerge. Take retail sales in food stores for example. Because of the nature of items sold in grocery stores (i.e., convenient goods) we would expect the pull factors and corresponding measures of surplus and leakage to be close to one. Indeed, for most counties the pull factor ranges between .9 and 1.1, as we would expect. For these counties, the local grocery stores could be said to be supporting just the local markets. Some counties, however, have relatively large pull factors for food stores such as Door and Vilas counties at 1.496 and 1.800, respectively. The possible reason for the "strong" performance of grocery stores in these two counties may be related to a strong tourist economy, particularly the second or recreational home market. For Door county the relatively large pull factor translates into a surplus of about $7 million (Table 3).

Conversely, a small handful of counties have relatively small pull factors for grocery stores, including Buffalo and Taylor counties at 0.560 and 0.523, respectively (Table 1). The dollar value of these "weak" pull factors translates into $2.7 million for Buffalo and $3.6 million for Taylor. The reasons for such low pull factors for these two counties could range from the lack of local shopping opportunities, significant competition from neighboring communities, or existing grocery stores not satisfying local demand. ***Local knowledge is vital when interpreting these estimated measures of market strength and weakness.*** The second issue is whether these local market gaps are sufficiently large to attract local investments in these types of businesses. Is a $2.7 million leakage for Buffalo county sufficiently large to attract and support a new grocery store? The tools of Trade Area Analysis ***cannot*** answer this latter fundamental question.

Examining pull factors for hotels and other lodging places can also readily identify the relative importance of tourism. Counties

that jump out as large tourism areas include Adams, Bayfield, Crawford, Door, Iron, Oneida, Sauk, Sawyer, Vilas and Walworth counties. Door county with a pull factor of 13.329 supports a huge tourist economy. The pull factor of 11.392 for Sauk county is largely due to the Wisconsin Dells with a surplus of $78.7 million (Table 4). Yet, a handful of counties show weakness in hotel and lodging services with relatively low pull factors such as Dodge and Pierce counties at 0.394 and 0.148, respectively. The corresponding leakages of $13 and $7.7 million apiece, suggest that the market potential may exist for new investments either in the form of new businesses or expansion of existing businesses. ***But, again, the tools of Trade Area Analysis are best used as indicators pointing a direction for further analysis.***

Strategies for Retail & Service Development

For a community to effectively develop a retail and service development plan of action it must not only identify market strengths and weaknesses, such as the analysis presented in this paper, but must implement a set of strategic activities to build on those identified strengths while addressing weaknesses. While a complete and exhaustive discussion of potential strategies is beyond the scope of this applied research, a brief review of some successful development strategies is warranted.

These include:

✔ Survey local residents' needs and buying habits to identify the market potential of retail and service firms.

✔ Analyze and renew downtown shopping districts (i.e., strengthen the appearance and amenities of business districts).

✔ Help employers develop employee training programs to improve the quality of customer relations.

✔ Breathe life back into the retail and business community by forming commerce, business clubs, and downtown associations. Make sure that these groups are part of broader community economic development efforts.

✔ Encourage businesses to coordinate advertising, expanded business hours, and customer satisfaction surveys.

✔ Encourage educational programs for owners/managers to enhance marketing, pricing, inventory, and customer service strategies.

✔ Visit existing businesses regularly to build a stronger sense of community and identify potential problem areas.

✔ Work with local technical schools, junior colleges and other secondary and higher educational institutions to ensure that a small business/entrepreneurship training program is in place and promoted.

✔ Visit other communities and discuss their experiences in terms of successes and failures.

Clearly the above-mentioned list of strategies is far from complete. The underlying rationale for the development of successful strategies should become apparent. Successful communities are willing to try new approaches, evaluate what worked, what did not and alter their plan of action accordingly. Successful communities also continuously monitor changes in the market and adapt their goals and strategies to reflect any significant changes. Finally, successful communities are willing to ask for help from state and federal agencies (e.g., Wisconsin Department of Commerce, the federal Economic Development Administration and/or the Small Business Development Administration), the university (e.g., University of Wisconsin-Extension), and neighboring communities.

