

**COUNTY LOCATION QUOTIENTS:  
A Measure of Economic Activity Based  
on Place of Residence in the 2000  
Census of Kansas**

CD Study Report # 219

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## COUNTY LOCATION QUOTIENTS CD Study Report # 220

### **Introduction:**

This Community Development (CD) Study Report numbered 220 is produced to assist those who are interested in gaining more knowledge about the structure of the Kansas economy. In this report, data from the 2000 Census on self-identified occupations are analyzed. In 2000, a sample of Kansas's residents was asked to state their occupation and their industrial affiliation. Then the Bureau of the Census sorted this data into 13 industrial categories. The Report uses this information on how many and what percent of the State's and each county's population are employed in natural resource based firms, construction firms, and 10 other industries. The authors combined the cluster "Arts, entertainment, recreation, accommodation, and food services" with "Other services except public administration".

This report highlights five out of twelve industries. They are natural resources, construction, manufacturing, retail trading and public administration. Detailed county data for all the industries is found in table 7.

### ***Mathematical Formula:***

$$LQ_{YX} = \frac{(\% \text{ of county Y residents employed in an industry X})}{(\% \text{ of State employment in industry X})}$$

### **Methodology:**

The measure used by the authors is called a Location Quotient (LQ). Normally, regional economists use this measure to estimate the concentration of a cluster of like firms, for example retail businesses, in a locality by comparing some measure of economic activity, such as employment, to a benchmark measure such as state, regional, or national data. The authors are doing something different. We are measuring the concentration of workers in an industry with a LQ regardless of the actual location of the workers' places of employment. Thus, the formula being used in this report is shown below.

When the LQ value for an industry in a county is 1.00, this means the residents employed in the particular industry are employed in the same proportion, as they are Statewide. Below is Table 1 showing both numbers employed in each industry and the percent of total this number represents in Kansas.

**Table: 1 Kansas Profile of Employment by Industry**

<b>Industry</b>	<b>Number</b>	<b>Percent</b>
Agriculture, forestry, fishing and hunting, and mining	50,508	3.8
Construction	85,298	6.5
Manufacturing	197,960	15.0
Wholesale trade	43,786	3.3
Retail trade	151,262	11.5
Transportation and warehousing, and utilities	68,864	5.2
Information	44,030	3.3
FIRE	80,129	6.1
Professional, scientific, management, administrative, and waste management services	94,768	7.2
Educational, health and social services	288,200	21.9
Art, entertainment, recreation, accommodation and food services	91,807	7.0
Other services (except public administration)	61,122	4.6
Public administration	58,549	4.4

Source: Census 2000 summary file 3 (SF 3)-sample data

**Natural Resources Location Quotients:**

Natural resources include agriculture, forestry, fishing and hunting and mining. Fifty-five counties have 3.0 or greater natural resources location quotients. The percent of county residents employed in natural resource activities is 3 or greater times the percent employed in this sector state wide. Wichita County has the highest natural resource LQ value, 9.08. The higher location quotient areas for natural resources are clustered in the Northwest and the Southwest Kansas. Fourteen counties have location quotients lower than 1.00. Wyandotte County and Johnson County have the lowest natural resource LQ value, 0.11. The lower location quotients areas for natural resources are line up the counties with large urban centers. The county average natural resources location quotient is 0.924. (see Map:1)

For Natural Resources industry, the following 17 counties have LQs of at least 6.00:

**Table: 2**

Wichita	9.08	Morton	6.58
Greeley	8.11	Scott	6.55
Stanton	7.82	Cheyenne	6.45
Hamilton	7.71	Gove	6.45
Haskell	7.26	Wallace	6.37
Sheridan	7.05	Stevens	6.24
Lane	6.95	Gray	6.21
Ness	6.84	Hodgeman	6.03
Rawlins	6.79		

**Construction Location Quotients:**

This data identifies counties with high and low concentration of construction workers. Twenty-one counties have 1.20 or greater construction location quotients. Miami County has the highest construction LQ value, 2.12. The higher location quotient areas for construction

are mostly clustered in the Eastern half of the State. Many live in counties adjacent to Douglas, Johnson, and Shawnee counties. Twenty-one counties have location quotients lower than .85. Logan County has the lowest construction LQ value, 0.68. The county average construction location quotient is 1.05 (see Map: 2)

For construction sector, the following 21 counties have LQs of at least 1.26:

