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RETAIL SALES ATTRACTION OF NEBRASKA COUNTIES

This article measures and compares the retail attraction of Nebraska counties as trade centers.[1] Data from the last sixteen years provide the basis for current inter-county retail attraction comparisons and analysis. The geographic concentrations of retail sales are also measured and compared with the concentrations of income and population in the state. This analysis complements the previous *Business in Nebraska* study which examined retail sales *volumes* of Nebraska counties in 1982 and 1983.[2]

RETAIL ATTRACTION: MEASUREMENT

Following methods used in previous studies, a county's retail trade attraction is measured by two ratios :[3]

1. The county's retail sales as a percent of the state's retail sales to the county's population as a percent of the state's population
2. The county's retail sales as a percent of the state's retails sales to the county's total personal income as a percent of the state's total personal income

For example, 1982 retail sales in Douglas County were just over $2.7 billion, representing 29.7 percent of the state's retail sales, while Douglas County's population comprised about 25.2 percent of the state's population. Its retail trade attraction was 117 (100 x 29.7/25.2) by the first measure and, since the county's total personal income comprised 29.1 percent of the state's total personal income, 102 by the second measure. Douglas County has a positive retail attraction. Positive, not because its value of sales is large in absolute terms—we would expect Douglas County to have a large volume of retail sales because of its large population—but because its retail sales volume is larger than expected, given its population size and total income. Since the ratios of sales share to population share and income share exceed 100, it is reasonable to assume that retail sales are generated through the attraction of additional consumers, or personal income, or some combination of the two.

To clarify the retail trade attraction measures used :

1. If a county's sales share is equal to its population and income shares, then both the sales-share/population-share and sales-share/income-share ratios are 100. Such a county has zero drawing power, with sales activity equal to its local potential.
2. If a county's sales share is greater than its population and income shares, both ratios will exceed 100. The county has positive drawing power, with sales activity greater than the local potential from its population and income. Additional consumers and personal income are attracted to the county.
3. If a county's sales share is less than its population and income shares, both ratios will be less than 100. The county has negative drawing power, with sales activity less than the local potential from population and income. Consumers and personal income are drawn out of the county.
4. If a county's sales share is greater than its population share but less than its income share, the county has positive drawing power but its sales activity is less than its local potential from income.
5. If a county's sales share is greater than its income share but less than its population share, the county has positive drawing power but its sales activity is less than its local potential from population.

The two retail trade attraction measures were calculated for each county and region for the years 1968 through 1983. Some of the year-to-year fluctuations in the ratios for individual counties were probably due to sampling error in the estimation of the components of the ratios (population, sales, income), rather than actual changes in retail attraction. Simple comparison of any two annual figures (e.g. comparisons of the interval end points 1968 and 1983) was, therefore, not attempted. Instead, averages of the annual ratios over three time periods (1968-1972; 1973-1977; 1978-1983) are reported and examined.

RETAIL ATTRACTION: FINDINGS

The calculated retail attraction ratios described above for each county and region are shown in Table 1.[4] For the period 1978 to 1983, three regions and eighteen counties had average indexes in excess of 100 for both ratios. This indicates that these areas drew additional consumers and personal income in excess of their respective potentials. Region 12 (Hall, Hamilton, Howard, and Merrick) showed the strongest retail attraction, with sales twelve percent greater than its potential as indicated by population and seventeen percent greater than its potential based on income. An examination of the counties within Region 12 indicates that Hall County was responsible for the region's strong showing. It attracted income and consumers from outside the region, and apparently drew strongly from within the region. The other counties within Region 12 had ratios well below 100.