Conclusions

The development of the local retail market should be part of any comprehensive economic development initiative. As an initial step in that process it is important to establish a baseline of data describing the local retail market. This baseline of data can

serve as either a response to a specific request for information (e.g., the retail redevelopment effort is underway and is in need of more specific information) or as a stimulus to spur on a development process. One set of tools that have proven useful in such an analysis are the tools of Trade Area Analysis. In this applied research study I have attempted to lay out those tools and provide a partial analysis of the local retail market for the counties of Wisconsin.

Naturally, the results of a Trade Area Analysis study should not be taken as the end product of the retail market development process. Rather it should be viewed as the first preliminary step in a much larger educational effort.

Table 1: Pull Factors for Select Wisconsin Counties – Retail Sales 1999

	Building and Materials	General Merch.	Food stores	Auto Dealers & Service St.	Apparel & Accessory	Furniture & Home Furnishing	Eating & Drinking Places	Misc. Retail Stores
Adams	0.611	0.788	1.239	1.354	0.166	0.940	0.858	0.930
Ashland	1.488	2.373	1.056	1.005	0.552	0.521	1.596	0.724
Barron	1.541	3.029	1.249	1.352	0.875	0.664	1.330	0.995
Bayfield	1.513	0.030	1.059	1.180	0.100	0.193	1.185	0.853
Buffalo	1.157	0.070	0.560	0.815	0.020	0.243	0.826	0.575
Burnett	1.848	0.178	1.072	1.397	0.160	0.265	1.058	0.878
Chippewa	1.208	1.318	1.066	1.308	0.395	0.501	0.837	0.845
Columbia	1.156	0.877	1.258	1.429	0.509	0.792	0.991	0.736
Crawford	0.753	2.492	1.934	0.990	1.199	0.759	1.252	1.935
Dane	1.164	0.879	1.020	0.927	1.356	1.440	1.017	1.296
Dodge	0.775	0.967	1.132	1.253	0.331	0.500	0.741	0.687
Door	2.063	1.123	1.496	1.552	1.821	0.942	1.868	1.621
Douglas	1.678	1.083	0.710	1.217	0.462	0.627	1.648	1.099
Dunn	1.739	1.319	0.931	1.123	0.164	0.506	0.951	0.584
Eau Claire	1.927	2.165	0.920	0.937	1.476	1.795	1.268	1.541
Forest	2.076	0.056	0.447	1.303	0.030	0.285	1.028	0.613
Iowa	1.684	0.672	1.282	1.220	1.229	1.122	0.777	0.836
Iron	1.566	0.103	1.568	0.837	0.048	0.282	2.459	1.030
Jackson	0.709	1.504	1.198	1.215	0.197	0.204	1.384	0.629
Jefferson	0.879	1.129	1.175	1.126	1.660	0.725	1.041	0.705
Juneau	0.963	1.045	1.910	1.773	0.154	0.379	1.208	0.676
Kenosha	0.811	0.842	1.147	0.886	1.976	0.802	1.010	0.885
La Crosse	1.796	2.184	1.760	1.042	1.248	1.978	1.270	1.414
Langlade	1.078	2.602	1.530	1.550	0.219	0.702	1.277	0.829
Lincoln	0.953	1.132	1.406	1.496	0.464	0.692	1.094	0.844
Marathon	1.470	1.513	1.021	1.076	1.408	1.554	0.894	1.034
Marquette	1.200	0.148	1.143	1.543	0.678	1.335	1.721	1.101
Milwaukee	0.490	0.804	0.878	0.824	1.472	1.162	0.996	1.162
Monroe	0.998	1.364	1.457	1.340	0.189	0.451	1.274	0.846
Oconto	1.237	0.136	0.710	1.599	0.055	0.458	0.921	0.546
Oneida	1.459	2.459	1.504	1.671	0.644	1.198	1.503	1.173
Ozaukee	0.490	0.708	0.699	0.825	0.560	0.666	0.547	0.566
Pepin	2.272	0.190	1.015	1.363	0.087	0.401	1.072	0.921
Pierce	0.705	0.095	0.720	0.819	0.056	0.403	0.748	0.449
Polk	1.522	0.922	0.922	1.130	0.058	0.600	0.890	0.746
Portage	1.512	1.249	1.297	1.225	0.646	1.018	1.019	1.424
Price	1.127	0.520	1.209	1.281	0.203	0.337	0.874	0.561
Richland	0.900	2.320	1.201	1.477	0.380	0.918	0.835	0.777
Rusk	2.247	0.892	1.032	1.480	0.092	0.141	0.981	0.568

