Lightcast

COVID-19: Economic Impact Analysis on Flint Hills Regional Council Region

Regional Report

July 2022

Acknowledgements

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Lightcast provides labor market data that helps to create better outcomes for communities. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. A variety of our clients use Lightcast to align programs with regional needs and demonstrate their institution's economic impact on their region. Visit https://lightcast.io/ to learn more or connect with us.

INTRODUCTION

The Flint Hills Economic Development District (FHEDD) represents seven counties in eastern Kansas. The region includes Chase, Geary, Lyon, Morris, Riley, Pottawatomie and Wabaunsee Counties. In 2020, the Flint Hills Region population was about 178,000 people, with a total regional employment of just over 94,000 jobs.

The Flint Hills Region economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Flint Hills Region generates new dollars and creates opportunities in the region. When COVID-19 arrived, all these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

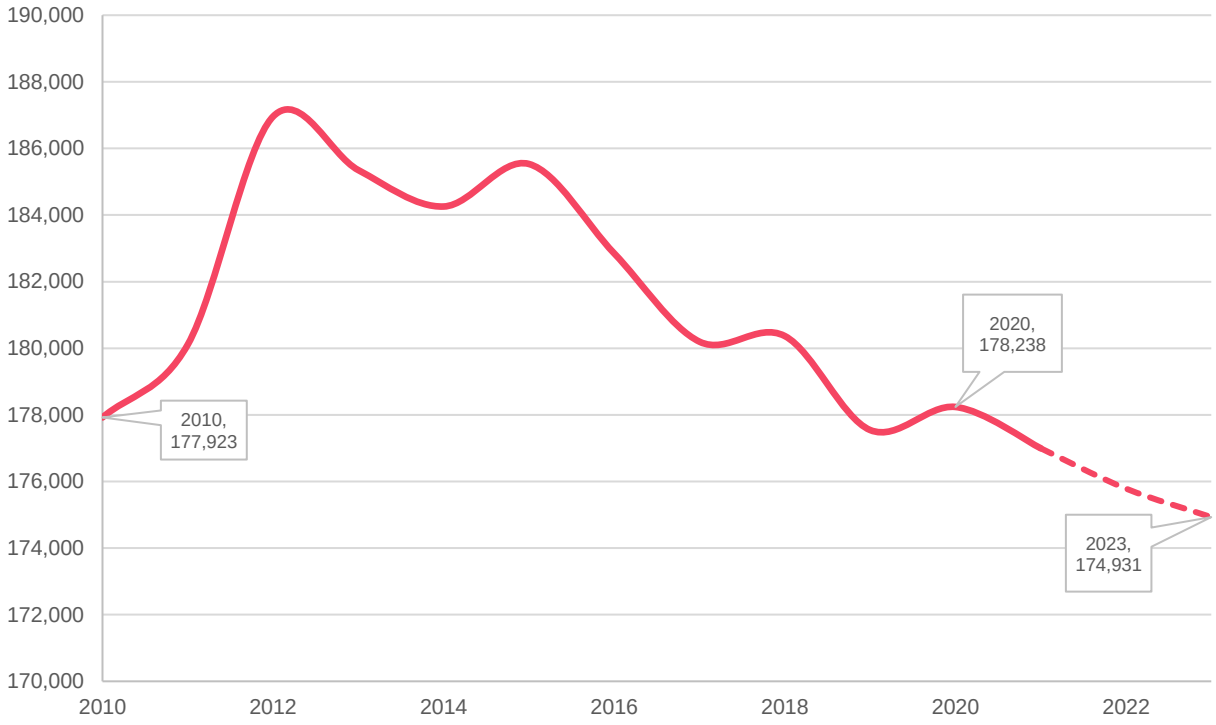
Labor Force in Flint Hills Region creates new opportunities in the region.

The purpose of this report is to outline the region's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, nearly 178,000 people resided in Flint Hills Region. Population in the region peaked in 2012 but has seen a steady decline since then. In 2020, the population was nearly the same as the 2010 population. Population is expected to continue to decline through 2023 (Figure 01).

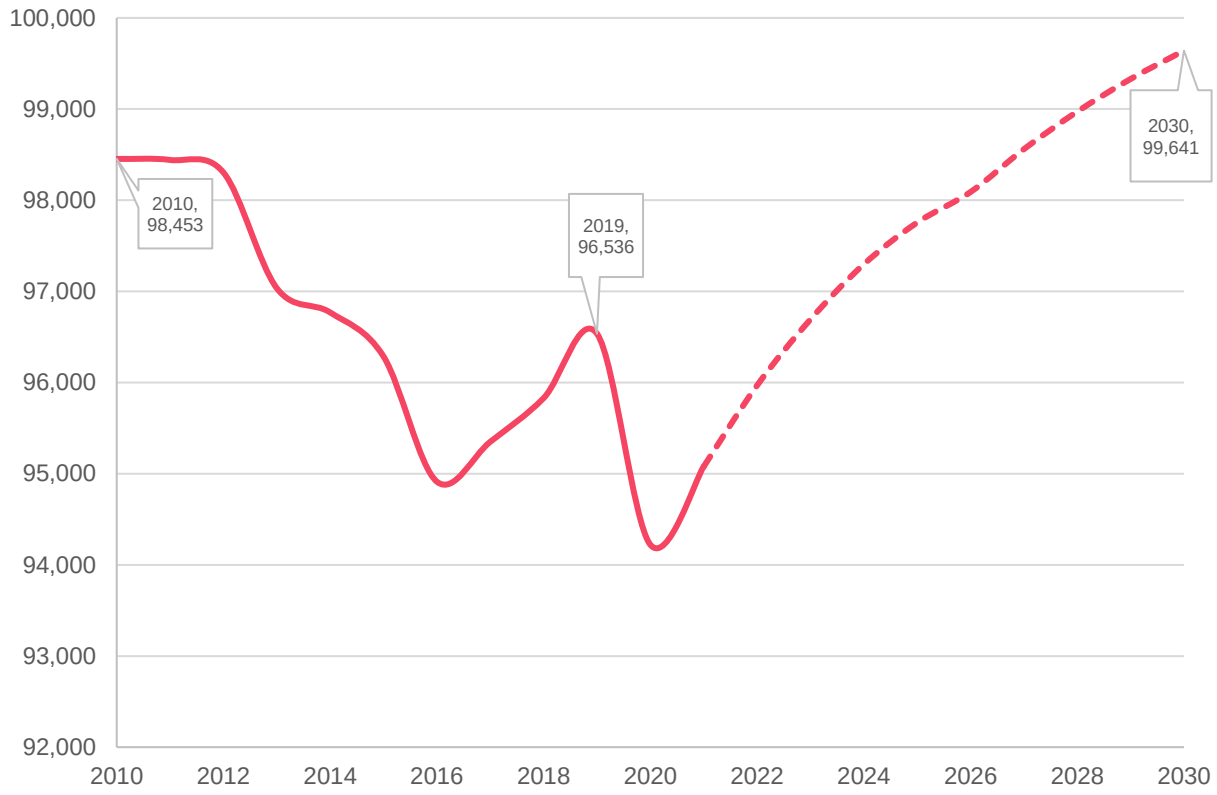
Figure 01: Historical and Projected Population in Flint Hills Region, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Flint Hills Region supported an annual average of about 98,500 jobs in 2010. Job growth has fluctuated a bit over time. While the region saw growth from 2016 to 2019, jobs dipped down in 2020 to just over 94,000. Contrary to population decline, jobs are projected to grow to a peak of nearly 100,000 jobs through 2030. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

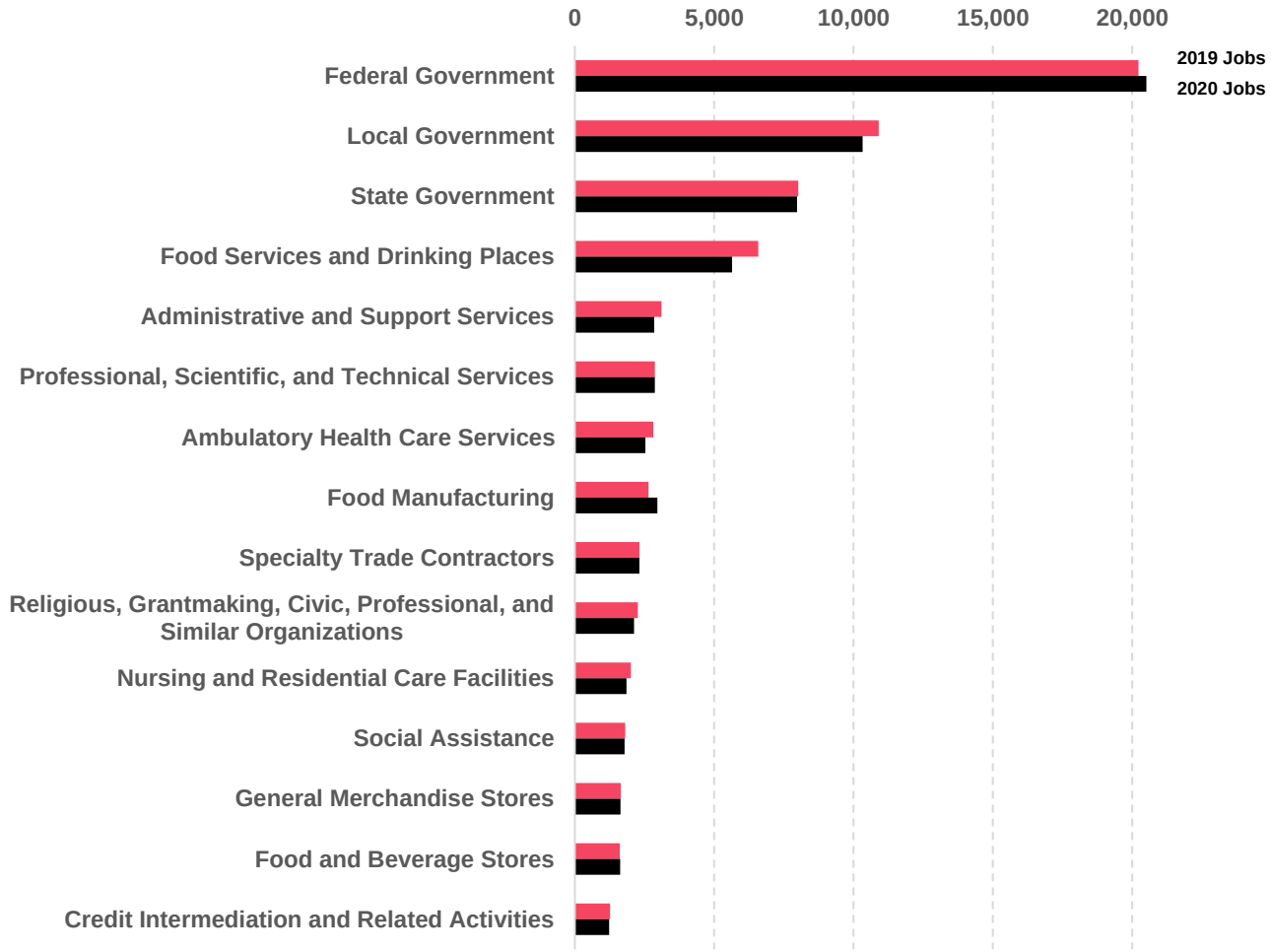
Figure 02: Historical and Projected Jobs in Flint Hills Region, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Flint Hills Region. In 2019 and in 2020, Federal Government had the highest number of jobs out of all industries, followed by Local and State Governments. Food Manufacturing saw the highest increase of jobs from 2019 to 2020.