**Table : 3**

Miami	2.12	Elk	1.40
Linn	2.02	Washington	1.37
Anderson	1.72	Gray	1.35
Osage	1.65	Leavenworth	1.34
Jefferson	1.62	Grant	1.34
Pottawatomie	1.54	Franklin	1.34
Jewell	1.54	Coffey	1.32
Wabaunsee	1.52	Graham	1.31
Greenwood	1.52	Cherokee	1.31
Clay	1.46	Morris	1.26
Jackson	1.43		

**Manufacturing Location Quotients:**

Thirty-one counties have 1.00 or greater manufacturing location quotient. Allen County has the highest manufacturing LQ value, 1.78. The higher location quotient areas for manufacturing are clustered from South-Central to South-East Kansas. Thirty-five counties have location quotients lower than 0.50. Sheridan County has the lowest manufacturing LQ value, 0.10. The lower location quotients areas for manufacturing are clustered in Western Kansas. The county average manufacturing location quotient is 0.764. (See Map:3)

For Manufacturing Industry the Following 16 counties have LQs of at least 1.40:

**Table: 4**

Allen	1.78	Sumner	1.63
Montgomery	1.74	Neosho	1.60
Butler	1.70	Cowley	1.54
Cherokee	1.70	Seward	1.52
Wilson	1.69	Lyon	1.51
McPherson	1.67	Finney	1.47
Ford	1.67	Labette	1.45
Sedgwick	1.63	Harvey	1.40

**Retailing Location Quotients:**

Twenty-nine counties have 1.00 or greater retailing location quotient. Geary County has the highest retailing LQ value, 1.39. The high location quotients are distributed widely across Kansas. In fact, every region represented. Twenty-three counties have location quotients lower than 0.80. Rush County has the lowest retailing LQ value, 0.49. The lower location quotients areas are most often in southern half of Kansas and they are clustered in Southwest and Southeast Kansas. The county average retailing location quotient is 0.924. (See Map:4)

For Retailing Industry the Following 18 counties have LQs of at least 1.10:

**Table :5**

Sherman	1.43	Reno	1.21
Geary	1.39	Ellis	1.17
Dickinson	1.35	Riley	1.15
Logan	1.29	Thomas	1.15
Anderson	1.28	Cloud	1.13
Cheyenne	1.28	Barton	1.12
Franklin	1.27	Pratt	1.12
Norton	1.26	Republic	1.10
Osage	1.22	Smith	1.10

**Public Administration Location Quotients:**

Twenty-one counties have 1.01 or greater public administration location quotients.

Norton County has the highest public administration LQ value, 2.52. The higher location quotients are found in counties with a military reservation, a state capital, and other state institutions such as Kansas State University. Also, there is a relationship between high public administration LQ and counties that are highly depended on natural resource base economic activity. Twenty counties have location quotients lower than 0.75. Scott County has the lowest public administration LQ value, 0.45. The county average public administration location quotient is 1.054. (See Map: 5)

For Public Administration Industry Following 17 counties have LQs of at least 1.41:

**Table : 6**

Norton	2.52	Mitchell	1.55
Shawnee	2.27	Jefferson	1.48
Geary	2.25	Woodson	1.45
Leavenworth	2.25	Lane	1.43
Ellsworth	2.00	Wabaunsee	1.43
Pawnee	1.95	Clark	1.41
Osage	1.89	Decatur	1.41
Chase	1.68	Wallace	1.41
Jackson	1.61		