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 1 (cont.) Pull Factors for Select Wisconsin Counties – Retail Sales 1999

	Building and Materials	General Merch.	Food stores	Auto Dealers & Service St.	Apparel & Accessory	Furniture & Home Furnishing	Eating & Drinking Places	Misc. Retail Stores
St. Croix	2.074	0.936	0.880	0.928	0.101	0.428	0.883	0.750
Sauk	2.148	1.270	1.409	1.471	0.520	0.719	1.862	0.980
Sawyer	2.659	1.628	1.190	1.702	0.544	1.198	1.835	1.113
Shawano	1.277	1.500	1.139	1.410	0.251	0.462	1.035	0.684
Taylor	0.766	0.570	0.523	0.698	0.067	0.250	0.474	0.349
Trempealeau	1.475	0.199	0.988	1.231	0.115	0.613	0.834	0.774
Vernon	0.956	1.120	1.316	1.287	0.210	0.656	0.672	0.646
Vilas	1.997	0.497	1.800	1.622	0.349	1.658	1.971	1.422
Walworth	1.213	1.220	0.987	1.269	0.450	0.671	1.391	0.840
Washburn	1.698	0.866	1.337	1.997	0.357	0.822	1.222	1.008
Washington	0.711	0.841	0.807	0.985	0.216	0.781	0.694	0.584
Waupaca	1.334	1.043	1.134	1.140	0.265	0.629	0.905	0.704
Waushara	1.070	0.436	1.107	1.574	0.030	0.459	0.962	0.742

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 2: Pull Factors for Select Wisconsin Counties – Service Sales 1999

	Lodging	Personal	Business	Automotive Service and Repair	Amusement, Movie, & Recreation	Other
Adams	5.654	0.964	1.468	1.416	2.709	0.565
Ashland	1.495	2.661	0.832	0.985	1.651	1.597
Barron	1.398	1.367	0.898	1.777	1.243	1.376
Bayfield	7.412	1.837	1.340	1.884	0.530	1.189
Buffalo	0.374	1.860	0.722	1.130	0.488	0.805
Burnett	2.068	0.870	0.849	1.737	1.504	1.223
Chippewa	0.722	1.696	1.370	1.796	1.755	1.916
Columbia	1.765	1.310	1.119	1.385	1.253	1.182
Crawford	3.311	1.112	1.928	1.692	1.483	1.308
Dane	1.303	1.751	2.027	1.491	1.152	2.113
Dodge	0.394	1.273	1.148	1.419	1.329	0.865
Door	13.329	2.909	1.830	1.689	2.752	2.147
Douglas	1.705	1.073	1.425	1.556	0.799	1.388
Dunn	0.992	1.282	1.466	1.354	0.755	1.650
Eau Claire	1.446	1.708	1.010	1.834	1.531	1.864
Forest	1.062	0.427	0.768	0.949	0.954	0.891
Iowa	1.362	0.641	2.140	1.230	5.622	0.850
Iron	4.405	0.435	1.963	0.944	2.658	0.952
Jackson	1.880	1.074	1.887	1.290	0.932	1.075
Jefferson	0.533	1.556	1.246	1.684	1.193	0.951
Juneau	2.140	1.191	0.960	1.770	1.315	1.339
Kenosha	0.541	1.161	1.098	1.469	1.679	1.764
La Crosse	1.546	1.867	1.767	1.802	1.523	1.260
Langlade	0.846	1.446	1.113	1.922	1.211	1.229
Lincoln	0.893	1.405	1.025	1.630	1.454	1.079
Marathon	0.875	1.634	1.574	2.037	1.299	1.269
Marquette	1.455	2.402	1.643	2.870	3.138	2.442
Milwaukee	1.056	1.951	2.052	1.768	1.766	1.860
Monroe	1.749	1.596	0.995	1.436	1.187	0.924
Oconto	1.207	0.765	0.645	1.640	1.222	0.992
Oneida	3.923	1.389	1.763	2.315	2.027	1.914
Ozaukee	1.024	0.363	0.460	0.604	0.529	0.500
Pepin	0.350	1.267	1.165	1.298	1.595	1.098
Pierce	0.148	1.143	0.610	1.039	1.126	0.807
Polk	0.932	1.360	0.979	1.173	1.375	0.911
Portage	1.702	1.363	1.511	1.712	1.234	1.675
Price	1.735	1.074	0.805	1.581	1.093	1.652
Richland	0.972	0.919	0.917	1.176	0.759	0.805
Rusk	2.032	0.729	0.655	1.652	0.437	0.741