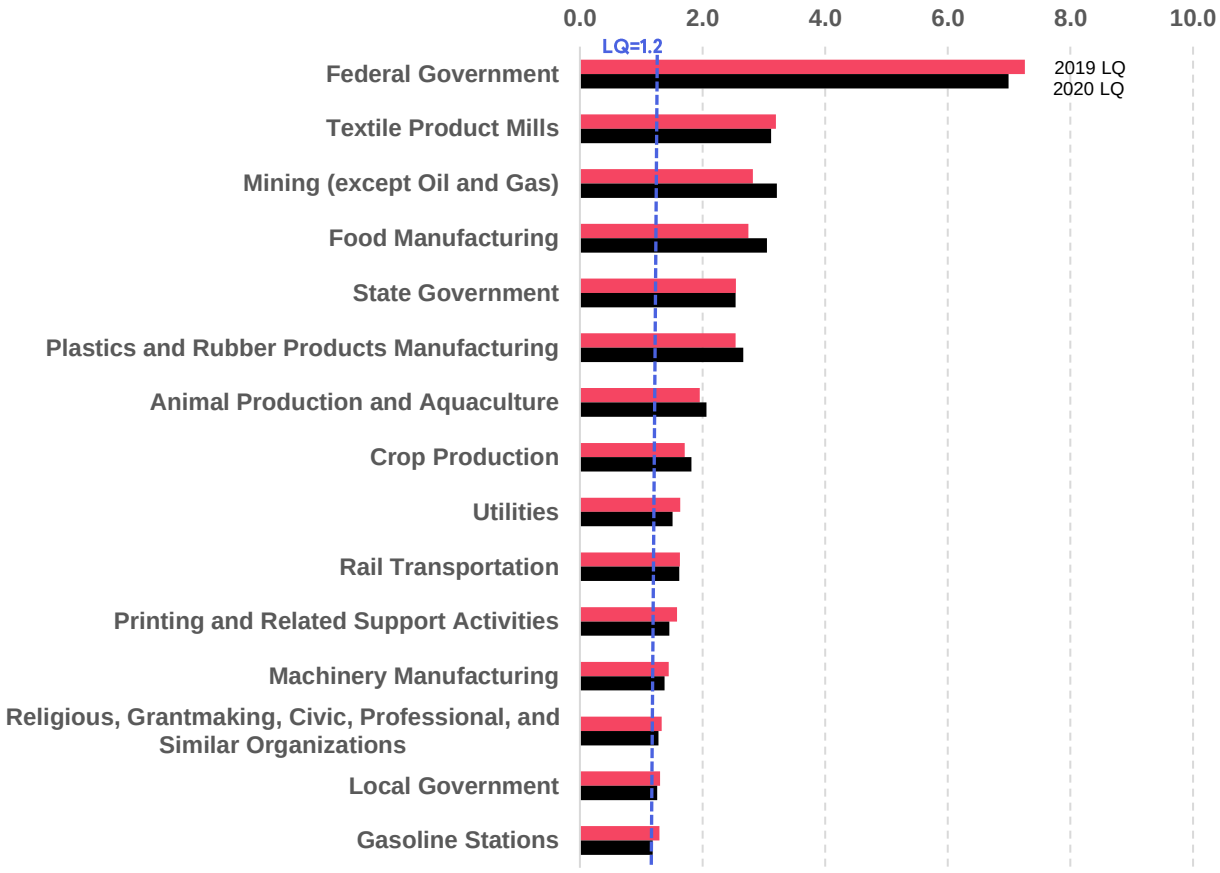
Figure 03: Top Industry Subsectors in Flint Hills Region by Jobs



Source: Lightcast 2022.2.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. The Flint Hills region has an extremely high concentration of Federal Government.

Figure 04: Top Industry Subsectors in Flint Hills Region by Employment Concentration



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, only five industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Federal Government
- Local Government
- State Government
- Food Manufacturing
- Religious, Grantmaking, Civic, Professional, and Similar Organizations

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Flint Hills Region has a lower median household income and average per capita income than Kansas and the US. Unemployment rates and poverty rates are lower than all comparison regions, but just slightly below Kansas rates.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Flint Hills Region	$54,243	5.07%	$26,844	7.10%
Kansas	$59,597	5.89%	$31,814	7.80%
United States	$62,843	8.07%	$34,103	9.50%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Flint Hills Region, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Flint Hills Region shows the highest percentage of Some College, Associate's Degrees and Degrees above Bachelor's level attainment when compared against the different regions.

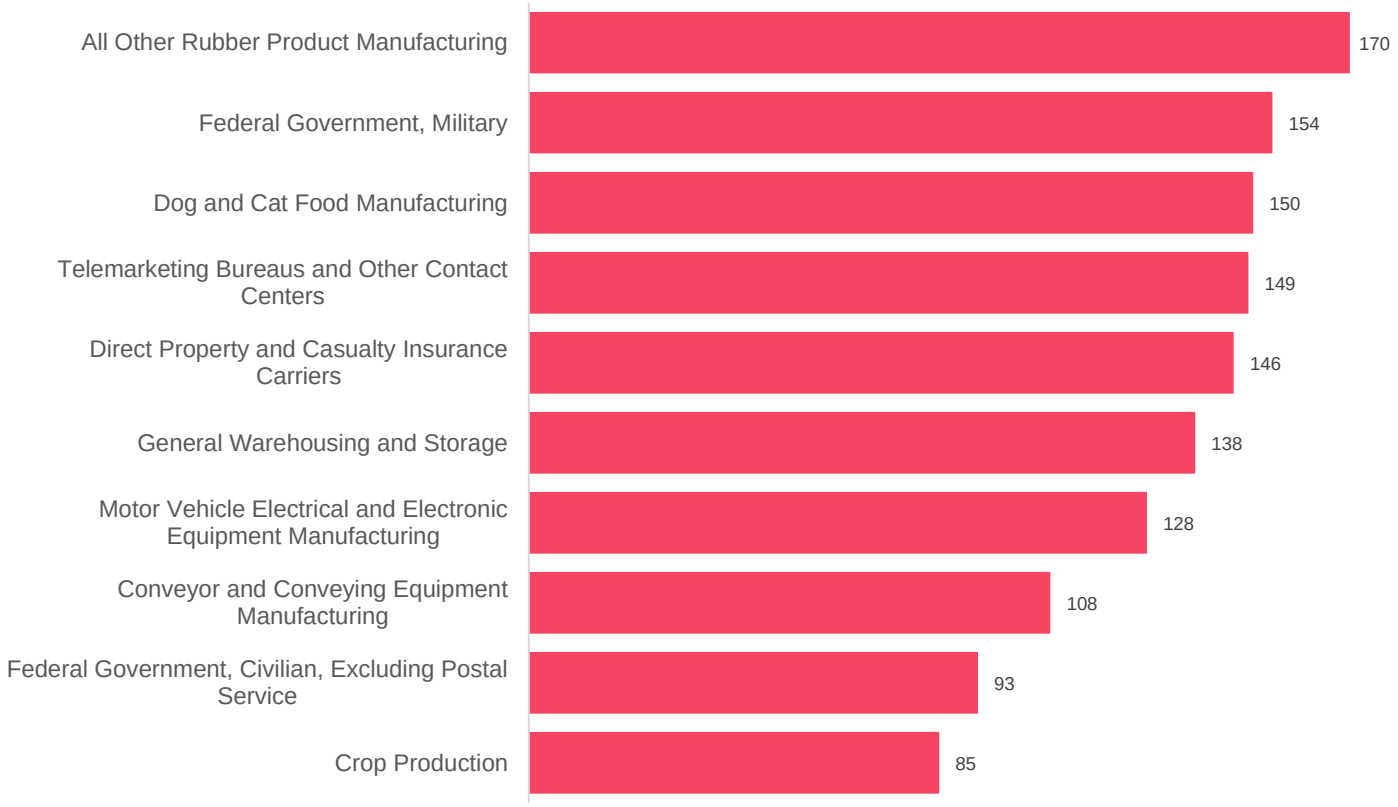
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Flint Hills	6.7%	24.6%	24.4%	9.4%	20.8%	14.1%
Kansas	8.8%	25.2%	22.4%	9.0%	21.6%	13.0%
United States	11.5%	26.5%	20.1%	8.7%	20.3%	12.8%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Flint Hills Region that experienced job gains during 2020. The top 10 industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

The Flint Hills regional labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

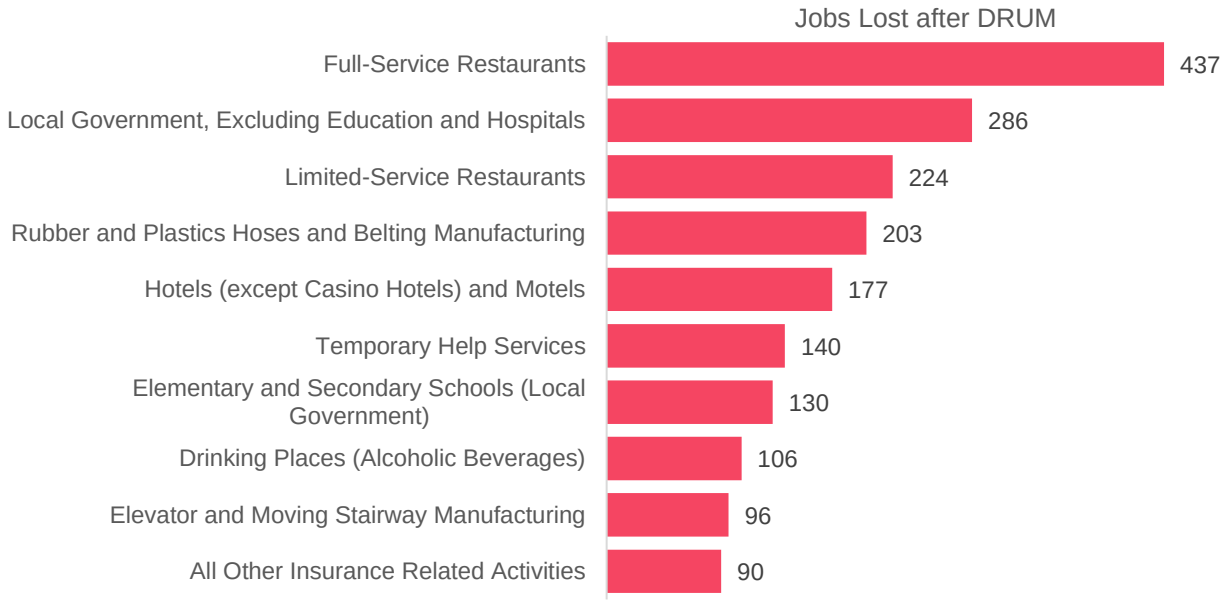
Regional COVID Impact Overview

566	96,536	94,221	2,022
Number of Industries in Flint Hills region	Jobs in 2019	Jobs in 2020	Net Job Loss After DRUM

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario was 238. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 5,161 jobs. Job losses shown by Figure 06 represent about 37% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 5,929 for Type I and 6,577 for Type II economic effect. In other words, because of the initial 5,161 lost jobs, there are 768 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are 648 jobs that were lost because they were no longer supported by the 200 jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

238 Industries
Negatively Affected

5,161
Initial Job Loss

6,577
Total Loss in Jobs*

$291 million
Earning Loss*

$14.2 million
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Full-Service Restaurants	437	467	497
Local Government, Excluding Education and Hospitals	286	328	376
Limited-Service Restaurants	224	254	269
Rubber and Plastics Hoses and Belting Manufacturing	203	236	284
Hotels (except Casino Hotels) and Motels	177	188	200
Temporary Help Services	140	157	174
Elementary and Secondary Schools (Local Government)	130	133	149
Drinking Places (Alcoholic Beverages)	106	108	112
Elevator and Moving Stairway Manufacturing	96	96	96
All Other Insurance Related Activities	90	120	129
Other Industries	3,274	3,843	4,292
All Industries	5,161	5,929	6,577