**Table :7****County Location Quotients for twelve sectors:**

	Natural Resources	Cons	Manuf	Wholesale	Retail	Trans(T,W,U)	Inform	FIRE	Profes	Educational, health and social services	Other	Government
Allen	1.42	1.03	1.78	0.79	0.99	0.96	0.55	0.57	0.35	0.98	0.81	0.80
Anderson	2.76	1.72	0.82	0.42	1.28	1.58	0.52	0.69	0.36	0.94	0.77	0.84
Atchison	1.11	1.05	1.21	0.97	0.86	1.00	0.36	0.70	0.33	1.24	1.00	1.32
Barber	4.29	0.88	0.61	1.09	0.82	1.42	0.24	0.79	0.60	1.15	0.90	0.66
Barton	2.58	0.92	0.77	1.33	1.12	1.02	0.39	0.84	0.68	1.07	1.08	0.86
Bourbon	1.11	0.94	1.32	1.79	0.88	0.81	0.52	1.33	0.49	1.04	0.85	0.86
Brown	2.21	0.97	0.73	0.76	0.78	1.08	0.42	0.74	0.42	1.09	1.59	1.39
Butler	0.76	1.12	1.70	0.64	0.87	0.83	0.52	0.84	0.69	0.97	0.97	0.86
Chase	3.18	0.92	0.97	1.12	0.74	1.12	0.67	0.57	0.58	0.84	1.18	1.68
Chautauqua	4.79	1.12	0.72	0.48	0.53	1.21	0.61	0.59	0.47	1.30	0.81	0.66
Cherokee	1.00	1.31	1.70	0.85	0.90	1.06	0.30	0.56	0.46	1.00	0.90	0.80
Cheyenne	6.45	0.72	0.19	1.12	1.28	1.19	0.30	0.69	0.69	0.90	0.74	1.09
Clark	5.47	0.83	0.25	0.61	0.81	1.35	0.21	0.70	0.64	1.34	0.59	1.41
Clay	2.97	1.46	0.82	0.76	0.95	0.92	0.42	0.64	0.56	1.19	0.81	0.91
Cloud	2.18	0.91	0.74	1.58	1.13	1.37	0.61	0.52	0.38	1.20	1.01	0.82
Coffey	2.32	1.32	0.64	0.67	0.81	3.31	0.67	0.59	0.32	1.00	0.79	1.14
Comanche	5.26	1.15	0.40	1.18	0.58	1.33	0.24	0.72	0.35	1.21	1.02	0.64
Cowley	1.08	1.03	1.54	0.55	0.77	1.04	0.48	0.54	0.43	1.17	1.01	1.07
Crawford	0.58	0.94	1.13	0.94	0.81	0.73	0.48	0.62	0.83	1.38	1.16	0.84
Decatur	5.87	1.11	0.13	1.06	0.95	1.23	0.42	0.79	0.51	1.08	0.69	1.41
Dickinson	2.05	1.18	0.86	1.06	1.35	1.48	0.67	0.69	0.39	0.89	0.96	1.14
Doniphan	2.13	1.00	1.01	1.21	0.87	1.15	0.45	0.72	0.57	1.14	0.96	1.00
Douglas	0.26	0.97	0.61	0.55	1.03	0.60	1.33	0.95	1.14	1.34	1.30	0.89
Edwards	5.34	0.91	0.88	1.12	0.79	0.98	0.42	0.48	0.49	0.98	0.67	1.27
Elk	4.84	1.40	1.03	0.48	0.62	1.35	0.27	0.46	0.38	1.05	0.76	0.68
Ellis	1.45	0.71	0.43	0.67	1.17	0.88	0.70	0.64	1.08	1.38	1.23	1.07
Ellsworth	3.21	0.83	0.73	0.79	0.91	1.02	0.76	0.62	0.71	1.03	0.89	2.00
Finney	2.00	1.17	1.47	1.15	1.05	1.02	0.36	0.61	0.49	0.88	0.85	0.91
Ford	1.50	0.89	1.67	1.12	0.97	0.96	0.58	0.72	0.56	0.88	0.90	0.82
Franklin	1.08	1.34	1.05	0.85	1.27	1.17	0.76	0.77	0.69	0.97	0.94	0.80
Geary	0.53	0.82	0.73	0.79	1.39	0.92	1.00	0.69	0.75	0.99	1.20	2.25
Gove	6.45	0.95	0.29	0.82	0.83	1.10	0.61	0.72	0.33	1.12	0.94	0.64
Graham	4.50	1.31	0.11	0.58	0.90	1.17	0.67	0.64	0.61	1.30	0.90	1.18
Grant	5.24	1.34	0.41	0.88	0.70	2.29	1.18	0.74	0.44	0.76	1.02	0.52
Gray	6.21	1.35	0.42	1.58	0.79	1.27	0.33	0.79	0.50	0.87	0.62	1.05