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 2 (cont.) Pull Factors for Select Wisconsin Counties – Service Sales 1999

	Lodging	Personal	Business	Automotive Service and Repair	Amusement, Movie, & Recreation	Other
St. Croix	0.953	1.303	0.828	1.445	2.104	0.866
Sauk	11.392	1.533	2.293	1.608	7.404	2.612
Sawyer	8.635	0.949	1.760	1.773	2.210	1.228
Shawano	1.074	1.097	0.726	1.245	1.243	1.449
Taylor	0.303	0.571	0.633	0.844	0.304	0.317
Trempealeau	1.011	0.838	0.996	1.438	0.613	0.647
Vernon	0.551	0.733	0.994	0.963	0.867	0.802
Vilas	11.196	2.141	1.195	2.173	2.876	2.200
Walworth	5.366	1.700	1.662	1.296	2.973	2.067
Washburn	2.060	1.948	0.782	1.813	1.834	1.458
Washington	0.385	1.377	1.160	1.545	1.072	1.276
Waupaca	0.813	1.766	1.725	1.532	1.394	0.654
Waushara	1.619	1.184	1.549	1.871	1.580	0.839

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 3: Surplus and Leakage for Select Wisconsin Counties – Retail Sales 1999

	Building and Materials	General Merch.	Food stores	Auto Dealers & Service St.	Apparel & Accessory	Furniture & Home Furnishing	Eating & Drinking Places	Misc. Retail Stores
Adams	$ (3,896,366)	$ (2,769,388)	$ 1,625,451	$ 7,455,677	$ (3,806,954)	$ (357,532)	$ (1,755,354)	$ (1,354,437)
Ashland	$ 4,851,061	$ 17,804,144	$ 379,122	$ 106,506	$ (2,028,067)	$ (2,833,575)	$ 7,293,552	$ (5,288,594)
Barron	$ 14,919,711	$ 72,942,022	$ 4,648,258	$ 20,398,971	$ (1,568,466)	$ (5,515,560)	$ 11,215,058	$ (247,318)
Bayfield	$ 4,389,326	$ (10,826,254)	$ 345,026	$ 3,239,005	$ (3,506,273)	$ (4,104,803)	$ 1,948,645	$ (2,429,788)
Buffalo	$ 1,439,668	$ (11,133,905)	$ (2,742,152)	$ (3,566,005)	$ (4,100,493)	$ (4,137,987)	$ (1,962,220)	$ (7,527,697)
Burnett	$ 7,030,024	$ (8,885,301)	$ 402,252	$ 6,935,409	$ (3,174,084)	$ (3,623,805)	$ 595,804	$ (1,955,145)
Chippewa	$ 7,842,456	$ 15,634,393	$ 1,688,770	$ 24,464,067	$ (10,398,519)	$ (11,201,208)	$ (7,574,362)	$ (11,298,403)
Columbia	$ 5,566,117	$ (5,705,505)	$ 6,232,422	$ 32,186,940	$ (7,973,995)	$ (4,418,636)	$ (405,672)	$ (18,163,233)
Crawford	$ (2,354,384)	$ 18,567,272	$ 6,048,081	$ (191,700)	$ 867,242	$ (1,368,368)	$ 2,956,861	$ 17,223,391
Dane	$ 64,731,720	$ (62,356,048)	$ 5,264,707	$ (60,298,272)	$ 63,837,987	$ 103,052,001	$ 8,442,423	$ 224,974,350
Dodge	$ (12,176,192)	$ (2,350,568)	$ 4,846,623	$ 28,784,033	$ (16,522,357)	$ (16,101,332)	$ (17,301,865)	$ (32,702,978)
Door	$ 22,482,166	$ 3,403,176	$ 7,114,696	$ 24,574,007	$ 7,910,830	$ (732,080)	$ 22,628,526	$ 25,349,810
Douglas	$ 18,023,755	$ 2,880,369	$ (5,223,579)	$ 12,145,164	$ (6,519,273)	$ (5,907,634)	$ 21,206,941	$ 5,085,823
Dunn	$ 17,512,766	$ 9,860,461	$ (1,107,647)	$ 6,121,123	$ (9,029,519)	$ (6,973,686)	$ (1,430,454)	$ (19,015,728)
Eau Claire	$ 60,168,174	$ 98,607,630	$ (3,509,438)	$ (8,569,727)	$ 14,085,811	$ 30,685,033	$ 21,444,262	$ 67,772,566
Forest	$ 5,659,567	$ (6,478,199)	$ (1,972,618)	$ 3,349,590	$ (2,326,222)	$ (2,237,552)	$ 183,206	$ (3,928,601)
Iowa	$ 9,901,723	$ (6,199,283)	$ 2,765,353	$ 6,714,385	$ 1,508,795	$ 1,050,465	$ (3,983,300)	$ (4,589,364)
Iron	$ 2,180,627	$ (4,506,908)	$ 1,483,983	$ (1,325,121)	$ (1,671,214)	$ (1,645,431)	$ 6,924,515	$ 221,457
Jackson	$ (3,272,133)	$ 7,385,724	$ 1,508,273	$ 5,069,141	$ (4,106,482)	$ (5,318,050)	$ 5,313,732	$ (8,040,514)
Jefferson	$ (6,435,130)	$ 8,924,473	$ 6,315,981	$ 14,118,304	$ 15,978,930	$ (8,703,213)	$ 2,696,933	$ (30,219,275)

