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THE USE OF SALES TAX STATISTICS IN THE
STUDY OF ECONOMIC GEOGRAPHY

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Over a period of nearly two years, the writer studied the recreation industry in one of Michigan's northern cutover counties -- Alger County. The study had two objectives: (1) to describe the recreation industry in its spatial setting and in terms of its individuality in Alger County, and (2) to ascertain the significance of the industry in the economy of the county. The latter involved, among other sources, the use of sales tax statistics. Inasmuch as the State of Arkansas also imposes a sales tax on retailers, it was thought that a discussion of the possible uses to which Arkansas sales-tax materials could be put might be of interest to geographers in Arkansas. Sales tax returns can be revealing as is shown by considering their use in the above-mentioned study.

Since its adoption in 1933, the Michigan sales tax has been imposed upon retailers of tangible personal property in Michigan at the rate of three per cent of their receipts from retail sales. Each month the Michigan Department of Revenue issues a bulletin giving a summary of tax collections by counties and by kind of tax. This information, along with unpublished sales-tax statistics obtained from the tax offices in Lansing, has proved to be a rich source for the student of recreation; a source largely untapped as of the year 1952.

A COMPARISON OF SALES-TAX COLLECTIONS
FOR SELECTED COUNTIES

By plotting on graphs the monthly per capita collections for selected counties, one quickly perceives very significant differences in the seasonal pattern of retail sales between a tourist county (Alger) and other counties which one might characterize as agricultural (Clinton and Gratiot) or urban-industrial (Wayne). Figure 1 shows a sharp rise beginning with May for Alger County until the peak in sales is reached in the months of July and August which are the peak tourist and vacationing months. Collections fall off in September and October, but rise significantly again in November which is the deer-hunting season. It is interesting to note that the November sales-tax collections are higher than the December collections; the reverse of collections in the other counties pictured and for the state as a whole (see Figure 2).

On the other hand, Wayne County, which includes the city of Detroit, shows a much different curve; a curve with a significant drop in sales during the months of July and August, the same months which were the peak months in Alger County. In fact, sales dropped to the low levels of January. Although there are many factors involved in the economy of Wayne County which will not be considered here, certainly one important factor explaining this drop in sales is the fact that many thousands of people living in the county are vacationing and, therefore, spending elsewhere during this period.

The agricultural counties of Clinton and Gratiot are inland and lack significant bodies of water suitable for recreational development. Undoubtedly, business is stimulated by transient tourists, but this is probably balanced by expenditures outside the county borders by the inhabitants of those counties who are vacationing elsewhere.

SALES-TAX COLLECTIONS, ALGER COUNTY AND
THE STATE OF MICHIGAN COMPARED

The writer has determined by months the percentage increase or decrease in sales-tax collections over or under the months of January, 1951, for both Alger County and the State of Michigan as shown in Table 1. By plotting these percentages on a graph as shown in Figure 2, it is possible to obtain a rough approxima-

1 This paper is based in large part on the writer's Ph.D. Dissertation, The Significance of the Recreation Industry in Alger County, Michigan, University of Michigan, 1953, pp.78-91.
2 Retail Sales Tax, Act 167, 0. S. 1933.
tion of the value of retail sales which can be attributed to the spending of tourists and vacationers in Alger County. January is used as the base month for the reason that it is the low month of the year for most kinds of business activity. February retail sales are smaller in value for the state as a whole, but this is attributed to the fact that February had three fewer days than January.

![Per Capita Sales Tax Collections](http://scholarworks.uark.edu/jaas/vol8/iss1/17)
The intervals between the two curves allow one to determine on a percentage basis the amount of money spent in Alger County over and above the curve of Michigan retail sales for the months of May through November—those months in which significant tourist and recreational activity is evident in Alger County. The percentage intervals for the designated months total 249% per cent. Two hundred and forty-nine per cent of January's sales ($462,525.33) for Alger County is $1,151,688.07. This sum divided by the total sales for the year ($7,309,983) gives a figure of nearly 16 per cent. On this basis, it is estimated that approximately 16 per cent of the sales made by retail merchants in Alger County in 1951 could be attributed to the spending of tourists and vacationers, or to the spending of people who catered to the tourists and vacationers.