Greeley	8.11	1.09	0.19	1.03	0.90	1.35	0.64	0.39	0.56	0.95	0.36	1.16
Greenwood	2.55	1.52	0.84	0.76	0.86	0.81	0.39	0.80	0.60	1.11	0.90	1.39
Hamilton	7.71	0.89	0.12	0.85	0.67	1.33	0.52	0.61	0.46	0.86	1.06	1.32
Harper	3.39	0.72	1.15	0.67	0.80	0.96	0.24	0.72	0.50	1.01	1.22	0.84
Harvey	0.74	0.98	1.40	0.79	0.93	0.81	0.64	0.69	0.50	1.28	0.97	0.70
Haskell	7.26	0.85	0.30	1.36	0.82	1.65	0.21	0.54	0.58	0.97	0.66	0.59
Hodgeman	6.03	0.72	0.39	0.45	1.08	1.35	0.30	0.66	0.38	1.09	0.74	1.16
Jackson	1.63	1.43	0.71	0.79	0.88	1.31	0.42	1.02	0.56	0.94	1.30	1.61
Jefferson	1.00	1.62	0.84	0.67	0.96	1.31	0.61	1.02	0.79	1.01	0.92	1.48
Jewell	5.87	1.54	0.33	0.76	0.80	1.37	0.42	0.56	0.32	0.96	0.95	1.09
Johnson	0.11	0.85	0.64	1.45	1.04	0.85	2.27	1.66	1.88	0.86	0.88	0.70
Kearney	5.92	0.97	0.58	0.70	0.82	1.60	0.45	0.44	0.36	1.11	0.62	0.93
Kingman	3.05	1.00	1.23	0.76	0.90	1.27	0.33	0.77	0.61	1.04	0.67	0.77
Kiowa	4.87	0.80	0.25	1.12	0.74	1.94	0.48	0.41	0.54	1.21	0.99	0.93
Labette	1.08	0.72	1.45	0.67	0.90	1.06	0.45	0.54	0.54	1.21	1.02	0.95
Lane	6.95	0.78	0.14	1.76	0.68	2.02	0.27	0.97	0.31	0.84	0.74	1.43
Leavenworth	0.34	1.34	0.57	0.76	0.98	1.29	1.12	1.07	1.11	1.03	0.91	2.25
Lincoln	5.05	1.18	0.70	0.67	0.81	1.29	0.33	0.52	0.50	1.07	0.65	1.23
Linn	1.39	2.02	0.68	0.85	0.96	1.90	0.52	1.11	0.64	0.99	0.74	1.00
Logan	5.00	0.68	0.15	0.82	1.29	1.48	0.67	0.84	0.26	0.96	1.31	0.86
Lyon	0.71	0.75	1.51	0.76	1.01	0.87	0.97	0.61	0.49	1.03	1.22	0.91
Marion	2.71	1.00	1.11	0.94	0.83	1.06	0.45	0.67	0.40	1.24	0.89	0.57
Marshall	3.11	0.82	1.01	0.67	0.94	1.85	0.27	0.77	0.39	1.01	1.00	0.66
McPherson	1.42	1.03	1.67	0.67	0.76	0.77	0.48	0.89	0.50	1.05	1.03	0.48
Meade	5.74	0.95	0.35	0.91	0.79	1.63	0.39	0.51	0.35	1.06	1.00	1.00
Miami	0.95	2.12	0.85	0.91	1.01	1.19	1.27	1.21	0.93	0.86	0.68	0.86
Mitchell	3.21	0.86	0.62	2.33	0.95	1.00	0.42	0.89	0.54	1.01	0.81	1.55
Montgomery	0.95	0.71	1.74	0.67	1.04	0.92	0.73	0.62	0.79	0.91	1.00	0.75
Morris	3.11	1.26	0.89	1.03	0.77	1.42	0.24	0.72	0.49	1.02	0.90	1.23
Morton	6.58	0.74	0.16	0.76	0.72	1.25	0.85	0.57	0.43	1.23	0.72	1.05
Nemaha	3.05	0.83	1.11	0.73	0.94	1.38	0.52	0.56	0.49	1.05	0.97	0.70
Neosho	1.21	1.15	1.60	0.70	1.00	0.96	0.39	0.54	0.47	1.03	0.93	0.86
Ness	6.84	0.88	0.22	0.82	0.73	1.08	0.45	0.92	0.42	1.11	0.90	0.77
Norton	3.34	0.88	0.26	0.58	1.26	1.19	0.82	0.64	0.39	0.97	1.15	2.52
Osage	1.29	1.65	0.69	0.94	1.22	1.54	0.58	0.77	0.64	0.89	0.86	1.89
Osborne	4.47	1.06	0.77	0.91	1.03	1.17	0.55	0.79	0.49	0.93	0.74	0.98
Ottawa	2.55	1.12	1.01	0.97	0.98	1.40	0.48	0.75	0.69	0.96	0.84	0.93
Pawnee	3.58	0.94	0.20	0.79	0.86	1.04	0.30	0.59	0.44	1.49	0.88	1.95
Phillips	4.08	0.94	0.75	0.55	0.81	1.60	0.52	0.87	0.36	1.09	0.88	0.93
Pottawatomie	1.61	1.54	0.65	0.82	0.90	1.31	0.61	0.77	0.57	1.23	0.91	1.34
Pratt	3.45	0.89	0.25	1.30	1.12	1.46	0.24	0.57	0.42	1.11	1.32	1.27