Region 15 (Buffalo and Kearney) and Region 19 (Arthur, Chase, Grant, Keith, and Perkins) also showed a positive attraction. Region 20 (Dundy, Hayes, Hitchcock, and Red Willow) and Region 22 (Banner, Garden, Morrill, and Scotts Bluff) had retail

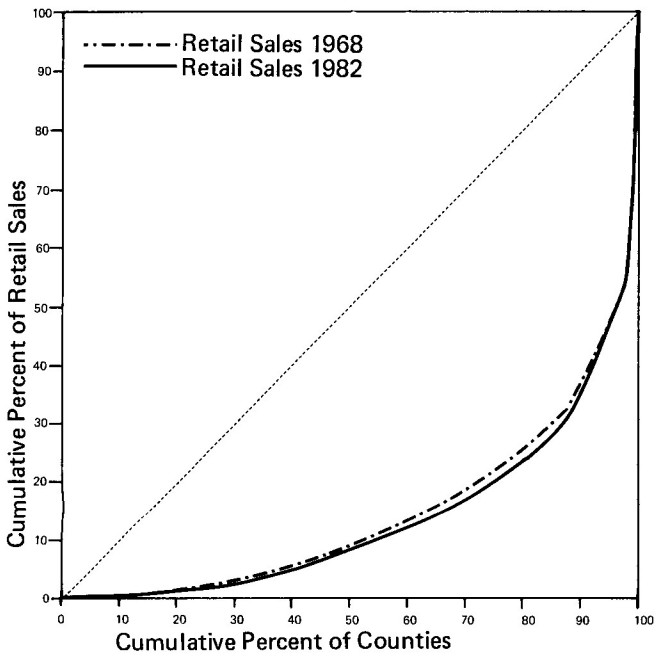
(continued on page 3)