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports.
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 3 (cont.) Surplus and Leakage for Select Wisconsin Counties – Retail Sales 1999

	Building and Materials	General Merch.	Food stores	Auto Dealers & Service St.	Apparel & Accessory	Furniture & Home Furnishing	Eating & Drinking Places	Misc. Retail Stores
Juneau	$ (507,021)	$ 793,765	$ 8,396,292	$ 22,135,425	$ (5,249,601)	$ (5,033,307)	$ 3,492,576	$ (8,514,534)
Kenosha	$ (20,773,912)	$ (22,598,344)	$ 10,974,969	$ (26,216,021)	$ 48,818,115	$ (12,931,477)	$ 1,318,083	$ (24,451,152)
La Crosse	$ 60,977,827	$ 118,304,049	$ 39,470,762	$ 6,844,009	$ 8,661,476	$ 44,593,170	$ 25,456,396	$ 61,169,420
Langlade	$ 937,811	$ 25,045,357	$ 4,308,680	$ 13,875,129	$ (4,267,434)	$ (2,125,596)	$ 4,090,837	$ (3,960,875)
Lincoln	$ (828,990)	$ 3,026,666	$ 4,830,186	$ 18,300,773	$ (4,284,057)	$ (3,216,053)	$ 2,019,090	$ (5,287,654)
Marathon	$ 43,352,363	$ 61,823,164	$ 1,316,299	$ 14,718,354	$ 17,173,762	$ 30,461,161	$ (11,997,210)	$ 5,975,351
Marquette	$ 1,596,867	$ (8,888,901)	$ 774,923	$ 9,152,444	$ (1,173,588)	$ 1,595,845	$ 7,109,091	$ 1,564,134
Milwaukee	$ (380,539,768)	$(190,950,335)	$ (61,844,575)	$(275,863,611)	$ 160,624,247	$ 71,978,827	$ (3,680,942)	$ 233,251,055
Monroe	$ (55,358)	$ 11,116,882	$ 7,258,638	$ 16,738,772	$ (8,659,276)	$ (7,646,002)	$ 7,915,767	$ (6,954,206)
Oconto	$ 4,543,469	$ (21,568,541)	$ (3,759,378)	$ 24,132,247	$ (8,237,494)	$ (6,176,748)	$ (1,867,461)	$ (16,780,611)
Oneida	$ 11,927,437	$ 49,396,097	$ 8,869,807	$ 36,670,806	$ (4,215,823)	$ 3,058,341	$ 16,099,702	$ 8,669,782
Ozaukee	$ (50,708,629)	$ (37,912,454)	$ (20,285,540)	$ (36,577,394)	$ (19,921,119)	$ (19,767,899)	$ (55,471,330)	$ (83,389,073)
Pepin	$ 5,399,869	$ (4,486,016)	$ 42,933	$ 3,246,258	$ (1,766,832)	$ (1,513,242)	$ 375,538	$ (650,003)
Pierce	$ (7,686,238)	$ (30,805,673)	$ (4,951,049)	$ (9,963,413)	$ (11,228,672)	$ (9,268,270)	$ (8,108,368)	$ (27,758,846)
Polk	$ 13,235,209	$ (2,568,890)	$ (1,344,126)	$ 6,930,116	$ (10,875,157)	$ (6,023,315)	$ (3,429,854)	$ (12,423,832)
Portage	$ 21,978,163	$ 13,954,377	$ 8,645,975	$ 20,380,138	$ (6,921,026)	$ 454,871	$ 992,028	$ 35,180,327
Price	$ 1,264,236	$ (6,232,505)	$ 1,413,247	$ 5,885,946	$ (3,619,856)	$ (3,928,449)	$ (1,546,610)	$ (8,432,697)
Richland	$ (1,003,574)	$ 17,198,182	$ 1,358,473	$ 10,025,766	$ (2,823,628)	$ (489,227)	$ (2,026,892)	$ (4,306,483)
Rusk	$ 10,237,975	$ (1,152,372)	$ 177,569	$ 8,302,291	$ (3,399,947)	$ (4,196,440)	$ (195,544)	$ (6,856,489)
St. Croix	$ 55,570,094	$ (4,298,025)	$ (4,194,311)	$ (7,891,339)	$ (21,195,381)	$ (17,622,357)	$ (7,462,263)	$ (24,973,528)