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was nearly $205 million where the total effect of Type I is 22% higher and Type II 42% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $81 million and an economic impact of $96 million loss on Type I and $115 million on Type II effects, for the top 10 industries, which represents about 40% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Rubber and Plastics Hoses and Belting Manufacturing	$17,250,232	$20,021,235	$24,059,730
Local Government, Excluding Education and Hospitals	$15,734,796	$18,003,961	$20,691,283
All Other Miscellaneous General Purpose Machinery Manufacturing	$8,863,553	$10,713,296	$14,102,553
Full-Service Restaurants	$8,579,105	$9,181,512	$9,757,884
Fossil Fuel Electric Power Generation	$7,721,106	$13,369,887	$18,401,399
Temporary Help Services	$5,805,159	$6,512,189	$7,224,527
Elementary and Secondary Schools (Local Government)	$5,506,491	$5,619,354	$6,322,258
Offices of Physicians (except Mental Health Specialists)	$4,101,728	$4,628,876	$5,439,580
Limited-Service Restaurants	$4,018,815	$4,554,831	$4,824,357
Hotels (except Casino Hotels) and Motels	$3,382,754	$3,610,591	$3,826,895
Other Industries	$123,928,317	$154,566,695	$176,458,721
All Industries	$204,892,056	$250,782,427	$291,109,187

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Flint Hills Region lost over $14 million on TPI, where 17% corresponds to Federal, 37% to State and 45% to Local Government taxes. The top 10 industries represent 73% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

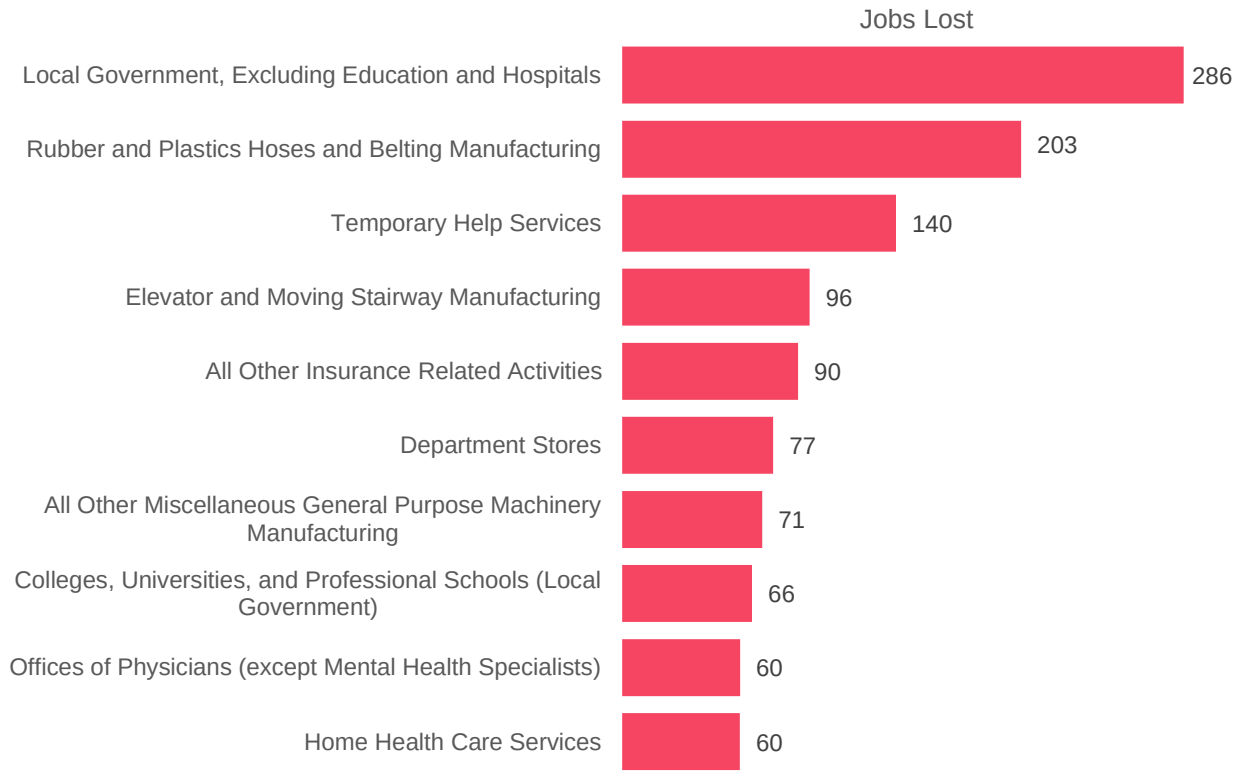
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Fossil Fuel Electric Power Generation	$6,381,303	$1,012,531	$2,401,671	$2,967,101
Rubber and Plastics Hoses and Belting Manufacturing	$974,804	$198,472	$354,973	$421,359
All Other Miscellaneous General Purpose Machinery Manufacturing	$851,541	$245,826	$290,394	$315,321
Gasoline Stations with Convenience Stores	$555,589	$72,098	$213,467	$270,024
Full-Service Restaurants	$388,977	$54,327	$148,405	$186,245
New Car Dealers	$316,393	$42,289	$121,229	$152,875
Industrial Valve Manufacturing	$315,500	$38,290	$121,729	$155,480
Metal Service Centers and Other Metal Merchant Wholesalers	$202,795	$33,963	$75,839	$92,994
Highway, Street, and Bridge Construction	$197,684	$47,404	$70,041	$80,239
Other Engine Equipment Manufacturing	$189,422	$48,624	$66,244	$74,554
Other Industries	$3,804,991	23,400	45,992	55,409
All Industries	**$14,178,999**	2,456,536	$5,279,980	$6,442,482

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected”. Figure 07 displays the top 10 industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 3,034. The number of job losses during the pandemic increased to 3,601 for Type I and 4,059 for Type II economic effects. In other words, because of the 3,034 lost jobs, there was an additional 567 jobs lost in the supply chain. Additionally, there were 458 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

151 Industries
Negatively Affected

3,034
Initial Job Loss

4,059
Total Loss in Jobs*

$216 million
Earning Loss*

$11.6 million
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	286	328	376
Rubber and Plastics Hoses and Belting Manufacturing	203	236	284
Temporary Help Services	140	157	174
Elevator and Moving Stairway Manufacturing	96	96	96
All Other Insurance Related Activities	90	120	129
Department Stores	77	83	87
All Other Miscellaneous General Purpose Machinery Manufacturing	71	86	114
Colleges, Universities, and Professional Schools (Local Government)	66	67	74
Offices of Physicians (except Mental Health Specialists)	60	68	80
Home Health Care Services	60	62	66
All Industries	3,034	3,601	4,059

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $143.8 million, where the total effect of Type I is 27% higher and Type II 50% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Rubber and Plastics Hoses and Belting Manufacturing	$17,250,232	$20,021,235	$24,059,730
Local Government, Excluding Education and Hospitals	$15,734,796	$18,003,961	$20,691,283
All Other Miscellaneous General Purpose Machinery Manufacturing	$8,863,553	$10,713,296	$14,102,553
Fossil Fuel Electric Power Generation	$7,721,106	$13,369,887	$18,401,399
Temporary Help Services	$5,805,159	$6,512,189	$7,224,527
Offices of Physicians (except Mental Health Specialists)	$4,101,728	$4,628,876	$5,439,580
Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	$3,284,032	$4,563,808	$5,380,544
Commercial Printing (except Screen and Books)	$2,946,505	$3,375,611	$3,874,479
Security Systems Services (except Locksmiths)	$2,900,837	$3,567,633	$4,100,945
Offices of Physical, Occupational and Speech Therapists, and Audiologists	$2,802,967	$3,002,191	$3,536,166
All Industries	$143,876,704	$182,674,497	$215,731,590

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost $11.6 million on TPI where 18% corresponds to federal government, 37% to state and 45% to local governments (Table 07).

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

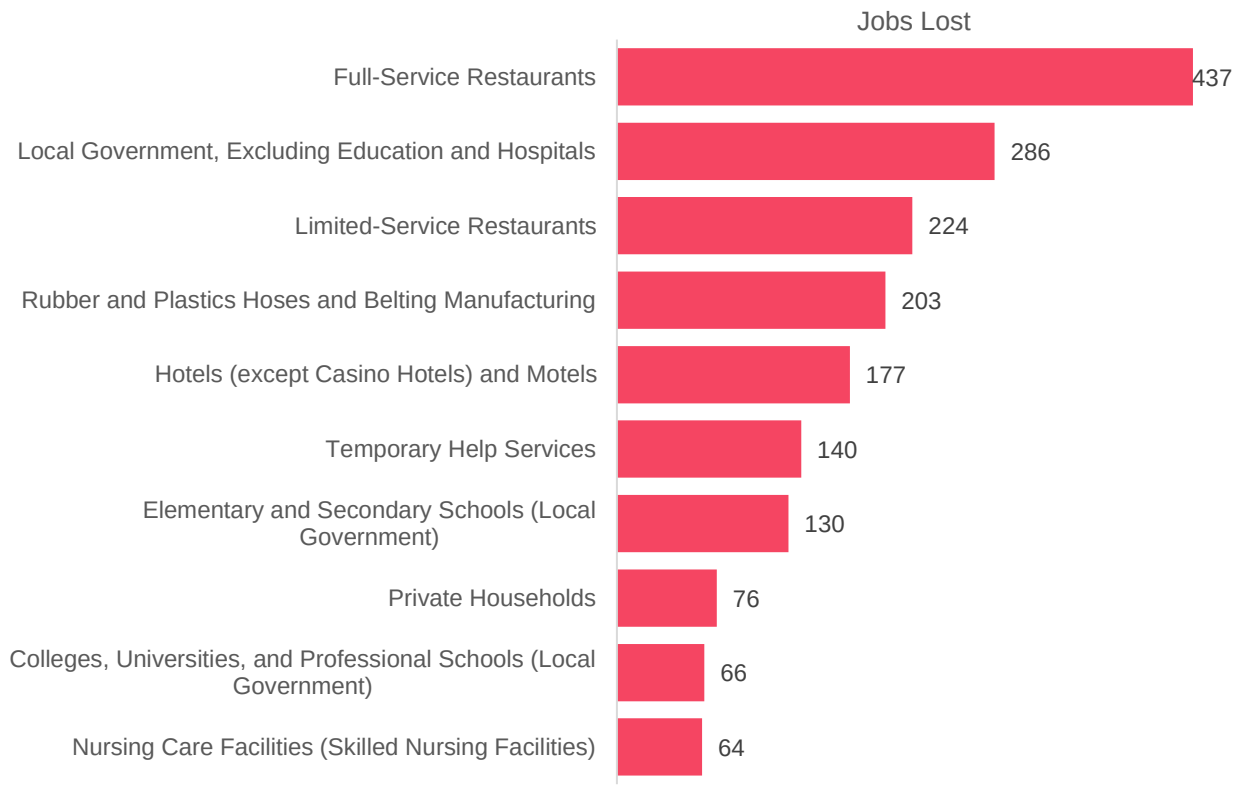
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Fossil Fuel Electric Power Generation	$6,381,303	$1,012,531	$2,401,671	$2,967,101
Rubber and Plastics Hoses and Belting Manufacturing	$974,804	$198,472	$354,973	$421,359
All Other Miscellaneous General Purpose Machinery Manufacturing	$851,541	$245,826	$290,394	$315,321
Gasoline Stations with Convenience Stores	$555,589	$72,098	$213,467	$270,024
Industrial Valve Manufacturing	$315,500	$38,290	$121,729	$155,480
Metal Service Centers and Other Metal Merchant Wholesalers	$202,795	$33,963	$75,839	$92,994
Highway, Street, and Bridge Construction	$197,684	$47,404	$70,041	$80,239
Other Engine Equipment Manufacturing	$189,422	$48,624	$66,244	$74,554
Electric Bulk Power Transmission and Control	$183,082	$29,143	$68,879	$85,059
Corporate, Subsidiary, and Regional Managing Offices	$123,179	$19,339	$46,416	$57,425
All Industries	**$11,644,551**	**$2,068,280**	**$4,322,339**	**$5,253,932**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people (over 500) and lost jobs from 2019 to 2020. We called this set of industries the “Most Relevant.” There are 18 industries in this scenario. Figure 08 displays the top 10 industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the 18 industries amounts to 2,148 jobs during 2020. The job losses increased to 2,371 for Type I and 2,617 for Type II economic effects. In other words, because of the initial losses on jobs there were 223 that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