TABLE 1
Retail Attraction of Counties and Development Regions

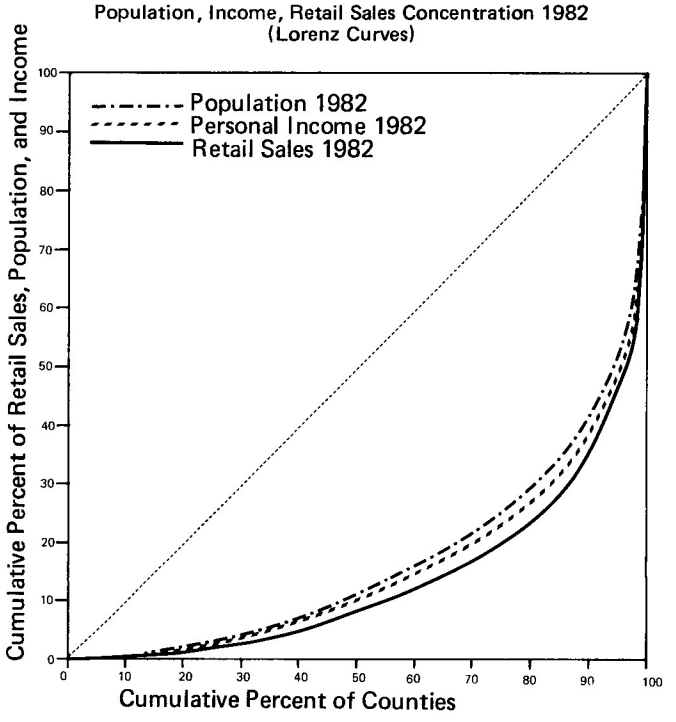
Region and County	Share of Retail Sales to Share of Population (Average) 1968-72	1973-77	1978-83	Share of Retail Sales to Share of Income (Average) 1968-72	1973-77	1978-83
Region 1	112	102	101	102	98	94
Douglas	124	114	115	109	105	101
Sarpy	48	45	40	54	56	50
Washington	79	74	67	77	76	69
Region 2	106	104	97	99	100	93
Lancaster	106	104	97	99	100	93
Region 3	93	75	61	103	86	72
Dakota	93	75	61	103	86	72
Region 4	76	70	63	77	74	66
Cass	61	52	48	62	56	51
Otoe	94	97	87	95	96	93
Saunders	74	68	59	76	72	62
Region 6	92	94	86	93	96	86
Burt	80	87	75	81	91	76
Cuming	76	82	84	83	91	84
Dodge	107	110	100	104	105	95
Thurston	55	47	35	66	57	43
Region 7	77	76	68	81	81	78
Johnson	69	69	66	79	81	79
Nemaha	82	77	68	81	79	76
Pawnee	54	57	51	65	65	59
Richardson	86	84	75	87	88	86
Region 8	77	80	71	84	83	78
Butler	63	66	58	66	67	65
Saline	85	89	81	87	88	80
Seward	78	81	71	93	89	86
Region 9	96	109	94	90	94	91
Fillmore	89	100	85	83	84	77
Polk	65	74	71	61	65	71
York	115	129	109	110	113	107
Region 10	94	99	95	95	100	96
Boone	85	88	84	105	102	91
Colfax	85	87	80	92	94	85
Nance	57	58	55	73	71	70
Platte	106	113	110	96	105	104
Region 11	90	102	91	106	113	95
Antelope	76	84	71	93	104	74
Madison	122	139	123	132	137	117
Pierce	58	67	60	79	84	67
Stanton	44	38	32	52	52	39
Wayne	65	78	76	85	95	91
Region 12	110	121	112	108	121	117
Hall	130	144	136	124	143	136
Hamilton	77	85	71	74	69	73
Howard	67	67	62	81	87	74
Merrick	78	85	67	80	95	81
Region 13	101	109	97	104	107	98
Adams	120	126	108	116	120	105
Clay	70	85	75	69	80	74
Nuckolls	86	89	91	102	99	108
Webster	71	71	65	86	81	75
Region 14	87	91	84	97	93	87
Gage	84	88	83	91	88	85
Jefferson	97	96	89	114	107	97
Thayer	83	92	78	97	88	80
Region 15	101	111	103	112	114	110
Buffalo	105	115	108	124	127	120
Kearney	82	91	79	74	71	69
Region 16	93	101	91	94	102	99
Dawson	108	118	104	102	117	109
Frontier	55	55	52	64	59	61
Furnas	81	80	76	92	84	88
Gosper	65	80	70	71	88	83
Region 17	97	108	97	97	99	97
Franklin	76	81	67	78	78	72
Harlan	76	79	71	82	82	78
Phelps	117	133	123	111	114	113
Region 18	108	107	96	113	113	98
Hooker	83	70	67	101	83	82
Lincoln	113	112	101	117	116	101
Logan	47	41	35	61	55	42
McPherson	25	22	21	33	30	31
Thomas	87	81	71	110	105	87
Region 19	110	127	109	103	108	101
Arthur	42	40	41	62	52	57
Chase	108	135	114	105	106	106
Grant	83	73	75	76	82	81
Keith	125	132	117	118	127	116
Perkins	96	132	101	83	87	74
Region 20	97	105	100	109	102	102
Dundy	74	82	76	83	69	67
Hayes	28	29	28	35	42	46
Hitchcock	54	52	49	62	50	53
Red Willow	125	137	129	138	133	130
Region 21	95	99	99	99	90	86
Cheyenne	89	92	88	102	93	82
Deuel	88	86	81	68	61	63
Kimball	112	118	129	113	102	104
Region 22	102	112	100	110	111	107
Banner	25	35	28	26	29	28
Garden	69	73	65	75	77	71
Morrill	82	95	89	106	108	109
Scotts Bluff	110	119	106	116	117	112
Region 23	91	99	92	109	113	112
Box Butte	100	112	98	109	109	113
Dawes	83	90	86	108	116	109
Sheridan	106	111	101	126	133	120
Sioux	31	34	34	44	53	58
Region 24	85	98	90	113	125	111
Boyd	59	60	54	89	87	69
Brown	98	115	102	112	132	122
Cherry	88	93	91	98	118	106
Holt	89	102	96	133	130	122
Keya Paha	42	40	36	63	80	69
Rock	103	148	105	131	186	115
Region 25	60	66	60	85	89	76
Cedar	61	68	67	95	96	83
Dixon	47	47	40	56	58	48
Knox	66	75	67	98	105	88
Region 26	79	81	74	98	100	89
Blaine	49	49	45	72	72	66
Custer	88	92	83	101	107	97
Garfield	82	86	85	106	117	105
Greeley	63	56	57	83	76	70
Loup	33	30	30	54	54	56
Sherman	69	61	55	90	80	66
Valley	95	106	90	120	123	104
Wheeler	34	40	40	63	55	62

