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 the 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, the pull factor begins to rise steadily after the county population exceeds 10,000 and rapidly above population 20,000. This is because the larger areas tend to have more shopping centers. In addition, 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 the larger counties.

Figure 1 **Average Pull Factor by Population Range**

County Population	Average of Pull Factor
Popu<500	0.536
500-999	0.435
1000-2499	0.471
2500-4999	0.540
5000-9999	0.537
10000-19999	0.599
20000-99999	0.829
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 0.357. 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**
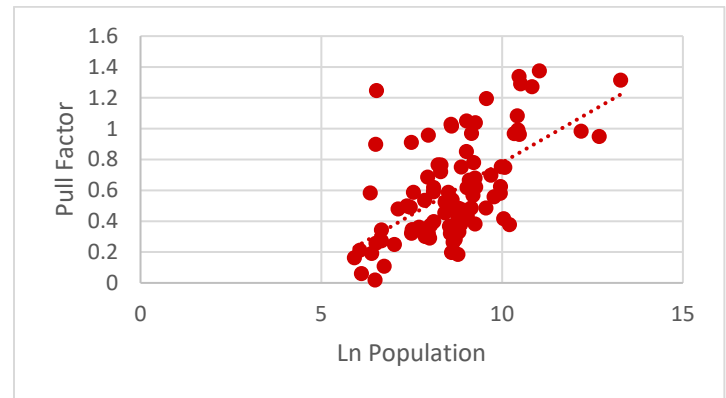
Source: US Census, Nebraska Department of Revenue

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 **Major US regions PSTS Share of Employment**
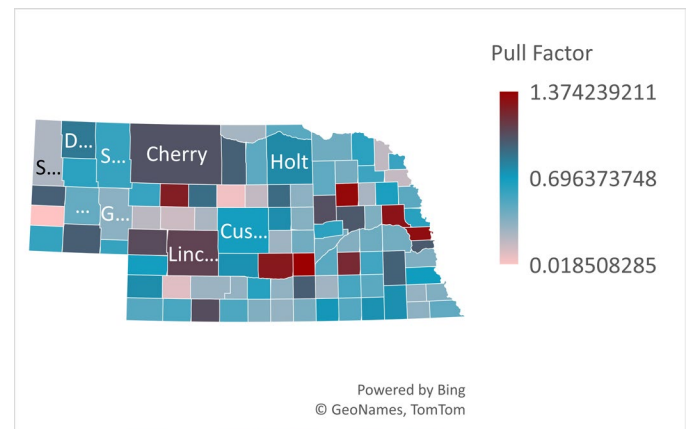
This pattern makes sense, given trade leakage. Counties have higher pull factor values because people come in from neighboring counties to spend their money. Leading regional counties which are "trade centers" have pull factor values above 1 while many or all neighboring counties have pull factor values 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**

Variables	Coefficient	Standard Error	T-Statistic	P-Value
Intercept	-0.337	0.174	-1.932	0.057
Ln(pop)	0.104	0.020	5.095	1.91E-06
Trade center	0.301	0.088	3.418	0.001

The natural log of the population has a coefficient of 0.104, and trade center status has a coefficient of 0.301. 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 populations 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 0.104 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 0.301 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	0.9676506
Antelope	6,293	0.471218403
Arthur	433	0.210876132
Banner	660	0.018508285
Blaine	453	0.060102861
Boone	5,385	1.028115227
Box Butte	10,672	0.620587086
Boyd	1,741	0.490188133
Brown	2,872	0.956720283
Buffalo	50,586	1.271818056
Burt	6,755	0.482592688
Butler	8,427	0.433036594
Cass	27,122	0.377698165
Cedar	8,371	0.617413445
Chase	3,772	0.765234171
Cherry	5,464	1.015929964
Cheyenne	9,511	0.968772073
Clay	6,049	0.282250277
Colfax	10,444	0.38187181
Cuming	8,929	0.665183629
Custer	10,476	0.679307399
Dakota	21,042	0.580510764
Dawes	8,241	0.85172147
Dawson	23,884	0.748362549
Deuel	1,902	0.586579137
Dixon	5,464	0.197322172
Dodge	36,997	1.289980322
Douglas	586,327	1.313865658
Dundy	1,590	0.498975869
Fillmore	5,553	0.538248696
Franklin	2,873	0.319771655
Frontier	2,633	0.300760392
Furnas	4,575	0.523306181
Gage	21,583	0.752917576
Garden	1,837	0.345365645
Garfield	1,801	0.910521255
Gosper	1,808	0.321686839
Grant	576	0.582647258
Greeley	2,227	0.361198631
Hall	62,097	1.374239211
Hamilton	9,429	0.485578913
Harlan	3,054	0.373667501
Hayes	849	0.107153704
Hitchcock	2,598	0.535174146
Holt	10,043	0.779744842
Hooker	686	1.246390337
Howard	6,515	0.422310238
Jefferson	7,154	0.750236031
Johnson	5,287	0.319776162
Kearney	6,690	0.330143602
Keith	8,269	1.049383188

Keya Paha	787	0.272797289
Kimball	3,315	0.590418535
Knox	8,336	0.427206256
Lancaster	324,756	0.94937506
Lincoln	33,685	1.083108458
Logan	675	0.256592971
Loup	599	0.190591289
Madison	35,368	0.162448616
McPherson	372	1.338054204
Merrick	7,721	0.421597221
Morrill	4,527	0.453935909
Nance	3,326	0.617849627
Nemaha	7,035	0.3785618
Nuckolls	4,041	0.720913015
Otoe	16,198	0.698032823
Pawnee	2,528	0.342984114
Perkins	2,829	0.685136875
Phelps	8,988	0.631773757
Pierce	7,332	0.404629658
Platte	34,296	0.99164859
Polk	5,166	0.36671779
Red Willow	10,573	1.037590219
Richardson	7,705	0.470627957
Rock	1,245	0.478729565
Saline	14,116	0.484745447
Sarpy	196,553	0.983477648
Saunders	23,118	0.415862546
Scotts Bluff	35,603	0.962815275
Seward	17,692	0.557872039
Sheridan	4,996	0.586811399
Sherman	2,980	0.290687446
Sioux	1,127	0.248569638
Stanton	5,717	0.262978157
Thayer	4,885	0.504061816
Thomas	671	0.897971738
Thurston	6,507	0.1838645
Valley	4,073	0.763924416
Washington	21,167	0.623705379
Wayne	9,871	0.567639992
Webster	3,336	0.39716691
Wheeler	785	0.343098981
York	14,354	1.195166823

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	0.536
500-999	1.565	0.435
1000-2499	1.322	0.471
2500-4999	1.349	0.540
5000-9999	1.253	0.537
10000-19999	1.173	0.599
20000-99999	1.086	0.829
100000+	0.904	1.082

Source: US Census, Nebraska Department of Revenue