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports.
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 3 (cont.) Surplus and Leakage for Select Wisconsin Counties – Retail Sales 1999

	Building and Materials	General Merch.	Food stores	Auto Dealers & Service St.	Apparel & Accessory	Furniture & Home Furnishing	Eating & Drinking Places	Misc. Retail Stores
Sauk	$ 43,580,908	$ 13,362,772	$ 10,537,660	$ 37,607,278	$ (8,311,901)	$ (6,342,183)	$ 40,292,865	$ (1,447,520)
Sawyer	$ 15,512,912	$ 7,658,160	$ 1,205,748	$ 13,807,447	$ (1,942,205)	$ 1,101,401	$ 9,612,475	$ 2,032,216
Shawano	$ 6,415,555	$ 15,112,547	$ 2,184,381	$ 20,027,539	$ (7,918,278)	$ (7,425,160)	$ 1,013,924	$ (14,158,301)
Taylor	$ (2,628,697)	$ (6,306,414)	$ (3,635,755)	$ (7,158,864)	$ (4,778,553)	$ (5,020,780)	$ (7,284,969)	$ (14,142,058)
Trempealeau	$ 7,904,782	$ (17,391,801)	$ (135,248)	$ 8,109,539	$ (6,716,116)	$ (3,830,624)	$ (3,413,058)	$ (7,275,899)
Vernon	$ (633,867)	$ 2,237,694	$ 3,060,397	$ 8,610,712	$ (5,134,761)	$ (2,915,625)	$ (5,768,910)	$ (9,759,135)
Vilas	$ 14,007,966	$ (9,220,794)	$ 7,621,895	$ 18,398,850	$ (4,166,162)	$ 5,505,189	$ 16,805,766	$ 11,449,245
Walworth	$ 13,241,515	$ 17,844,090	$ (559,668)	$ 35,220,164	$ (15,622,625)	$ (12,205,455)	$ 30,020,193	$ (19,189,427)
Washburn	$ 6,278,769	$ (1,571,731)	$ 2,056,611	$ 18,893,685	$ (2,638,247)	$ (954,564)	$ 2,461,215	$ 133,369
Washington	$ (29,031,479)	$ (20,833,628)	$ (13,129,605)	$ (3,164,477)	$ (35,868,498)	$ (13,059,690)	$ (37,868,165)	$ (80,668,249)
Waupaca	$ 12,181,047	$ 2,063,386	$ 3,321,778	$ 10,701,035	$ (12,198,802)	$ (8,035,092)	$ (4,246,465)	$ (20,784,311)
Waushara	$ 844,703	$ (8,909,604)	$ 875,790	$ 14,615,191	$ (5,348,662)	$ (3,899,136)	$ (567,580)	$ (6,020,914)