SOURCE: Computations of percentages and ratios in Tables 1 and 2 were made by the Bureau of Business Research using data from the Nebraska Tax Commissioner, U.S. Bureau of the Census and others.

GRAPH 1
Retail Sales Concentration 1968 and 1982
(Lorenz Curves)



GRAPH 2
Population, Income, Retail Sales Concentration 1982
(Lorenz Curves)



(continued from page 1)

sales that equaled their potential based on population (i.e., index = 100), but exceeded sales expectations based on income.

Among counties, Hall had the strongest retail attraction with its retail share thirty-six percent higher than its population and income. Red Willow followed with ratios of 129 and 130. Kimball (129), Phelps (123), and Madison (123) had the next highest sales share to population share, while Holt (122), Brown (122), Buffalo (120), and Sheridan (120) showed strong sales share to income share. A total of nineteen counties displayed a positive retail sales attraction using population as the base, while twenty-six counties displayed a positive retail sales attraction using income as the base.

Lancaster ranked second among counties in terms of retail sales value. This represented a smaller share of total state sales than its population share (97) or income share (93).

Intertemporal comparisons of the ratios in Table 1 provide an *indication* of the trend in drawing power. Between the first (1968-1972) and third (1978-1983) periods, the sales attraction of sixty-three counties declined as measured by their sales share to population share. However, the trend was not uniform over the interval; between the first and second periods thirty counties showed diminished attraction, while between the second and third periods eighty-four counties showed declines. When compared on the basis of sales share to income share, sixty-nine counties declined over the interval; forty counties declined from the first to the second period, while seventy-six decreased between the second and third periods. About a third of the counties increased their drawing power from the other two thirds.

The gains were not shared by, or limited to, counties with positive retail attraction. Of the eighteen counties that had a positive drawing in the third period as measured by both ratios, only five (Brown, Chase, Hall, Phelps, and Platte) increased both attraction measures between the first and third periods. Six counties with positive draws showed mixed results, with one ratio increasing and one decreasing. The other seven counties, although still having a positive attraction in the last period, declined in attraction between the first and third periods.

RETAIL SALES: CONCENTRATION

Graph 1 and Table 2 indicate the distribution of retail sales among Nebraska counties. For the retail sales curve, the vertical and horizontal dimensions of Graph 1 represent cumulative percent of retail sales and cumulative percent of counties, respectively. After ranking the counties by volume of retail sales, the cumulative percentage of counties and retail sales were plotted. The resulting line is called a Lorenz Curve. This device has long been used to measure inequalities in the distribution of wealth, income, population, and other economic and demographic variables. If retail sales were distributed equally among the counties, the Lorenz Curve would be a diagonal line (shown as the dashed forty-five degree line in Graphs 1 and 2). If each county's retail sales were equal, the lowest twenty percent of Nebraska's counties would account for twenty percent of Nebraska retail sales. The actual retail sales Lorenz Curve, however, indicates substantial departure from an even distribution of retail sales. For example, the twenty percent of Nebraska counties having the smallest volume of retail sales accounted for only one percent of the state's retail sales in 1982. A comparison of the retail sales Lorenz Curves for 1968 and 1982 indicates that sales were more concentrated in the latter period. Examination of the Gini Concentration Ratio for other years confirms a modest trend towards greater concentration. The Gini Concentration Ratio measures the proportion of the total area under the diagonal that lies in the area between the diagonal and the Lorenz Curve.