18 Industries
Negatively Affected

2,148
Initial Job Loss

2,617
Total Loss in Jobs*

$103 million
Earning Loss*

$2.7 million
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Full-Service Restaurants	437	467	497
Local Government, Excluding Education and Hospitals	286	328	376
Limited-Service Restaurants	224	254	269
Rubber and Plastics Hoses and Belting Manufacturing	203	236	284
Hotels (except Casino Hotels) and Motels	177	188	200
Temporary Help Services	140	157	174
Elementary and Secondary Schools (Local Government)	130	133	149
Private Households	76	76	78
Colleges, Universities, and Professional Schools (Local Government)	66	67	74
Nursing Care Facilities (Skilled Nursing Facilities)	64	74	81
All Industries	2,148	2,371	2,617

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

In terms of earnings loss, the initial loss was $81 million where the total effect of Type I was 12% higher and Type II increased 27% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Rubber and Plastics Hoses and Belting Manufacturing	$17,250,232	$20,021,235	$24,059,730
Local Government, Excluding Education and Hospitals	$15,734,796	$18,003,961	$20,691,283
Full-Service Restaurants	$8,579,105	$9,181,512	$9,757,884
Temporary Help Services	$5,805,159	$6,512,189	$7,224,527
Elementary and Secondary Schools (Local Government)	$5,506,491	$5,619,354	$6,322,258
Offices of Physicians (except Mental Health Specialists)	$4,101,728	$4,628,876	$5,439,580
Limited-Service Restaurants	$4,018,815	$4,554,831	$4,824,357
Hotels (except Casino Hotels) and Motels	$3,382,754	$3,610,591	$3,826,895
Nursing Care Facilities (Skilled Nursing Facilities)	$2,490,258	$2,858,870	$3,134,512
New Car Dealers	$2,452,671	$2,892,289	$3,330,521
All Industries	$81,009,469	$90,800,455	$102,857,103

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Flint Hills Region lost $2.7 million on TPI, of which 17% corresponded to federal government, 37% to state and 46% to local governments (Table 10).

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Rubber and Plastics Hoses and Belting Manufacturing	$974,804	$198,472	$354,973	$421,359
Gasoline Stations with Convenience Stores	$555,589	$72,098	$213,467	$270,024
Full-Service Restaurants	$388,977	$54,327	$148,405	$186,245
New Car Dealers	$316,393	$42,289	$121,229	$152,875
Hotels (except Casino Hotels) and Motels	$186,215	$22,064	$72,118	$92,033
Janitorial Services	$74,754	$11,443	$28,248	$35,062
Temporary Help Services	$69,970	$20,616	$23,748	$25,606
Elementary and Secondary Schools (Local Government)	$50,837	$8,514	$19,011	$23,312
Commercial Banking	$44,955	$16,624	$14,340	$13,992
Nursing Care Facilities (Skilled Nursing Facilities)	$30,832	$4,297	$11,766	$14,769
All Industries	**$2,717,451**	$454,694	$1,016,351	$1,246,407

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on the Flint Hills Region in each of the output scenarios.

One of the most relevant results came from the total effect on TPI by job losses in All Industries, where nearly 75% is attributed to the 10 industries under the first scenario. The 5,161 initial lost jobs translated to $291 million in earnings lost and a nearly $14 million loss on TPI. This loss will affect the region deeply; however, it should be noted that jobs in the region are projected to increase through 2030 to even higher levels than pre-pandemic. This indicates that the region has the ability to recover from this economic downturn.

> The results of this study demonstrate the profound effect of COVID-19 on Flint Hills Region across **multiple scenarios**.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.

Lightcast

COVID-19: Economic Impact Analysis on Chase County

Executive Summary Report

August 2022

FLINT HILLS REGION

Acknowledgements

Lightcast gratefully acknowledges the excellent support of the Flint Hills Regional Council (FHRC). A special thank you goes to Jerry Lonergan and Janna L. Williams at FHRC.

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Lightcast provides labor market data that helps to create better outcomes for communities. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. A variety of our clients use Lightcast to align programs with regional needs and demonstrate their institution's economic impact on their region. Visit https://lightcast.io/ to learn more or connect with us.

INTRODUCTION

Chase County is one of seven counties in the Flint Hills Economic Development District (FHEDD). FHEDD includes Chase, Geary, Lyon, Morris, Pottawatomie, Riley and Wabaunsee Counties. In 2020, the Chase County population was 2,568, with a total regional employment of 1,220.

The Chase County economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Chase generates new dollars and creates opportunities in the region. When COVID-19 arrived, all these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

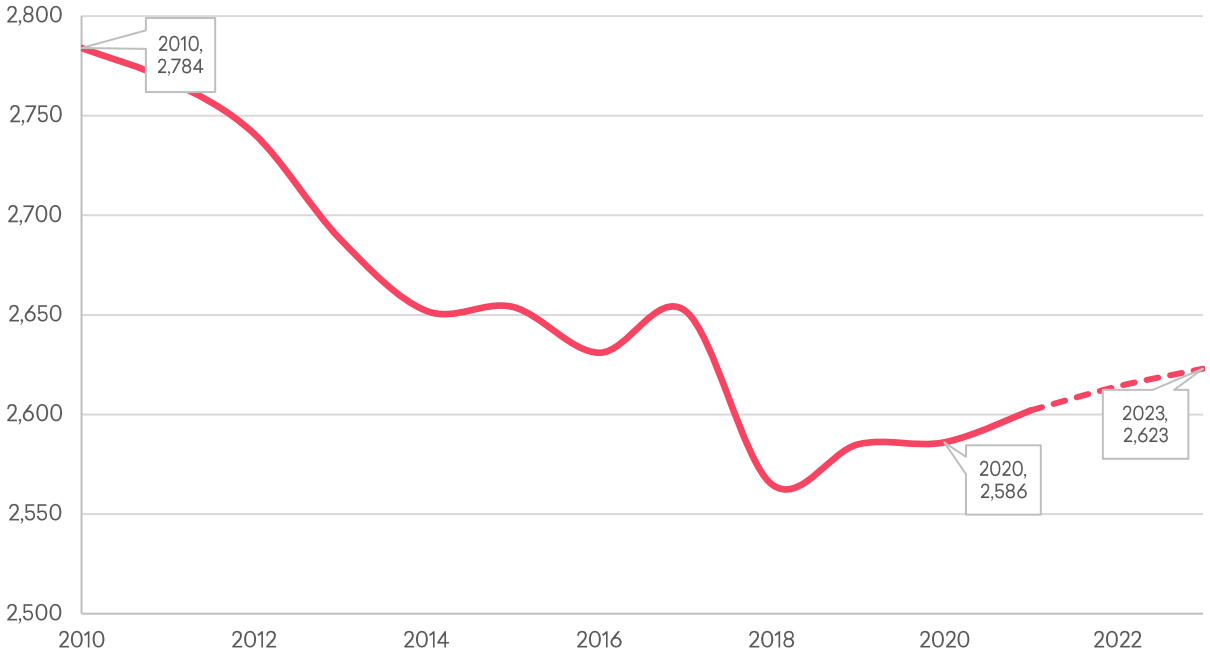
Labor Force in Chase creates new opportunities in the region.

The purpose of this report is to outline the county's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, 2,784 people resided in Chase County. While it has seen a steady decline in population from 2010 to 2018, it is projected to increase to 2,623 people by 2023 (Figure 01).

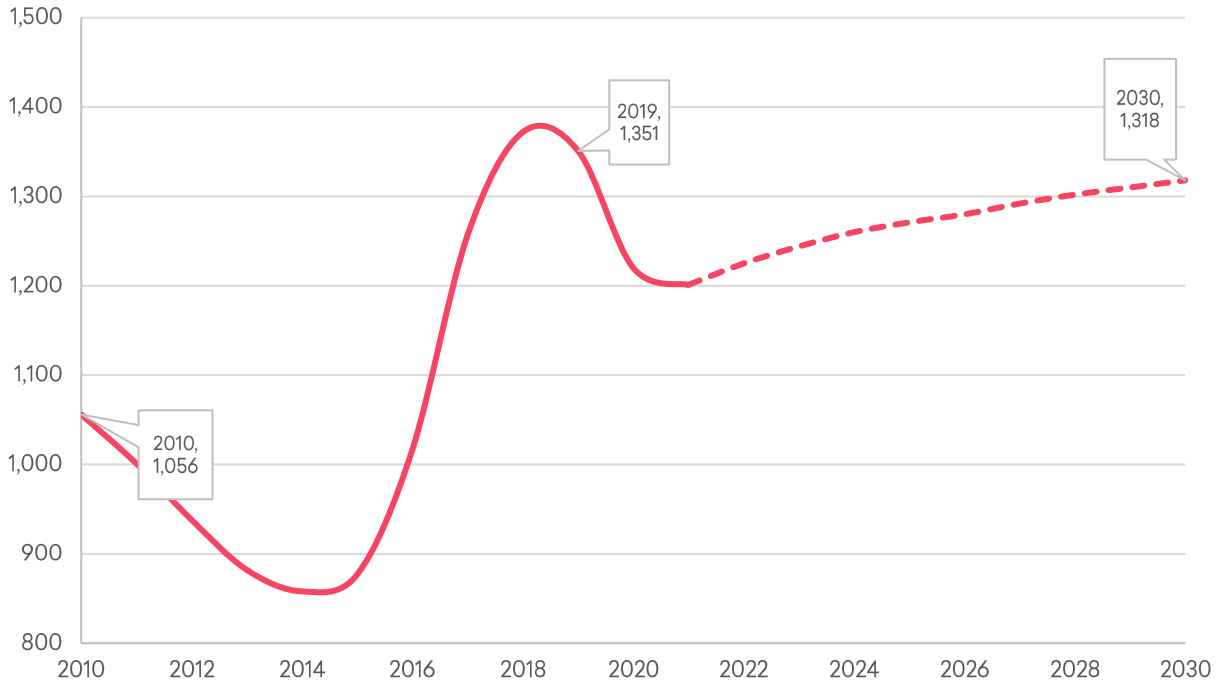
Figure 01: Historical and Projected Population in Chase County, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Chase County supported an annual average of 1,056 jobs in 2010 and by 2019, the region grew to 1,351 jobs. In 2020 alone, the region lost about 130 jobs. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

Figure 02: Historical and Projected Jobs in Chase, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Chase County. In 2019 and in 2020, Local Government and Crop Production had the highest number of jobs out of all industries. Mining (except Oil and Gas) and Animal Production have seen the highest job growth from 2019 to 2020.

