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2022 Sales Capture Patterns among Nebraska Counties

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Introduction

Sales capture, the share of local spending power that is captured by area businesses, is an important measure of economic activity. Greater sales capture, which is typically measured using data on local taxable sales, creates multiple economic benefits.

1. **EMPLOYMENT:**

Greater sales capture means more employment in retailers, wholesalers, restaurants, hotels, and other businesses subject to sales tax.

2. **TAX REVENUE:**

Taxable sales are an important part of the tax base of many city governments.

3. **QUALITY OF LIFE:**

Retail and hospitality (restaurants, lodging, amusement, and recreation) businesses account for a significant share of taxable sales. These industries are also crucial to the quality of life. Communities with more hospitality and retail options are more enjoyable places to live, creating advantages in attracting and retaining population.

This report uses county-level taxable sales data from the Nebraska Department of Revenue to calculate sales capture, using a measure called a “pull factor.” The value of the pull factor is found by dividing county per capita taxable sales by the state average per capita taxable sales. The state average represents the expected taxable sales in a county, given its population.

The Taxable Sales Measure

This report utilizes 2022 data. This is the most recent year for which full-year data on county taxable sales is available for Nebraska. By 2022, the Nebraska economy also had recovered in large part from the impacts of COVID-19 on the retail, hospitality, and entertainment industries, three industries that account for a significant share of taxable sales.

This study updates the report “Sales Capture Patterns among Nebraska Counties: which was developed by Spencer Cook and Eric Thompson for publication in the August 2021 edition of *Business in Nebraska*. The 2021 report examined patterns in county pull factors during the year 2019, before the onset of the COVID-19 pandemic. The 2021 report also relied on taxable sales data from the Nebraska Department of Revenue to calculate pull factors.

Taxable sales data from the Nebraska Department of Revenue continues to provide an appropriate measure of sales for use in sale capture analysis. A significant share of taxable sales in Nebraska occurs in industries such as retail stores, restaurants, hotels, and leisure and hospitality industries. These industries primarily reflect the spending patterns of household consumers, and as a result, reflect the quality of life. At the same time, the sales of intermediate manufactured goods are excluded from taxable sales in Nebraska. This is appropriate for the current analysis. Manufacturing activity is a vital component of the local economy but is not a focus for sales capture analysis.

Pull Factor Formula

As stated above, the pull factor value is found by dividing the local (county) per capita taxable sales by the state average per capita taxable sales. This calculation yields a number that exceeds 0. A pull factor value of 1 indicates that the county has the same per capita taxable sales as the state. A value of less than 1 indicates that the county captures less taxable sales than is expected, given its population. A value of more than 1 indicates that the county captures more taxable sales than expected given its population. Most values are close to 1 but some counties have much higher or much lower values. In 2022, the lowest pull factor value was 0.02, and the highest value was 1.37. For context, this result means that the county with the lowest pull factor had just 2% of statewide per capita taxable sales.

Pull Factor by Population

Figure 1 shows the average pull factor for counties grouped by population size. As is evident, more populated counties tend to have a higher pull factor value. In particular, for counties with at least 500 persons, the pull factor rises steadily until county population reaches 20,000 and rapidly after that. This is because larger areas tend to have more shopping centers. Further, certain forms of retail and services cannot be implemented without a large enough local market. The term sales capture comes into play, as people from smaller counties will come into larger counties to do their spending, meaning the smaller counties will lose out on taxable sales to larger counties.

Figure 1 Average Pull Factor by Population Range

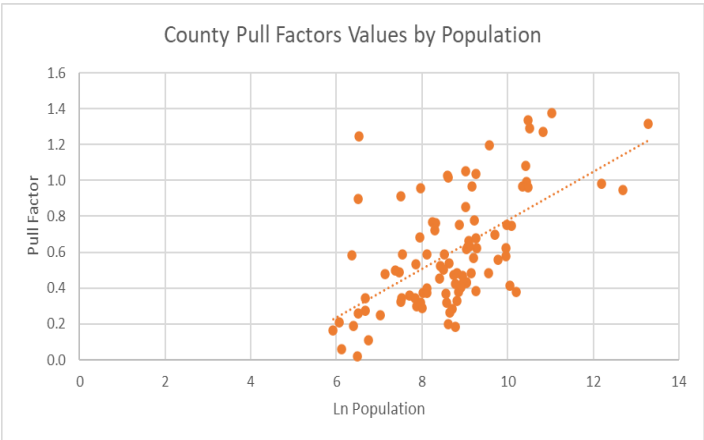
County Population	Average of Pull Factor
Popu<500	0.144
500-999	0.435
1000-2499	0.471
2500-4999	0.527
5000-9999	0.537
10000-19999	0.590
20000-99999	0.913
100000+	1.082