(continued on page 6)

Review and Outlook

Nebraska's economy continues to expand. Net physical volume output increased 3.4 percent March–April 1984. All sectors of the Nebraska economy recorded improvements on a month-to-month basis.

The agricultural sector gained 15.6 percent March–April 1984. Cash farm marketings were $475 million, $35 million above one year ago levels. Prices received by Nebraska agricultural producers were 1.6 percent higher in April 1984 compared with one year ago. Prices received by all U.S. farmers rose 7.3 percent over the same period, sharply higher than the increase Nebraska producers received.

Nebraska's non-agricultural sector grew 1.5 percent March–April 1984. Construction recorded a 9.9 percent jump. Expansion activity in the construction sector occurred before interest rates rose; it is doubtful construction activity improvements can continue at this rate.

Manufacturing output continued to escalate during the period March–April. The Bureau of Business Research's Physical Output Index increased 0.9 percent on a month-to-month basis. Output from Nebraska's manufacturing sector continues to grow, but remains below peak levels established before the recession.

(continued on page 5)

Notes for Tables 1 and 2: (1) The "distributive" indicator represents a composite of wholesale and retail trade; transportation, communication and utilities; finance, insurance, and real estate; and selected services. (2) The "physical volume" indicator and its components represent the dollar volume indicator and its components adjusted for price changes using appropriate price indexes—see Table 5, page 5.

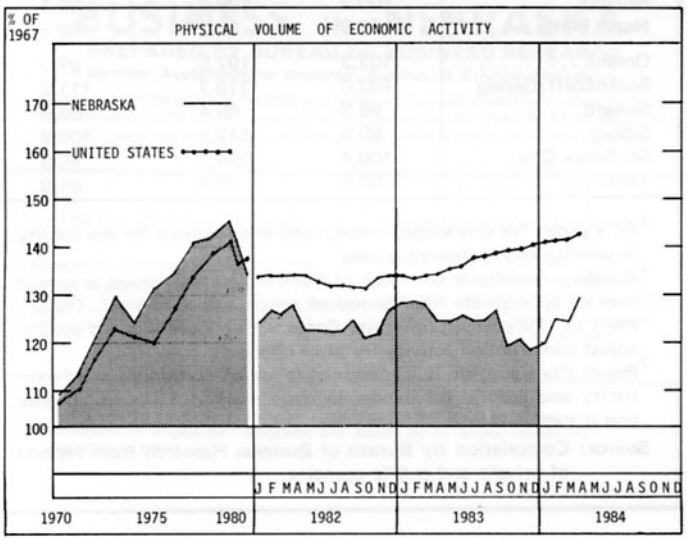
ECONOMIC INDICATORS: NEBRASKA AND UNITED STATES

1. CHANGE FROM PREVIOUS YEAR

April 1984	Current Month as Percent of Same Month Previous Year		1984 Year to Date as percent of 1983 Year to Date	
Indicator	Nebraska	U.S.	Nebraska	U.S.
Dollar Volume	107.9	110.7	102.6	110.4
Agricultural	109.2	93.0	76.6	91.7
Nonagricultural	107.8	111.2	107.2	110.9
Construction	146.9	122.3	143.6	119.6
Manufacturing	115.1	115.8	116.1	115.0
Distributive	102.2	109.9	101.5	109.9
Government	113.4	106.3	113.4	106.3
Physical Volume	103.6	106.0	97.7	105.8
Agricultural	107.5	86.7	72.7	83.8
Nonagricultural	102.9	106.6	102.7	106.5
Construction	142.2	118.4	139.7	116.4
Manufacturing	111.0	111.8	112.5	111.8
Distributive	97.8	105.2	97.2	105.2
Government	104.3	100.3	104.6	100.1