Figure 03: Top Industry Subsectors in Chase by Jobs

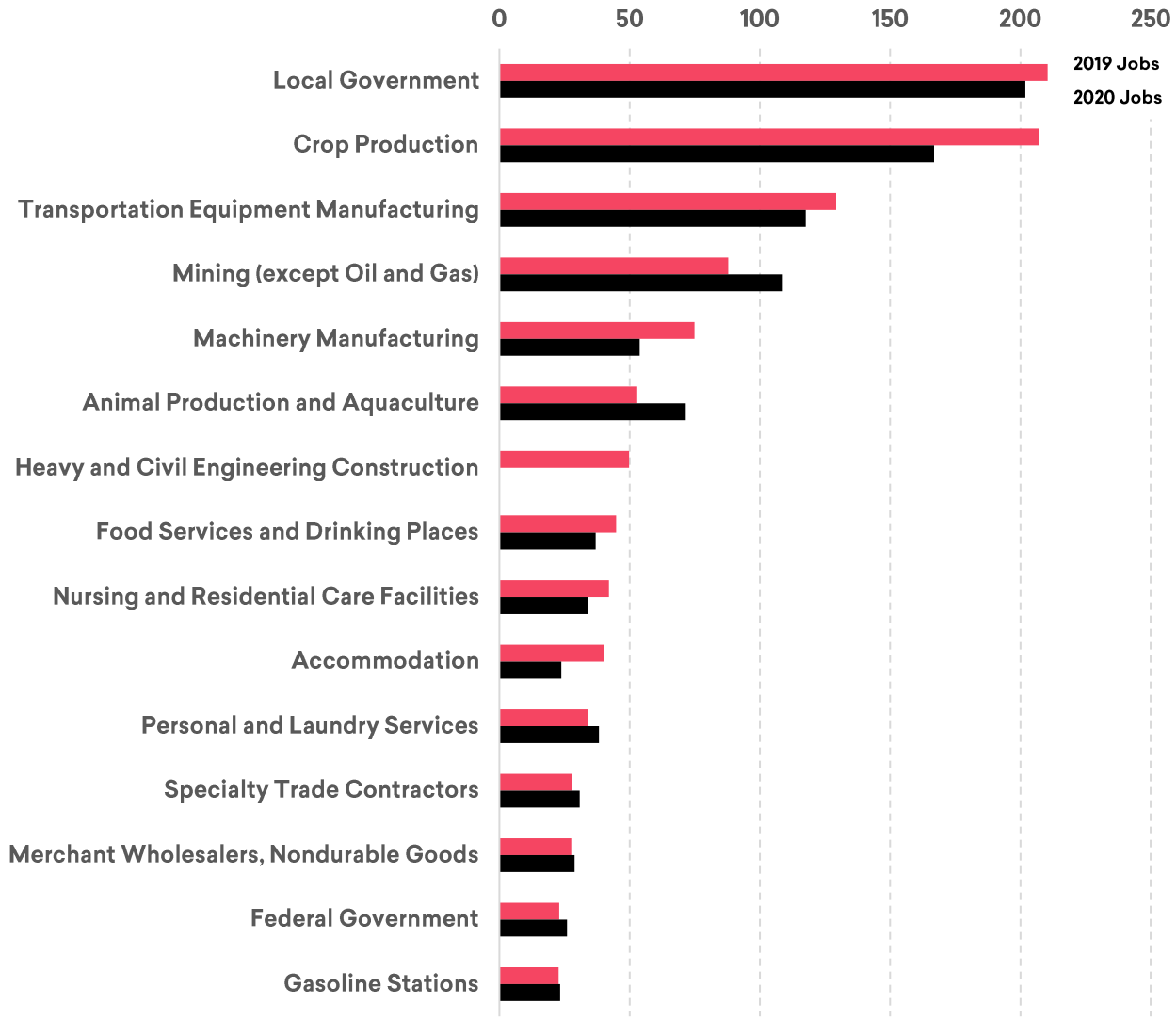
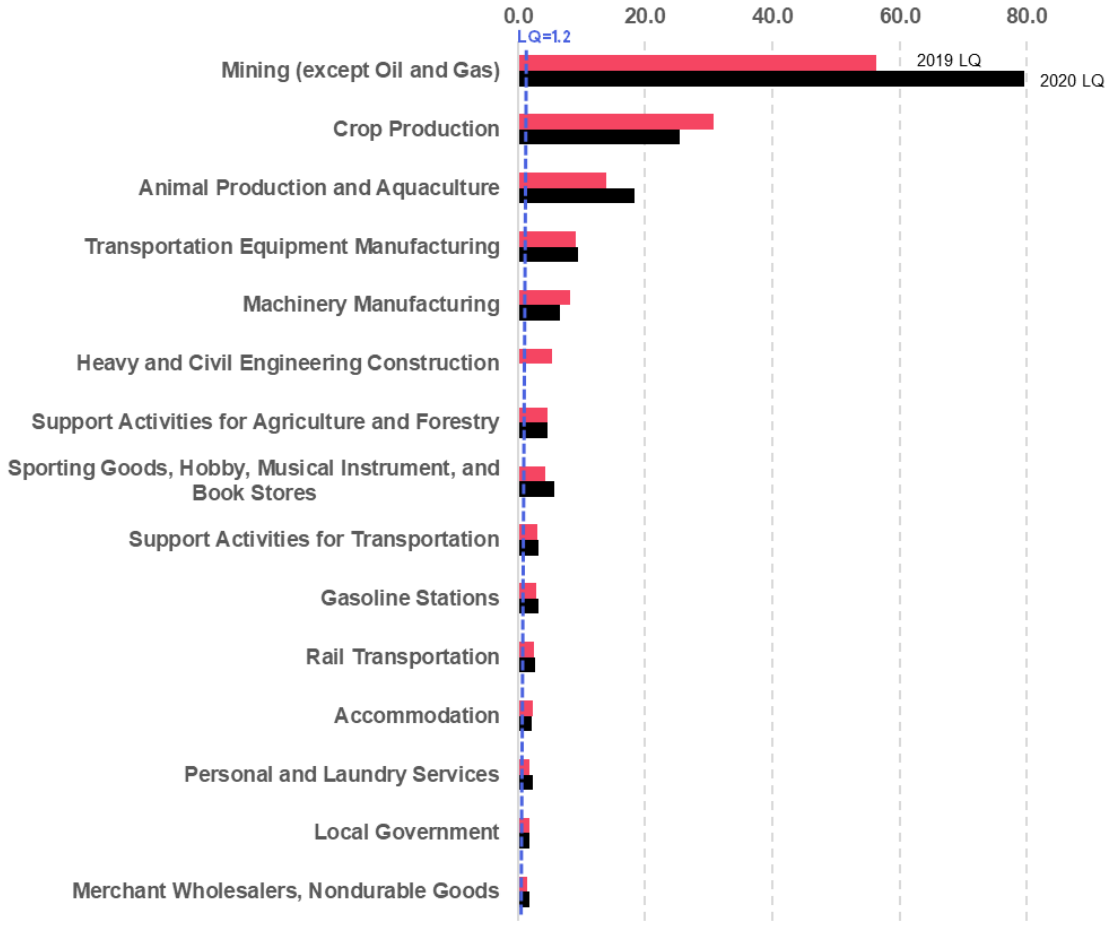


Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. Chase County has an extremely high concentration of Mining (except Oil and Gas).

Figure 04: Top Industry Subsectors in Chase by Employment Concentration (LQ)



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, nine industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Local Government
- Crop Production
- Transportation Equipment Manufacturing
- Mining (except Oil and Gas)
- Animal Production and Aquaculture
- Machinery Manufacturing
- Merchant Wholesalers, Nondurable Goods
- Accommodation
- Gasoline Stations

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Chase County falls below the region, the state of Kansas and the United States in terms of median household income and per capita income. Chase County shows low unemployment rates compared to the state and nation, but higher than the regional average, and poverty rates higher than the region and state.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Chase County	$45,353	5.52%	$23,055	8.90%
Flint Hills Region	$54,243	5.07%	$26,844	7.10%
Kansas	$59,597	5.89%	$31,814	7.80%
United States	$62,843	8.07%	$34,103	9.50%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Chase County, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Chase County shows the highest percentage of High School and Some College level attainment when compared against the different regions.

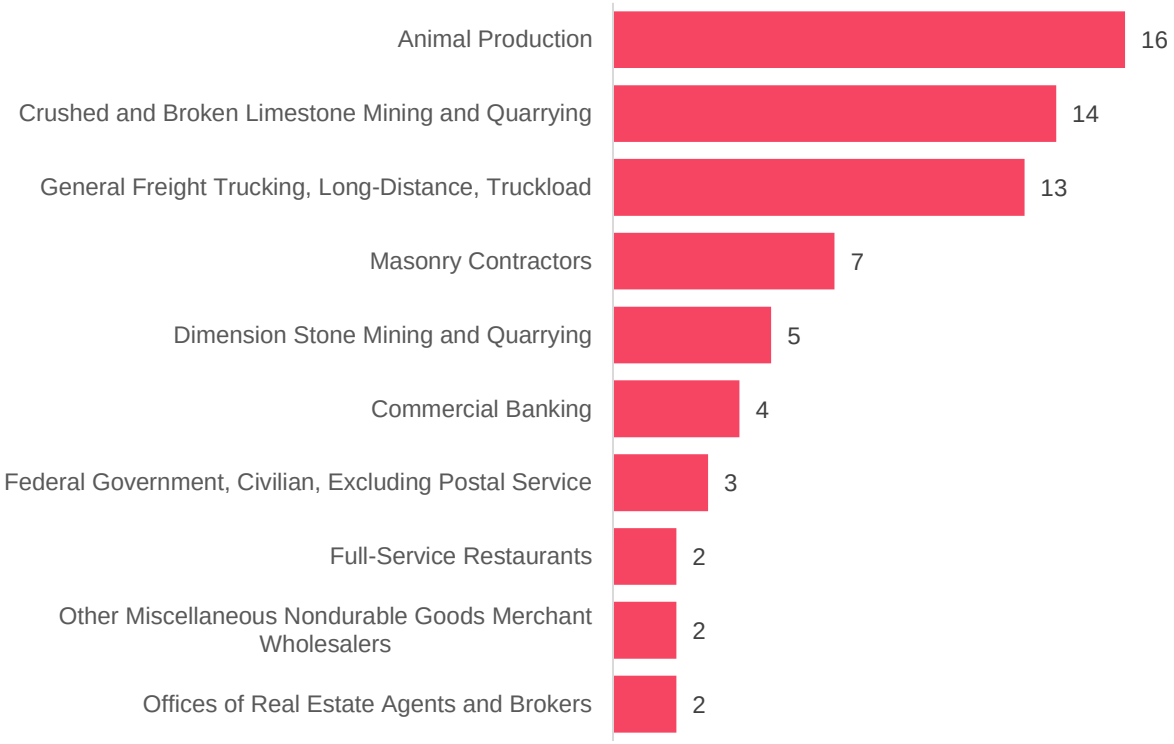
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Chase County	8.6%	27.4%	30.4%	7.0%	19.1%	7.5%
Flint Hills	6.7%	24.6%	24.4%	9.4%	20.8%	14.1%
Kansas	8.8%	25.2%	22.4%	9.0%	21.6%	13.0%
United States	11.5%	26.5%	20.1%	8.7%	20.3%	12.8%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Chase County that experienced job gains during 2020. Those industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