Source: US Census, Nebraska Department of Revenue

Figure 2 shows pull factor values for each individual county as a function of the natural log of the population. The natural log of population measure makes it easier to see the relationship between the

two variables. Pull factors rise as the natural log of population rises. The correlation is 0.592. A correlation of 1.0 would indicate a perfect positive correlation, or that all data points fall perfectly on the line of best fit. Some other factors are influencing pull factor values in Nebraska counties.

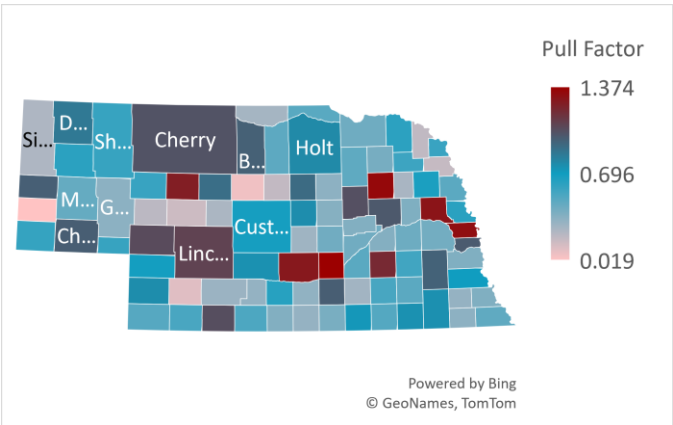
Figure 2 County Pull Factors Values by Population



Source: US Census, Nebraska Department of Revenue

Figure 3 shows a map of pull factor values for all Nebraska counties. Darker colors represent higher pull factors. Note that the counties with high pull factors are not typically clustered together. Rather, they are surrounded by counties with lower pull factors. Specific county values for pull factors and populations are listed in Figure 5.

Figure 3 Map of County Pull Factor Values



This pattern makes sense, given trade leakage. Counties have higher pull factor values because people come in from neighboring counties to spend their money. Leading regional counties which are “trade centers” have pull factor values above 1 while many or all neighboring counties have pull factor values below 1.

In summary, there are two major reasons for counties to have a larger pull factor value: 1) the counties have a larger population, and 2) their population is larger than neighboring counties. Both relative and absolute population matter for sales capture.

Figure 4 shows the results of a regression run on pull factors and the natural log of the population, and whether a county is a trade center. A trade center is defined as a county that has a larger population than adjacent counties. Regressions analysis provides a way to consider the influence of population and trade center status simultaneously.

Figure 4 Regression Results

Ln(pop)	0.105	0.020	5.121	1.72E-06
Trade center	0.303	0.088	3.438	0.001

The natural log of the population has a coefficient of 0.105, and trade center status has a coefficient of 0.303. Both coefficients were also found to be statistically significant, given P-values smaller than .05. In other words, it is highly unlikely that the positive coefficient values arose by chance, suggesting that there is a positive relationship. Nebraska counties with a larger population, and that are a trade center, do tend to have higher pull factor values. Both absolute and relative population contribute to greater sales capture.

How much greater? The coefficient value for the natural log of population indicates that a county with 100 percent more population would be expected to have a pull factor that is 0.105 larger. The coefficient value for the trade center variable indicates that a county which is a trade center would be expected to have a pull factor that is 0.303 higher than a similar county (i.e., same population) that is not a trade center.