2. CHANGE FROM 1967

Indicator	Percent of 1967 Average	
	Nebraska	U.S.
Dollar Volume	367.8	416.4
Agricultural	359.1	305.4
Nonagricultural	368.9	420.0
Construction	321.5	402.8
Manufacturing	372.1	326.4
Distributive	366.0	473.9
Government	415.6	419.3
Physical Volume	128.5	142.6
Agricultural	139.7	115.2
Nonagricultural	126.7	143.5
Construction	93.5	117.1
Manufacturing	148.8	128.5
Distributive	118.5	153.5
Government	151.3	146.6



3. NET TAXABLE RETAIL SALES OF NEBRASKA REGIONS AND CITIES

Region Number and City	City Sales	Sales in Region	
	April 1984 as percent of April 1983	April 1984 as percent of April 1983	1984 to date as percent of 1983 to date
The State	103.4	105.5	105.8
1 Omaha	105.1	108.2	109.4
Bellevue	109.2		
Blair	103.5		
2 Lincoln	102.4	105.4	109.1
3 So. Sioux City	103.1	99.3	100.2
4 Nebraska City	89.4	99.7	99.6
6 Fremont	102.8	99.9	99.5
West Point	101.2		
7 Falls City	88.9	94.2	95.5
8 Seward	94.2	102.6	103.3
9 York	100.4	104.5	100.9
10 Columbus	102.1	101.8	97.4
11 Norfolk	101.3	100.7	95.4
Wayne	95.1		
12 Grand Island	99.9	102.2	101.1
13 Hastings	105.1	105.8	100.3
14 Beatrice	91.0	92.7	95.7
Fairbury	82.9		
15 Kearney	96.0	98.3	102.5
16 Lexington	101.0	96.6	96.1
17 Holdrege	95.3	94.1	94.2
18 North Platte	96.7	98.3	99.8
19 Ogallala	103.6	98.7	103.0
20 McCook	91.0	92.5	98.0
21 Sidney	104.1	102.1	104.1
Kimball	93.4		
22 Scottsbluff/Gering	100.3	102.2	101.4
23 Alliance	93.6	96.4	97.5
Chadron	89.9		
24 O'Neill	97.6	92.2	94.4
25 Hartington	89.5	90.1	91.4
26 Broken Bow	91.0	91.8	91.9

State totals include sales not allocated to cities or regions. The year-to-year ratios for city and region sales may be misleading because of changes in the portion of unallocated sales. Region totals include, and city totals exclude, motor vehicle sales. Sales are those on which sales taxes are collected by retailers located in the state. Compiled from data provided by Nebraska Department of Revenue.

1984 Year to Date as Percent of 1983 Year to Date in Nebraska's Planning and Development Regions

(continued from page 4)

The distributive trade sector jumped 1.6 percent month-to-month. Government recorded a 0.3 percent increase March–April 1984.