Chase County's labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

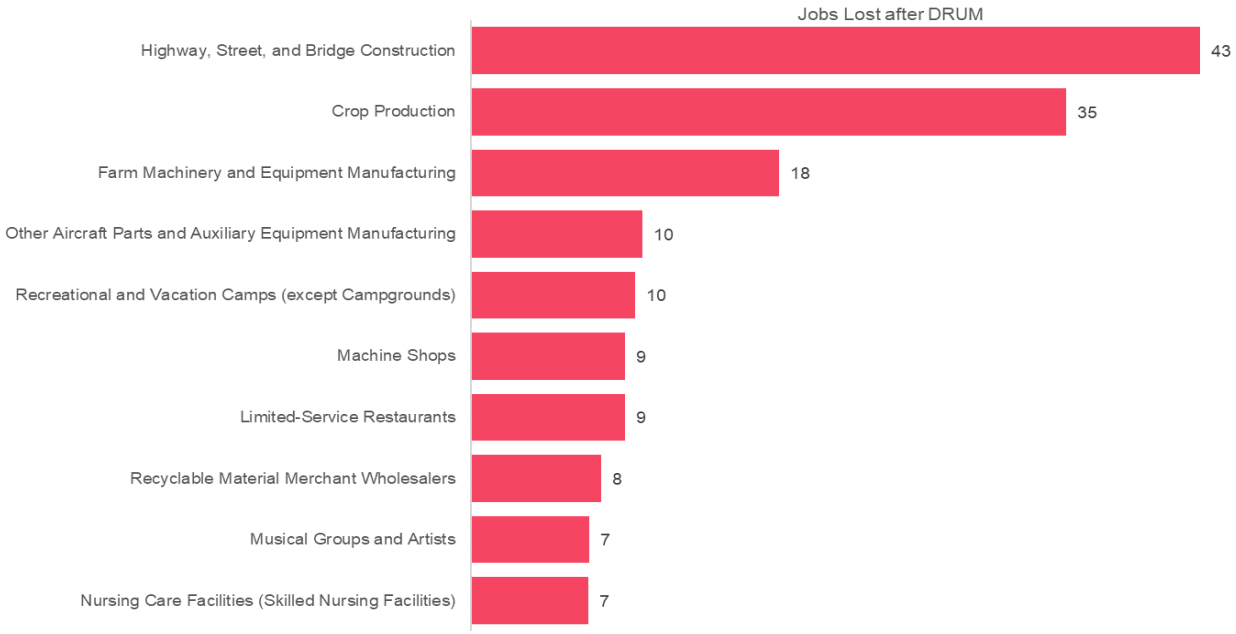
Chase County COVID Impact Overview

109	1,351	1,219	114
Number of Industries in Chase County	Jobs in 2019	Jobs in 2020	Total Job Loss After DRUM

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario were 37. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 200 jobs. Job losses shown by Figure 06 represent close to 80% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 224 for Type I and 230 for Type II economic effect. In other words, because of the initial 200 lost jobs, there are 24 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are an additional 6 jobs that were lost because they were no longer supported by the 200 jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

37 Industries
Negatively Affected

200
Initial Job Loss

224
Type I Job Loss

230
Total Loss in Jobs*

$7.5 million
Earning Loss*

$0.9 million
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Highway, Street, and Bridge Construction	43	43	43
Crop Production	35	48	49
Farm Machinery and Equipment Manufacturing	18	20	21
Other Aircraft Parts and Auxiliary Equipment Manufacturing	10	11	12
Recreational and Vacation Camps (except Campgrounds)	10	10	11
Machine Shops	9	10	10
Limited-Service Restaurants	9	10	10
Recyclable Material Merchant Wholesalers	8	8	8
Musical Groups and Artists	7	10	10
Nursing Care Facilities (Skilled Nursing Facilities)	7	8	8
Other Industries	42	45	47
All Industries	200	224	230

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was $6,110,448 where the total effect of Type I is 18% higher and Type II 23% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $4,456,659 and an economic impact of $5,384,238 loss on Type I and $5,583,764 on Type II effects, for the top 10 industries, which represents 74% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Crop Production	$1,714,653	$2,327,742	$2,394,868
Farm Machinery and Equipment Manufacturing	$783,154	$863,910	$906,282
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$614,112	$677,677	$712,748
Machine Shops	$379,434	$402,245	$415,862
Recreational and Vacation Camps (except Campgrounds)	$301,958	$321,423	$334,090
Nursing Care Facilities (Skilled Nursing Facilities)	$268,089	$292,740	$310,811
Musical Groups and Artists	$248,756	$338,440	$344,841
Limited-Service Restaurants	$146,504	$160,060	$164,264
(*)Highway, Street, and Bridge Construction	$0	$0	$0
(*)Recyclable Material Merchant Wholesalers	$0	$0	$0
Other Industries	$1,653,789	$1,843,977	$1,929,957
All Industries	$6,110,448	$7,228,215	$7,513,721

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

(*) Highway, Street, and Bridge Construction and Recyclable Material Merchant Wholesalers industries lost jobs in 2020, leaving 0 jobs remaining to measure the earnings economic impact in the region.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Chase County lost $944,617 on TPI, where 18% corresponds to Federal, 37% to State and 45% to Local Government taxes. The top 10 industries represent 87% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

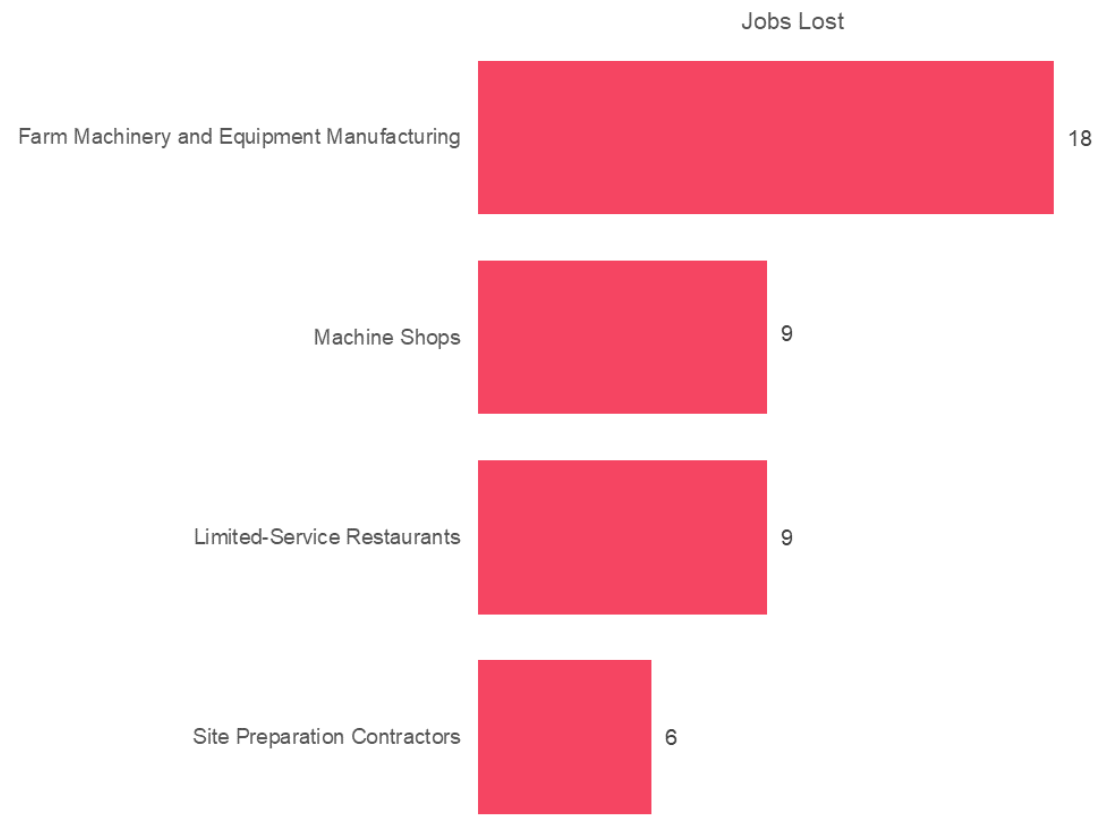
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Crop Production	$205,235	$48,514	$72,907	$83,814
Recreational and Vacation Camps (except Campgrounds)	$158,022	$18,094	$61,370	$78,558
Highway, Street, and Bridge Construction	$101,788	$12,490	$39,228	$50,071
Recyclable Material Merchant Wholesalers	$98,023	$9,998	$38,293	$49,732
Farm Machinery and Equipment Manufacturing	$91,389	$26,050	$31,256	$34,083
Limited-Service Restaurants	$57,846	$7,802	$22,145	$27,899
Musical Groups and Artists	$43,546	$5,589	$16,748	$21,209
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$36,919	$11,218	$12,438	$13,263
Nursing Care Facilities (Skilled Nursing Facilities)	$16,950	$2,202	$6,512	$8,236
Machine Shops	$10,098	$1,951	$3,706	$4,442
Other Industries	$124,802	$23,400	$45,992	$55,409
All Industries	**$944,617**	167,308	$350,594	$426,714

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected”. Figure 07 displays the industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 42. The number of job losses during the pandemic increased to 48 for Type I and Type II economic effects. In other words, because of the 42 lost jobs, there was an additional 4 jobs lost in the supply chain. Additionally, there were 2 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

4 Industries
Negatively Affected

42
Initial Job Loss

46
Type I Job Loss

48
Total Loss in Jobs*

$1.7 million
Earning Loss*

$69,549
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Farm Machinery and Equipment Manufacturing	18	20	21
Machine Shops	9	10	10
Limited-Service Restaurants	9	10	10
Site Preparation Contractors	6	6	6
All Industries	42	46	48

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $1,538,905, where the total effect of Type I is 9% higher and Type II 13% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Farm Machinery and Equipment Manufacturing	$783,154	$863,910	$906,282
Machine Shops	$379,434	$402,245	$415,862
Site Preparation Contractors	$229,813	$244,266	$250,926
Limited-Service Restaurants	$146,504	$160,060	$164,264
All Industries	$1,538,905	$1,670,482	$1,737,332

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost $167,767 on TPI where 23% corresponds to federal government, 36% to state and 41% to local governments (Table 07).

* Total Type II Loss

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

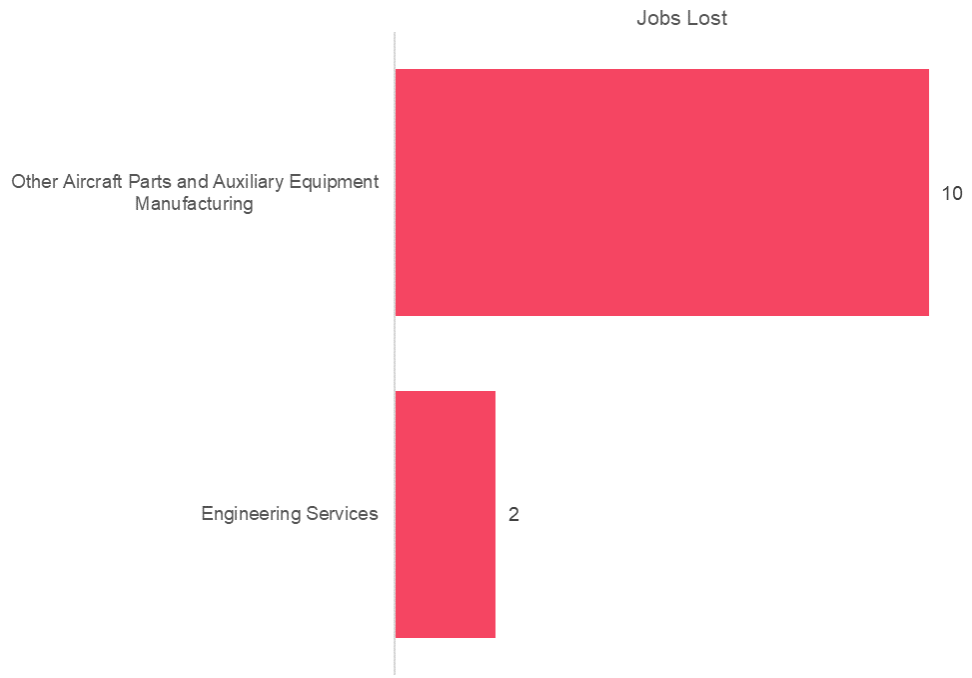
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Farm Machinery and Equipment Manufacturing	$91,389	$26,050	$31,256	$34,083
Limited-Service Restaurants	$57,846	$7,802	$22,145	$27,899
Machine Shops	$10,098	$1,951	$3,706	$4,442
Site Preparation Contractors	$8,435	$2,431	$2,877	$3,126
All Industries	**$167,767**	**$38,234**	**$59,984**	**$69,549**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people and lost jobs from 2019 to 2020. We called this set of industries the “Most Relevant.” There are two industries in this scenario. Figure 08 displays the industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the two industries amounts to 12 jobs during 2020. The job losses increased to 14 for Type I and for Type II economic effects. In other words, because of the 12 losses on jobs there were two that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

2 Industries
Negatively Affected

12
Initial Job Loss

14
Type I and Total Loss in Jobs*

$829,350
Earning Loss*

$39,826
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Other Aircraft Parts and Auxiliary Equipment Manufacturing	10	11	12
Engineering Services	2	2	2
All Industries	12	14	14

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

In terms of earnings loss, the initial loss was $709,235 where the total effect of Type I was 11% higher and Type II increased 17% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$614,112	$677,677	$712,748
Engineering Services	$95,123	$110,960	$116,602
All Industries	$709,235	$788,637	$829,350

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Chase County lost $39,826 on TPI, of which 30% corresponded to federal government, 34% to state and 36% to local governments (Table 10).