Rawlins	6.79	0.95	0.19	0.97	0.83	1.13	0.79	0.61	0.51	1.02	0.86	0.98
Reno	1.00	0.95	1.12	1.03	1.21	0.88	0.67	0.66	0.74	1.06	1.07	0.95
Republic	5.11	0.92	0.75	1.12	1.10	1.44	0.48	0.57	0.51	0.81	0.79	0.86
Rice	2.84	0.89	0.81	0.82	0.90	1.44	0.55	0.67	0.56	1.25	0.88	0.68
Riley	0.55	0.86	0.25	0.45	1.15	0.42	0.76	0.93	1.01	1.59	1.36	1.25
Rooks	4.63	0.95	0.74	0.97	0.83	1.40	1.18	0.64	0.35	0.90	0.80	1.27
Rush	3.89	0.98	0.85	1.21	0.49	1.31	0.76	0.57	0.60	1.10	0.88	1.16
Russell	3.63	1.03	0.60	0.36	0.86	0.77	0.61	0.93	0.78	1.06	1.35	0.75
Saline	0.55	1.12	1.15	1.00	1.09	0.85	0.76	0.79	0.75	1.02	1.27	0.75
Scott	6.55	1.12	0.23	0.85	0.96	1.08	0.15	0.77	0.74	0.97	0.97	0.45
Sedgwick	0.21	0.92	1.63	0.97	0.99	0.75	0.67	0.90	1.00	0.89	1.06	0.75
Seward	3.03	0.69	1.52	0.82	0.98	1.17	0.36	0.57	0.61	0.75	1.04	0.77
Shawnee	0.18	0.95	0.61	0.94	0.99	1.29	1.15	1.31	0.99	1.02	1.00	2.27
Sheridan	7.05	0.75	0.10	1.45	0.96	1.40	0.12	0.74	0.51	0.97	0.91	0.80
Sherman	3.29	1.12	0.25	1.33	1.43	1.00	1.12	0.80	0.44	1.01	0.99	1.16
Smith	4.53	0.83	0.53	0.61	1.10	1.63	0.42	0.87	0.38	1.15	0.61	1.05
Stafford	5.50	0.80	0.40	1.15	0.60	1.27	0.12	0.57	0.46	1.32	0.84	1.11
Stanton	7.82	1.02	0.35	1.48	0.79	1.25	0.27	0.41	0.32	0.86	0.73	1.05
Stevens	6.24	0.98	0.31	0.94	0.99	1.98	0.27	0.75	0.44	0.85	0.95	0.48
Sumner	1.55	0.95	1.63	0.76	0.81	1.31	0.58	0.62	0.42	1.03	0.91	0.70
Thomas	3.47	1.03	0.19	1.24	1.15	1.08	0.64	0.87	0.53	1.19	1.16	0.84
Trego	4.84	0.83	0.23	0.36	1.07	1.85	0.39	0.70	0.42	0.97	1.38	0.80
Wabaunsee	2.21	1.52	0.78	1.06	0.81	1.50	0.61	0.92	0.50	1.11	0.66	1.43
Wallace	6.37	0.98	0.20	1.91	0.75	1.54	0.55	0.59	0.68	0.76	0.89	1.41
Washington	4.92	1.37	0.69	0.70	0.94	0.94	0.48	0.56	0.39	1.04	0.82	0.86
Wichita	9.08	0.91	0.29	0.64	0.75	1.71	0.30	0.64	0.21	0.85	0.61	0.84
Wilson	1.95	1.18	1.69	2.73	0.61	0.27	1.18	0.75	2.86	0.16	0.69	0.86
Woodson	2.82	1.14	1.25	0.27	0.90	1.44	0.52	0.64	0.54	0.82	0.90	1.45
Wyandotte	0.11	1.17	0.96	1.27	0.99	1.63	1.00	0.97	1.22	0.83	1.06	1.11
Average	3.40	1.05	0.76	0.93	0.92	1.24	0.57	0.73	0.58	1.04	0.93	1.05

FIRE : Finance, Insurance, Real Estate