As far as the writer can determine, the great increase in retail sales during the recreation season is almost entirely the result of the influx of recreationists. The manufacturing plants of the county operate the year around without letup. According to persons intimately associated with the farm economy of the county, the peak sales in various farm products occur in the spring, fall, and winter months when the recreation industry is not at its peak. Wood-cutting operations extend the year around and do not vary greatly except in the months of April and May when the state-imposed load limits on trucks reduce operations to a near halt. Expenditures by commercial fishermen may contribute somewhat to the increase in retail sales during the warm months when fishing is possible on Lake Superior, but much of the activity of fishermen in the months of May through September is connected with sport-trolling; a recreational activity. It would appear, therefore, that nearly all of the increase in retail sales during the recreation season can be attributed to the recreation industry.

**Fig. 2.**—Per Cent Change in Monthly Retail Sales Over or Under January, 1951, Alger County and State of Michigan.
TABLE I
PERCENTAGE INCREASE OR DECREASE OF MONTHLY
SALES-TAX COLLECTIONS OVER JANUARY, 1951
ALGER COUNTY AND STATE OF MICHIGAN COMPARED

| Month | ALGER COUNTY | | | | | MICHIGAN |
|-------|--------------|------------------|------------------|
|       | Total Sales  | Per cent increase| Total Sales      | Per cent increase|
|       | Tax          | or decrease over  | Tax              | or decrease over  |
|       | Collections* | January           | Collections*      | January           |
| Jan.  | $13,875.76   | .00               | $18,164,511.61   | .00               |
| Feb.  | 14,170.10    | .02               | 17,388,162.55    | -.04              |
| March | 15,194.48    | .10               | 20,430,118.10    | .31               |
| April | 15,207.08    | .10               | 19,467,126.97    | .07               |
| May   | 18,244.20    | .31               | 20,666,526.00    | .14               |
| June  | 21,190.83    | .53               | 20,483,325.45    | .13               |
| July  | 23,107.82    | .67               | 19,835,011.67    | .09               |
| August| 22,556.40    | .63               | 19,947,762.72    | .10               |
| Sept. | 19,195.40    | .38               | 20,131,170.96    | .11               |
| Oct.  | 17,870.87    | .29               | 20,203,878.10    | .11               |
| Nov.  | 19,995.41    | .44               | 19,644,815.58    | .08               |
| Dec.  | 18,694.16    | .35               | 22,995,486.87    | .27               |


Indirectly the economic significance of the tourist and recreation industry on retail sales is much greater than indicated by the figures, 16 per cent or $1,151,688.07. Some of the inhabitants of Alger County could not live in the county if it were not that a portion of their income came from the tourist and recreation industry, and, therefore, their existence in the county, as well as that of the service establishments meeting their needs, is to a considerable degree dependent upon the tourist and recreation industry.

THE EFFECT OF THE TOURIST AND RECREATION INDUSTRY ON SELECTED TYPES OF BUSINESS ACTIVITY

Monthly sales tax collections for various kinds of business activity can be plotted on graphs, and from such graphs, Figure 3, one can readily see the influence which the tourist and recreation industry exerts on these types of businesses.

It can be inferred from Figure 3 that many eating establishments in Alger County owe their existence to tourists and vacationers. There is a striking increase in business during the summer tourist season and also during deer season in November. Restaurant sales-tax collections and, therefore, restaurant business for the month of August is 230 per cent greater than for either January or April.

Many other types of business activity are greatly affected by the influx of tourists and vacationers. Notable among these are drug stores, liquor stores, sporting goods stores, grocery stores, and filling stations as is shown by Figure 3. These businesses supply the immediate needs or desires of the tourist and vacationer and, therefore, reflect the influx of tourists and vacationers more than businesses which satisfy long-time needs. It is interesting to note that November, deer season, is the peak month for liquor sales in Alger County. Certain types of businesses such as department stores and general merchandise stores are similarly affected during the tourist season, but only moderately so. The sale of dairy products by farm dairies remains unchanged and does not reflect demand, but rather the supply of milk which is produced by a more or less fixed number of cows.