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports.
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 4: Surplus and Leakage for Select Wisconsin Counties – Service Sales 1999

	Lodging	Personal	Business	Automotive Service and Repair	Amusement, Movie, & Recreation	Other
Adams	$ 8,663,727	$ (434,177)	$ (294,486)	$ (482,781)	$ 1,907,366	$ (2,432,855)
Ashland	$ (100,992)	$ 830,559	$ (2,740,681)	$ (2,097,936)	$ 174,169	$ 130,857
Barron	$ (844,488)	$ (363,496)	$ (6,897,902)	$ 2,422,819	$ (1,354,404)	$ (1,149,775)
Bayfield	$ 10,561,888	$ 187,570	$ (673,708)	$ 1,098,268	$ (1,417,149)	$ (754,295)
Buffalo	$ (2,260,799)	$ 217,397	$ (2,924,918)	$ (1,433,456)	$ (1,584,265)	$ (1,684,916)
Burnett	$ 914,764	$ (417,610)	$ (2,230,447)	$ 605,349	$ (54,182)	$ (659,451)
Chippewa	$ (6,517,056)	$ 429,168	$ (2,538,087)	$ 3,584,318	$ 1,300,330	$ 3,483,964
Columbia	$ 1,664,175	$ (622,018)	$ (5,865,369)	$ (2,133,675)	$ (1,692,546)	$ (3,205,910)
Crawford	$ 3,550,136	$ (308,063)	$ 1,420,161	$ 533,959	$ (95,091)	$ (559,590)
Dane	$ (19,975,307)	$ 6,110,080	$ 73,740,832	$ (7,792,548)	$ (25,197,437)	$ 55,697,965
Dodge	$ (13,104,881)	$ (1,097,308)	$ (8,303,783)	$ (2,541,985)	$ (1,898,236)	$ (9,121,874)
Door	$ 52,471,093	$ 2,159,678	$ 2,347,274	$ 1,162,050	$ 4,178,475	$ 3,166,807
Douglas	$ 901,536	$ (934,887)	$ (1,219,852)	$ 124,256	$ (3,238,733)	$ (1,026,575)
Dunn	$ (2,750,280)	$ (464,179)	$ (710,766)	$ (1,694,205)	$ (3,058,458)	$ 627,230
Eau Claire	$ (1,339,332)	$ 798,570	$ (13,425,779)	$ 7,116,771	$ (137,866)	$ 5,160,519
Forest	$ (533,158)	$ (439,077)	$ (1,580,949)	$ (1,180,785)	$ (507,215)	$ (852,280)
Iowa	$ (553,247)	$ (977,059)	$ 3,348,040	$ (1,713,537)	$ 9,655,069	$ (2,495,213)
Iron	$ 2,320,599	$ (319,434)	$ 625,653	$ (871,747)	$ 702,101	$ (565,799)
Jackson	$ 795,159	$ (394,061)	$ 1,493,414	$ (1,073,416)	$ (1,122,879)	$ (1,307,284)
Jefferson	$ (11,306,365)	$ 50,417	$ (6,140,024)	$ 2,807,495	$ (3,047,038)	$ (7,826,939)
Juneau	$ 1,708,684	$ (358,929)	$ (3,078,935)	$ 1,163,587	$ (508,514)	$ (692,156)
Kenosha	$ (23,148,292)	$ (3,142,510)	$ (18,933,891)	$ (3,100,560)	$ 2,436,439	$ 6,003,534
La Crosse	$ 42,795	$ 1,854,115	$ 6,636,460	$ 7,461,615	$ (256,958)	$ (5,397,959)
Langlade	$ (1,760,706)	$ (87,117)	$ (1,998,038)	$ 1,711,551	$ (652,042)	$ (936,140)
Lincoln	$ (2,399,955)	$ (181,989)	$ (3,525,387)	$ 571,747	$ (258,068)	$ (2,024,596)
Marathon	$ (12,995,107)	$ 621,683	$ 1,069,991	$ 17,207,152	$ (3,689,556)	$ (6,288,683)
Marquette	$ (149,926)	$ 513,607	$ 309,281	$ 4,005,017	$ 2,085,215	$ 1,784,678
Milwaukee	$ (76,569,495)	$ 22,714,002	$ 146,987,362	$ 63,143,394	$ 27,145,537	$ 58,721,544
Monroe	$ 1,012,733	$ 90,870	$ (4,981,626)	$ (954,639)	$ (1,365,295)	$ (3,605,218)
Oconto	$ (1,355,326)	$ (1,114,530)	$ (6,662,408)	$ 695,739	$ (1,006,673)	$ (2,620,999)
Oneida	$ 13,000,773	$ (299,266)	$ 2,204,365	$ 7,556,074	$ 2,050,564	$ 2,390,693
Ozaukee	$ (10,874,671)	$ (8,779,759)	$ (41,756,337)	$ (35,268,247)	$ (16,497,767)	$ (25,780,619)
Pepin	$ (1,066,085)	$ (87,652)	$ (623,295)	$ (393,782)	$ 35,972	$ (469,813)
Pierce	$ (7,668,865)	$ (781,936)	$ (9,442,514)	$ (4,972,031)	$ (1,782,217)	$ (4,776,778)
Polk	$ (3,260,757)	$ (347,583)	$ (5,547,281)	$ (3,543,260)	$ (699,389)	$ (3,981,354)
Portage	$ 1,428,031	$ (578,762)	$ (546,498)	$ 2,736,868	$ (2,176,450)	$ 1,403,326
Price	$ 401,608	$ (350,104)	$ (2,852,008)	$ 139,652	$ (734,365)	$ 267,692
Richland	$ (1,202,145)	$ (466,778)	$ (2,425,685)	$ (1,384,992)	$ (1,282,108)	$ (1,831,761)
Rusk	$ 843,598	$ (500,154)	$ (2,829,400)	$ 334,570	$ (1,485,898)	$ (1,637,538)