* Total Type II Loss

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Other Aircraft Parts and Auxiliary Equipment Manufacturing	$36,919	$11,218	$12,438	$13,263
Engineering Services	$2,907	$584	$1,061	$1,263
All Industries	**$39,826**	$11,802	$13,499	$14,526

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on Chase County in each of the output scenarios.

One of the most relevant results came from the total effect on TPI by job losses in All Industries, where nearly 75% is attributed to the 10 industries under the first scenario. The job projections suggest a steady decline over time. Finally, the 200 initial lost jobs translated to $7.5 million in earnings lost and a nearly $1 million loss on TPI. This loss will affect the region deeply.

> The results of this study demonstrate the profound effect of COVID-19 on Chase across **multiple scenarios**.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.

Lightcast

COVID-19: Economic Impact Analysis on Geary County

Executive Summary Report

August 2022

FLINT HILLS REGION

Acknowledgements

Lightcast gratefully acknowledges the excellent support of the Flint Hills Regional Council (FHRC). A special thank you goes to Jerry Lonergan and Janna L. Williams at FHRC.

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Lightcast provides labor market data that helps to create better outcomes for communities. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. A variety of our clients use Lightcast to align programs with regional needs and demonstrate their institution's economic impact on their region. Visit https://lightcast.io/ to learn more or connect with us.

INTRODUCTION

Geary County is one of seven counties in the Flint Hills Economic Development District (FHEDD). FHEDD includes Chase, Geary, Lyon, Morris, Pottawatomie, Riley and Wabaunsee Counties. In 2020, the Geary County population was 32,218, with a total regional employment of nearly 30,000 jobs.

The Geary County economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Geary County generates new dollars and creates opportunities in the region. When COVID-19 arrived, all these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

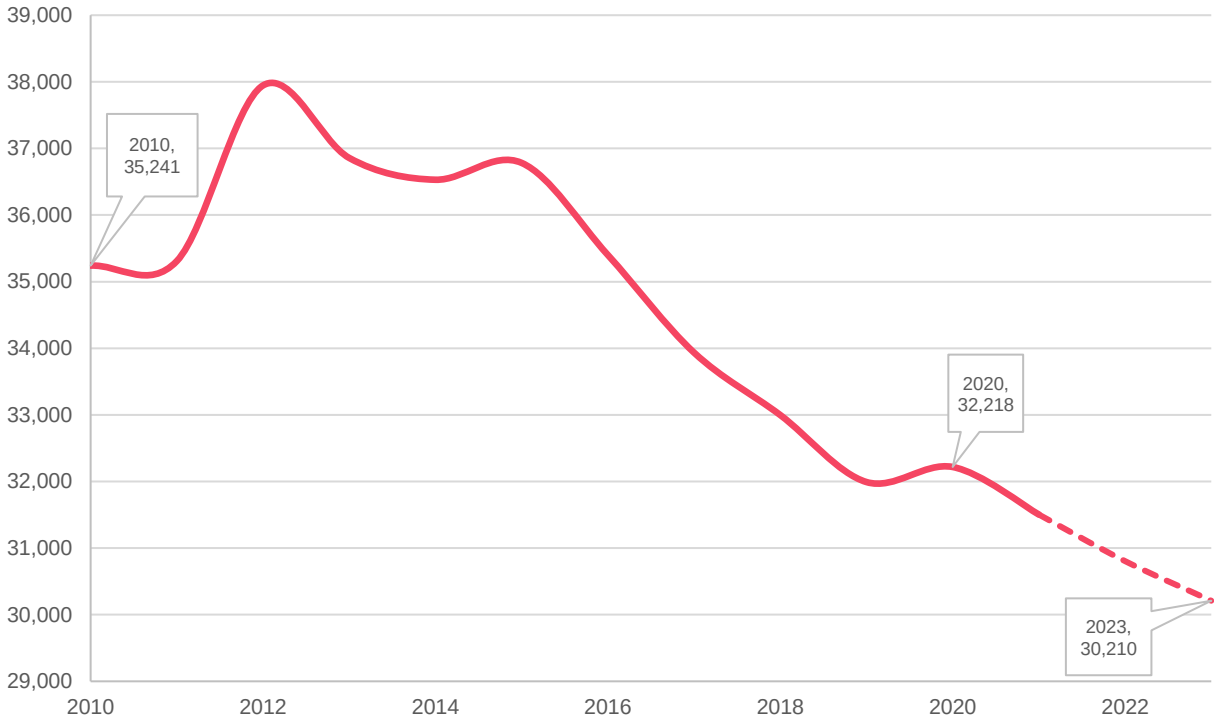
Labor Force in Geary creates new opportunities in the region.

The purpose of this report is to outline the county's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, just over 35,000 people resided in Geary County. While it has seen an increase from 2010 to 2012, since then it has experienced a steady decline in population. It is projected to continue to decrease to just over 30,000 people by 2023 (Figure 01).

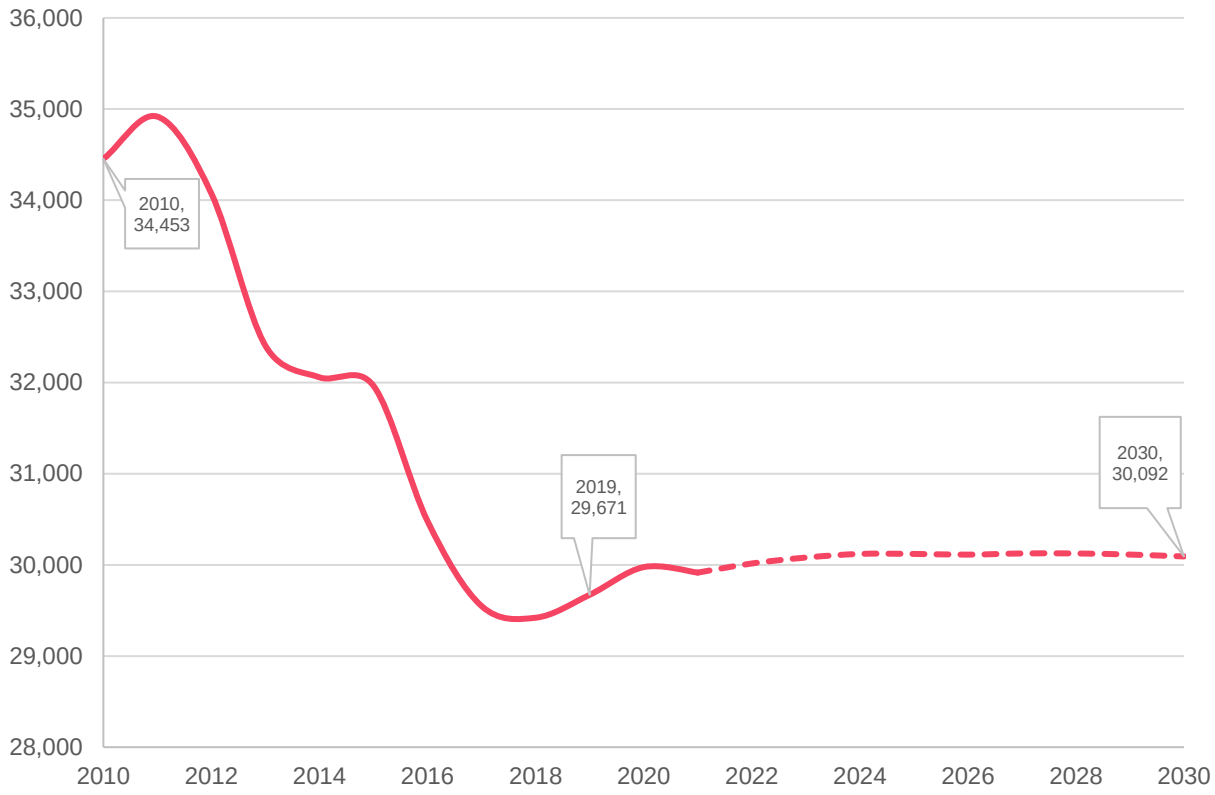
Figure 01: Historical and Projected Population in Geary County, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Geary County supported an annual average of 34,453 jobs in 2010, but similar to the population, the jobs in the county have decreased. Interestingly, Geary County actually saw an increase in jobs from 2019 to 2020. Jobs are projected to remain right around 30,000 through 2030. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

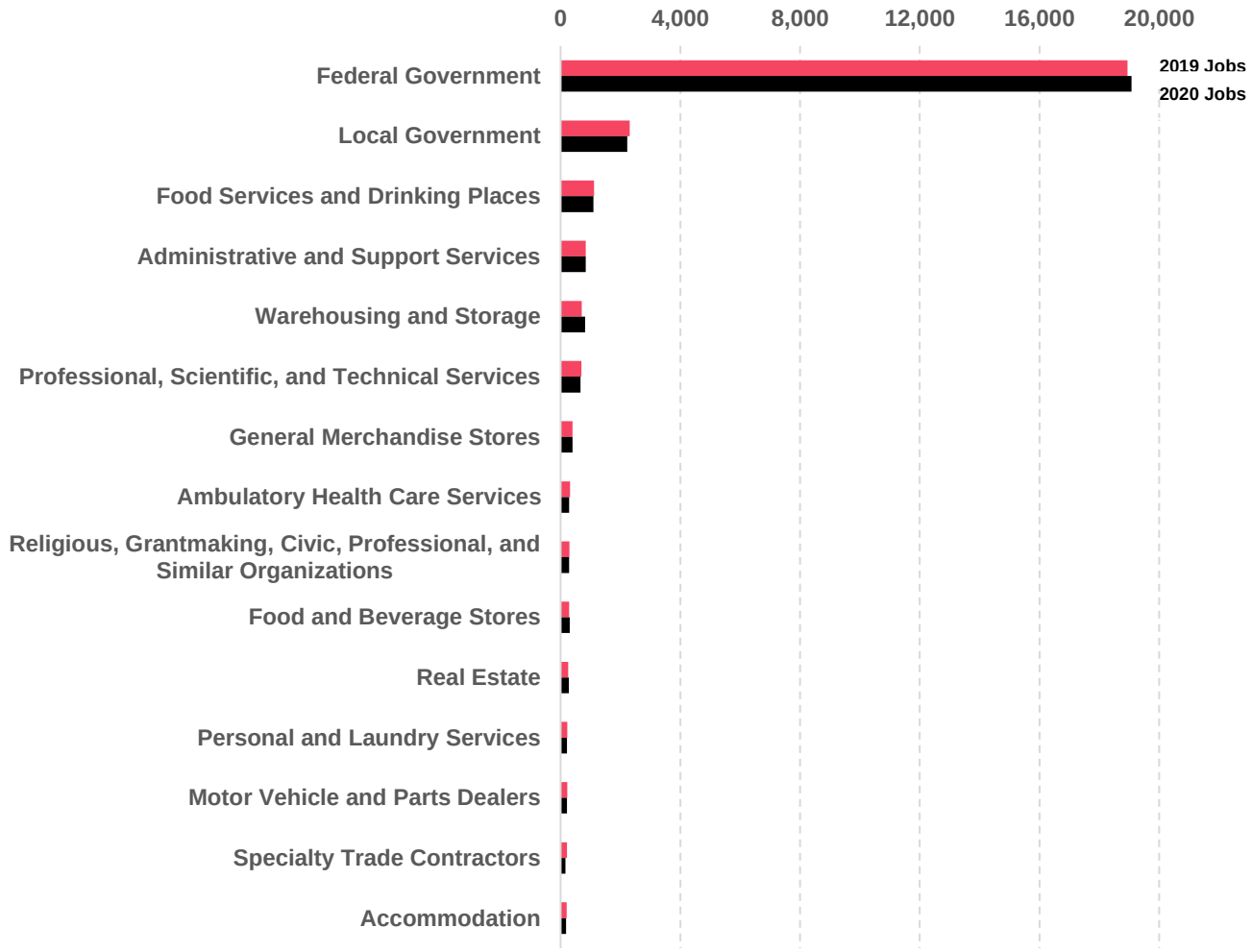
Figure 02: Historical and Projected Jobs in Geary, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Geary County. In 2019 and in 2020, Federal Government had the highest number of jobs out of all industries, and it saw a slight increase in jobs. Warehousing and Storage also saw job growth of about 115 jobs from 2019 to 2020.