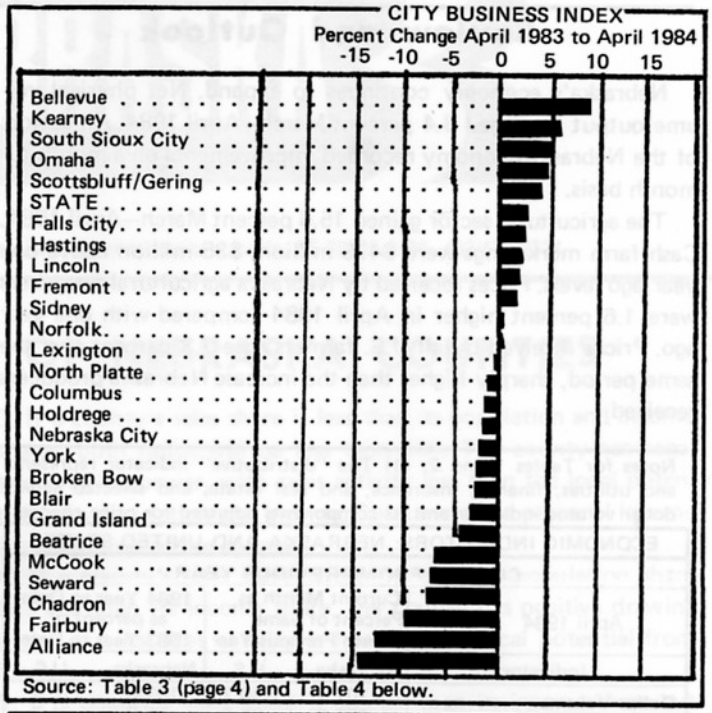
Nebraska's retail sales rose 5.5 percent in April 1984 compared with one year previous. When adjusted for price changes, retail sales gained a scant 0.1 percent. The commodity component of the Consumer Price Index increased 4.0 percent from one year ago, but vehicle prices soared nearly 15.0 percent during the same period.

Nonmotor vehicle sales grew 3.4 percent on a dollar volume basis. When adjusted for price changes, nonmotor vehicle sales were down 0.7 percent on a monthly basis.

Motor vehicle sales continued to show impressive growth. Statewide, motor vehicle sales ballooned 20.2 percent (unadjusted for price changes); they gained 5.4 percent when adjusted for price changes. Motor vehicle sales have been strongest in Omaha, Lincoln, and the Sidney/Kimball area. Kearney and Seward show limited increases. Many nonmetropolitan centers trail last year's sales level for both vehicle and nonmotor vehicle sales.

The Bureau of Business Research's City Business Indexes for twenty-seven communities in the state show strong gains in Bellevue, Kearney, South Sioux City, Omaha, and Scottsbluff/Gering. These communities were above the state average for April 1984 when compared with one year ago.

DONALD E. PURSELL



Source: Table 3 (page 4) and Table 4 below.

4. April 1984 — CITY BUSINESS INDICATORS

The State and Its Trading Centers	Percent of Same Month a Year Ago		
	Employment[1]	Building Activity[2]	Power Consumption[3]
The State	102.2	147.5	98.8
Alliance	101.3	10.6	93.2
Beatrice	110.7	33.5	100.2
Bellevue	102.2	281.9	105.5
Blair	97.3	75.3	94.1
Broken Bow	103.8	138.3	83.9
Chadron	113.6	13.8	127.2
Columbus	101.7	71.9	98.1
Fairbury	102.1	40.3	99.7
Falls City	100.9	545.6	97.3
Fremont	99.8	158.6	108.4*
Grand Island	102.4	51.5	108.8
Hastings	104.3	89.7	76.6
Holdrege	100.6	141.1	101.5
Kearney	104.5	419.9	102.9
Lexington	103.0	86.7	106.6
Lincoln	100.8	151.4	98.1
McCook	98.7	96.9	97.3
Nebraska City	102.0	202.8	99.9
Norfolk	100.2	129.2	98.1
North Platte	104.9	88.2	99.6
Omaha	102.2	197.5	97.7
Scottsbluff/Gering	102.0	219.7	111.8
Seward	98.8	69.4	98.9
Sidney	99.3	112.3	100.3
So. Sioux City	100.4	294.7	98.9
York	100.5	85.4	94.9

[1] As a proxy for city employment, total employment for the county in which a city is located is used.

[2] Building Activity is the value of building permits issued as spread over an appropriate time period of construction. The U.S. Department of Commerce Composite Construction Cost Index is used to adjust construction activity for price changes.

[3] Power Consumption is a combined index of consumption of electricity and natural gas except in cases marked * for which only one is used.

Source: Compilation by Bureau of Business Research from reports of private and public agencies.