4 Taken from unpublished figures in the files of the Sales Tax Division of the Michigan Department of Revenue, Lansing, Michigan.
In the cases of restaurants, drug stores, taverns, and filling stations more than fifty per cent of the year's sales occur during the recreation season -- that is during the five months from June through November.

Yet another approach using sales tax statistics is used in Table 2. Four types of businesses are considered: filling stations, taverns, restaurants, and grocery stores. The number of establishments in the State of Michigan in each group is divided into the 1950 population of the state, and a figure for the average number of people per establishment in each group is secured. The same is done for Alger County. Immediately it can be seen (Table 2) that Alger County has an excess of establishments in all four categories if the state averages are accepted. By dividing these state averages into the population of Alger County, one arrives at the number of establishments in each group which might be found in the county if Alger were characteristic of the state as a whole.

By subtracting the latter figures from the actual number of establishments in each group found in Alger County, it is possible to arrive at the number of excess establishments found in each group. By this process, it is found that there are 64 excess establishments out of a total of 126 establishments in the four groups or, in other words, slightly over 50 per cent of the establishments in these groups might be said to owe their existence to the recreation industry. This was substantiated to some degree by personal observation in Munising, the county seat, during the month of January. Of the ten restaurants serving tourists and local people in the summer, only five were open. More striking is the fact that only one motel out of a total of fifteen was operating.

Table 2

<table>
<thead>
<tr>
<th>Type of Business</th>
<th>Number of Establishments (State Averages)</th>
<th>Number of Establishments (Alger County)</th>
<th>Number of Excess Establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling Station</td>
<td>617</td>
<td>357</td>
<td>28</td>
</tr>
<tr>
<td>Taverns</td>
<td>931</td>
<td>360</td>
<td>27</td>
</tr>
<tr>
<td>Restaurants</td>
<td>656</td>
<td>286</td>
<td>35</td>
</tr>
<tr>
<td>Grocery Stores</td>
<td>613</td>
<td>278</td>
<td>36</td>
</tr>
</tbody>
</table>

Some Suggested Uses to Which Arkansas Sales Tax Figures Might Be Put

The above is only a small indication of the possibilities which sales-tax statistics hold for the study of Arkansas. For example, little is known about the incomes of Arkansas citizens -- that is, how income varies from one part of the state to another. It would be possible through the use of sales-tax statistics to determine the sales tax paid on a per capita basis in each county. These figures could well be mapped and a very clear picture of the variations in in-
comes would be shown. The results would be far superior and far more intelligible that the state per-capita income figures given us by the United States Department of Commerce. The sales tax is levied on consumer goods and gives a far better picture of the ability of people to buy consumer goods.

By plotting sales-tax statistics on graphs, it is also possible to show seasonal variations in retail sales by counties as a whole, or by types of business in each of the counties. These seasonal variations should be subject to mapping. Such maps and graphs, along with our present knowledge of the economies of the several counties, would allow for a better appraisal of the economic geography of the state as a whole.

It should be possible to characterize counties by the use of such evidence as being agricultural (perhaps by kinds of crops), industrial, forest, tourist, or as being combination counties of these and other activities. There would undoubtedly be major differences in per-capita incomes and in seasonal retail sales between such counties as Mississippi (a cotton county), Pulaski (an urban county) and Garland (a recreation county). We could better relate economic conditions to the natural environment by such methods. The significance of climatic conditions was strikingly apparent in the above-mentioned study of retail sales in Alger County, Michigan.

Another topic of interest would be the effect of Arkansas taxes and the taxes of bordering states on the location of various types of businesses in areas bordering our state lines. The retail sales of Arkansas counties bordering the state line would undoubtedly differ from the retail sales of counties located in the interior of the state.

CONCLUSION

A great deal more use of such statistics is possible than has been suggested above, but the purpose of this paper has been served. It is clear that sales-tax statistics have much to offer to geographers who are interested in further understanding the economic geography of Arkansas.

SALES TAX COLLECTIONS
BY TYPE OF BUSINESS
ALGER COUNTY 1951

![Graph of sales tax collections by type of business](http://scholarworks.uark.edu/jaas/vol8/iss1/17)

Fig. 1. Sales Tax Collections by Type of Business, Alger County, Michigan