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports.
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.

Table 4 (cont.) Surplus and Leakage for Select Wisconsin Counties – Service Sales 1999

	Lodging	Personal	Business	Automotive Service and Repair	Amusement, Movie, & Recreation	Other
St. Croix	$ (6,435,090)	$ (932,371)	$ (14,357,567)	$ (1,919,130)	$ 4,744,269	$ (8,710,319)
Sauk	$ 78,697,788	$ (30,196)	$ 11,026,622	$ 921,838	$ 36,382,293	$ 10,071,226
Sawyer	$ 13,952,651	$ (415,641)	$ 783,717	$ 810,134	$ 1,018,730	$ (731,828)
Shawano	$ (2,293,259)	$ (773,891)	$ (7,349,493)	$ (2,610,847)	$ (1,138,349)	$ (544,588)
Taylor	$ (2,936,272)	$ (817,248)	$ (3,966,282)	$ (2,969,494)	$ (2,280,023)	$ (3,425,080)
Trempealeau	$ (1,866,768)	$ (878,190)	$ (3,532,586)	$ (665,026)	$ (2,532,897)	$ (3,708,917)
Vernon	$ (2,978,712)	$ (863,807)	$ (3,035,738)	$ (3,128,437)	$ (1,576,746)	$ (2,627,162)
Vilas	$ 28,545,264	$ 627,001	$ (1,898,607)	$ 3,337,948	$ 3,061,727	$ 2,291,341
Walworth	$ 50,112,677	$ 726,579	$ 2,849,216	$ (5,815,298)	$ 14,563,133	$ 8,088,859
Washburn	$ 977,493	$ 271,822	$ (2,658,514)	$ 915,749	$ 427,320	$ (192,052)
Washington	$ (24,492,729)	$ (1,250,408)	$ (14,915,808)	$ 34,796	$ (7,750,171)	$ (6,684,077)
Waupaca	$ (5,598,766)	$ 605,819	$ 2,556,706	$ (155,903)	$ (890,234)	$ (8,048,574)
Waushara	$ 190,645	$ (325,191)	$ 27,056	$ 1,494,249	$ 71,108	$ (2,118,617)

Data Source: Wisconsin Department of Revenue, County Sales Tax Reports.
www.dor.state.wi.us/ra/co01coun.html
Computations by the author.