5. PRICE INDEXES

April 1984	Index (1967 = 100)	Percent of Same Month Last Year	Year to Date as Percent of Same Period Last Year*
Consumer Prices	308.8	104.5	104.4
Commodity component	280.1	104.0	104.1
Wholesale Prices	311.4	103.6	103.1
Agricultural Prices			
United States	265.0	107.3	109.3
Nebraska	257.0	101.6	105.3

*Using arithmetic average of monthly indexes.
Sources: Consumer and Wholesale Prices: U.S. Bureau of Labor Statistics; Agricultural Prices: U.S. Department of Agriculture.

(continued from page 3)

Graph 2 allows a comparison of the concentration of retail sales with the concentration of income and population in 1982. The respective Lorenz Curves indicate that income was more concentrated than population and retail sales were, in turn, more concentrated than income. An examination of the Gini Concentration Ratio shows a trend of greater concentration in population during the period, but little change in the concentration of income.

DOUGLAS O. LOVE

[1]The tables and graphs in this study were prepared by Karen Krull Robart.

[2]Deichert, Jerome, "Nebraska Retail Sales, 1982-1983," *Business in Nebraska* July 1984

[3]For previous studies examining retail attraction of Nebraska counties, regions, and retail centers, see *Business in Nebraska* articles by Edward L. Hauswald (September 1969 and October 1970) and David Chinchen (December 1980).

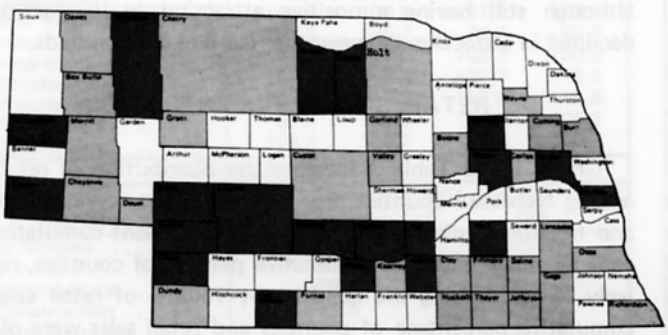
[4]County population and income estimates were not available for 1983. The 1983 ratios were formed using 1982 population and income shares.

TABLE 2
Gini Concentration Ratios
(Nebraska Counties)

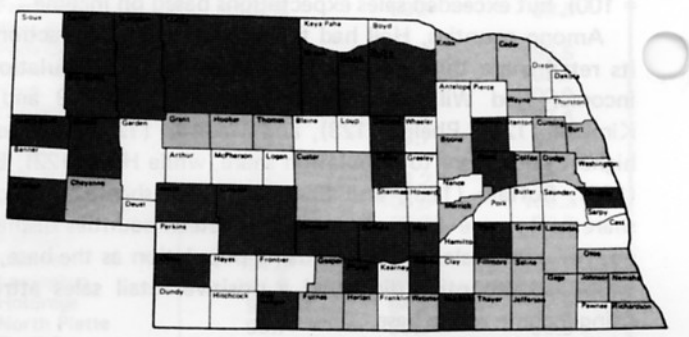
Year	Population	Income	Retail Sales
1968	64.4	69.2	71.4
1969	64.9	68.2	71.3
1970	64.4	68.8	72.1
1971	65.1	68.7	72.4
1972	65.5	67.3	72.5
1973	65.7	64.5	71.2
1974	65.9	68.3	70.9
1975	65.8	67.5	71.1
1976	66.1	69.7	70.9
1977	66.1	70.0	72.2
1978	66.3	69.3	71.0
1979	66.4	68.7	71.3
1980	66.4	69.9	72.3
1981	66.5	68.7	73.2
1982	66.7	69.3	73.0
1983	—	—	74.4

RETAIL ATTRACTION OF COUNTIES
Average (1978–1983)

Share of Retail Sales to Share of Population



Share of Retail Sales to Share of Income



Source : Table 1

100% or more

75% to 99%

Less than 75%

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