Figure 5 Counties by Population Including Pull Factor

County	Population	Pull Factor
Adams	30,970	0.968
Antelope	6,293	0.471

Arthur	433	0.211
Banner	660	0.019
Blaine	453	0.060
Boone	5,385	1.028
Box Butte	10,672	0.621
Boyd	1,741	0.490
Brown	2,872	0.957
Buffalo	50,586	1.272
Burt	6,755	0.483
Butler	8,427	0.433
Cass	27,122	0.378
Cedar	8,371	0.617
Chase	3,772	0.765
Cherry	5,464	1.016
Cheyenne	9,511	0.969
Clay	6,049	0.282
Colfax	10,444	0.382
Cuming	8,929	0.665
Custer	10,476	0.679
Dakota	21,042	0.581
Dawes	8,241	0.851
Dawson	23,884	0.748
Deuel	1,902	0.587
Dixon	5,464	0.197
Dodge	36,997	1.290
Douglas	586,327	1.314
Dundy	1,590	0.499
Fillmore	5,553	0.538
Franklin	2,873	0.320
Frontier	2,633	0.301
Furnas	4,575	0.523
Gage	21,583	0.753
Garden	1,837	0.345
Garfield	1,801	0.911
Gosper	1,808	0.322
Grant	576	0.583
Greeley	2,227	0.361
Hall	62,097	1.374
Hamilton	9,429	0.486
Harlan	3,054	0.374
Hayes	849	0.107
Hitchcock	2,598	0.535
Holt	10,043	0.780
Hooker	686	1.246
Howard	6,515	0.422
Jefferson	7,154	0.750
Johnson	5,287	0.320

Kearney	6,690	0.330
Keith	8,269	1.049
Keya Paha	787	0.273
Kimball	3,315	0.590
Knox	8,336	0.427
Lancaster	324,756	0.949
Lincoln	33,685	1.083
Logan	675	0.257
Loup	599	0.191
Madison	35,368	1.338
McPherson	372	0.162
Merrick	7,721	0.422
Morrill	4,527	0.454
Nance	3,326	0.372
Nemaha	7,035	0.379
Nuckolls	4,041	0.721
Otoe	16,198	0.698
Pawnee	2,528	0.343
Perkins	2,829	0.685
Phelps	8,988	0.632
Pierce	7,332	0.405
Platte	34,296	0.992
Polk	5,166	0.367
Red Willow	10,573	1.038
Richardson	7,705	0.471
Rock	1,245	0.479
Saline	14,116	0.485
Sarpy	196,553	0.983
Saunders	23,118	0.416
Scotts Bluff	35,603	0.963
Seward	17,692	0.558
Sheridan	4,996	0.587
Sherman	2,980	0.291
Sioux	1,127	0.249
Stanton	5,717	0.263
Thayer	4,885	0.504
Thomas	671	0.898
Thurston	6,507	0.184
Valley	4,073	0.764
Washington	21,167	0.624
Wayne	9,871	0.568
Webster	3,336	0.397
Wheeler	785	0.343
York	14,354	1.195

Comparing the pull factor by the population between non-motor and motor vehicle

Figure 6 shows the pattern of motor vehicle taxable sales by county population size. Results for non-motor vehicle taxable sales from Figure 1 are also repeated in Figure 6. The pattern for motor vehicle taxable sales is quite different than the pattern identified by non-motor vehicle taxable sales. The pull factor for motor vehicle taxable sales is largest in the smallest counties and declines steadily with population size.

Pull factor values drop after the population exceeds 5,000. This pattern may reflect that farm and ranch activity is a larger share of the economy in non-metropolitan Nebraska counties. Non-metropolitan households may purchase additional vehicles for use by agricultural businesses. These work vehicles also may be more expensive on average.

Figure 6 Average Pull Factor by Population Range: Non-Motor Vehicle versus Motor Vehicle Taxable Sales

Population	Motor Vehicle Taxable Sales	Non-Motor Vehicle Taxable Sales
Popu<500	1.462	0.144
500-999	1.565	0.435
1000-2499	1.322	0.471
2500-4999	1.349	0.527
5000-9999	1.253	0.537
10000-19999	1.173	0.590
20000-99999	1.086	0.913
100000+	0.904	1.082

Source: US Census, Nebraska Department of Revenue