Figure 03: Top Industry Subsectors in Geary by Jobs

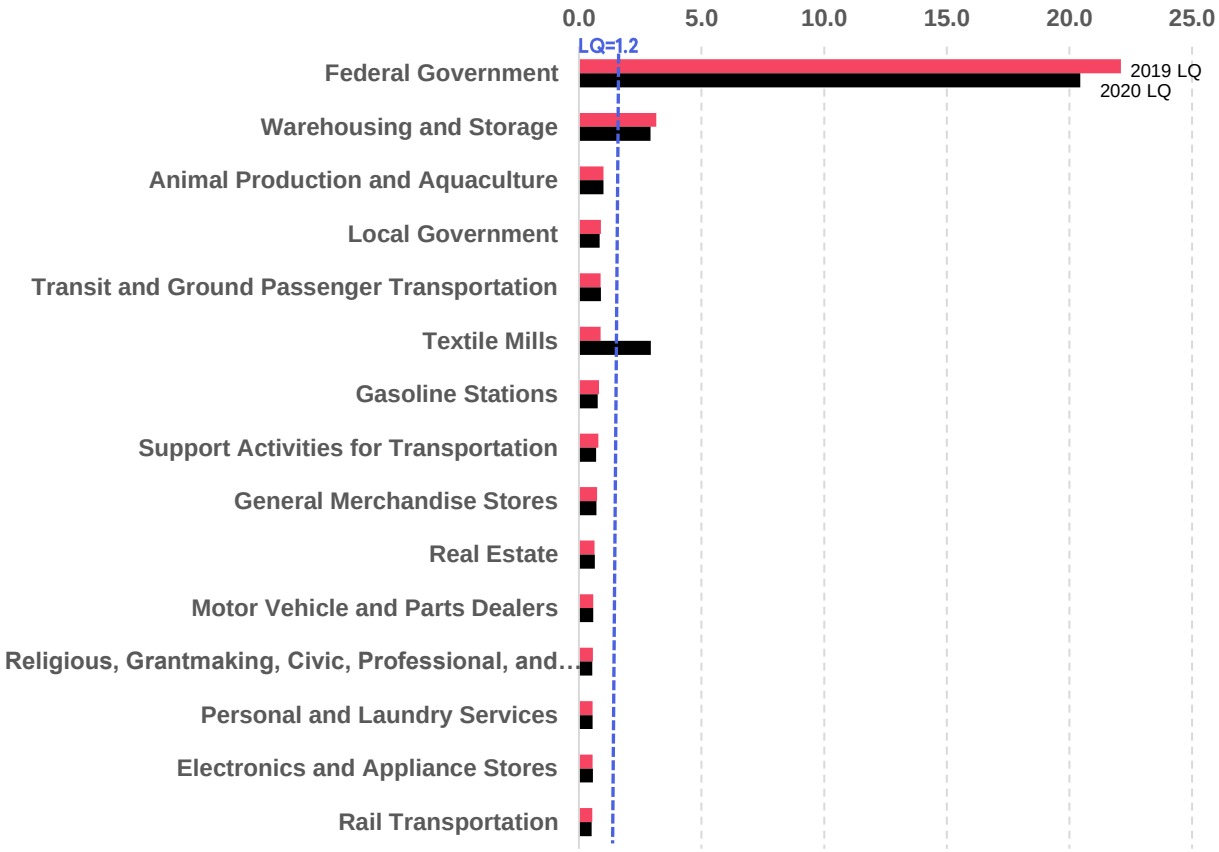


Source: Lightcast 2022.2.

Note: Federal Government includes Military. Lightcast's military employment count include both active duty and Reserve military personnel.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. Geary County has an extremely high concentration of Federal Government.

Figure 04: Top Industry Subsectors in Geary by Employment Concentration (LQ)



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, eight industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Federal Government
- Local Government
- Warehousing and Storage
- General Merchandise Stores
- Religious, Grantmaking, Civic, Professional, and Similar Organizations
- Real Estate
- Personal and Laundry Services
- Motor Vehicle and Parts Dealers

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Geary County falls slightly below the region, the state of Kansas and the United States in terms of median household income and per capita income. Geary County shows higher unemployment rates and poverty rates compared to the region, state and nation.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Geary County	**$53,133**	**6.81%**	**$23,897**	**11.90%**
Flint Hills Region	**$54,243**	**5.07%**	**$26,844**	**7.10%**
Kansas	**$59,597**	**5.89%**	**$31,814**	**7.80%**
United States	**$62,843**	**8.07%**	**$34,103**	**9.50%**

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Geary County, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Geary County shows the highest percentage of Some College and Associate's Degree level attainment when compared against the different regions.

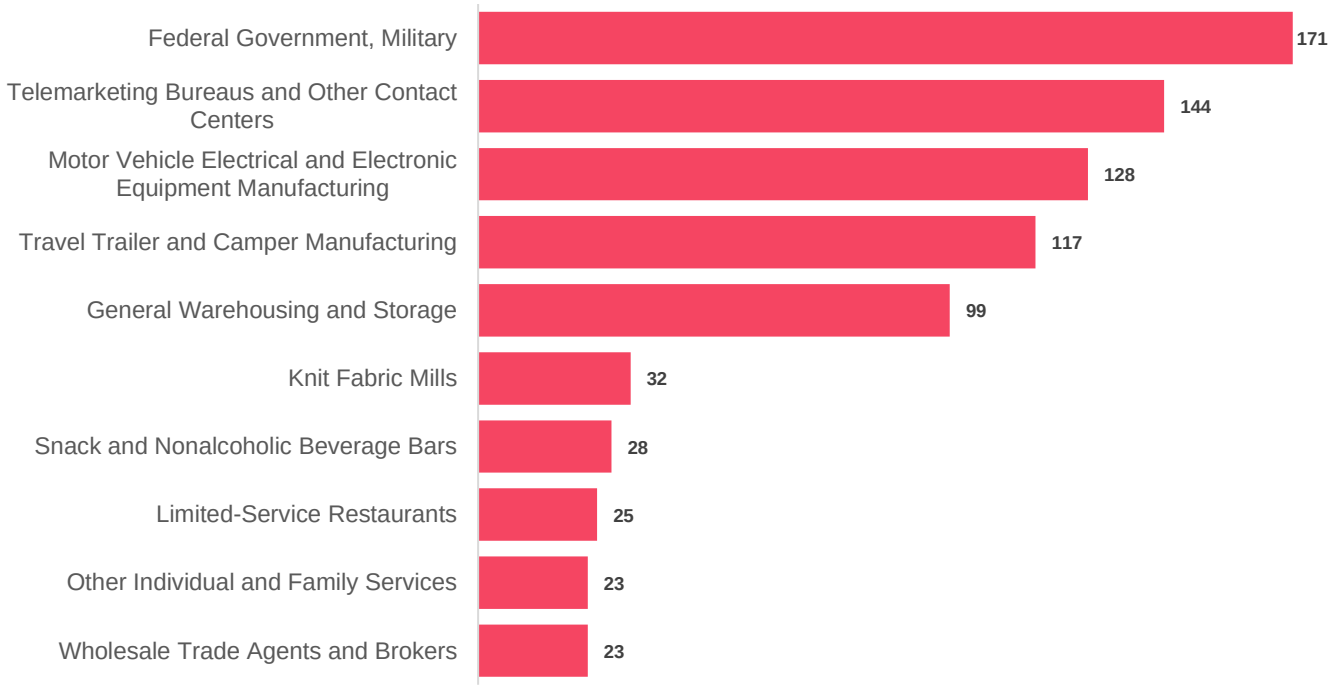
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Geary County	5.9%	23.9%	29.0%	16.0%	16.7%	8.5%
Flint Hills	6.7%	24.6%	24.4%	9.4%	20.8%	14.1%
Kansas	8.8%	25.2%	22.4%	9.0%	21.6%	13.0%
United States	11.5%	26.5%	20.1%	8.7%	20.3%	12.8%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Geary County that experienced job gains during 2020. Those industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

Geary County's labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

Geary County COVID Impact Overview

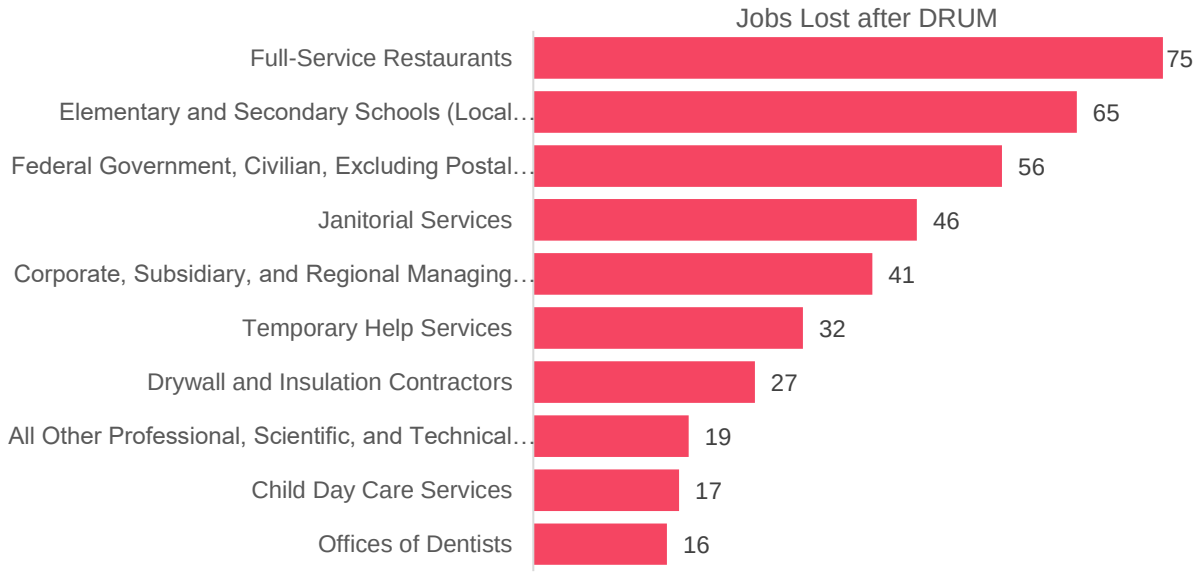
302	29,671	29,975	264
Number of Industries in Geary County	Jobs in 2019	Jobs in 2020	Net Job **Gain*** After DRUM

*Across all industries, Geary County actually saw a net increase in jobs driven by the industries shown on page 10.
Note: The remainder of this analysis excludes those industries that gained jobs.

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario were 143. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 815 jobs. Job losses shown by Figure 06 represent close to 50% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 874 for Type I and 918 for Type II economic effect. In other words, because of the initial 815 lost jobs, there are 59 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are an additional 44 jobs that were lost because they were no longer supported by the 815 jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

143 Industries
Negatively Affected

815
Initial Job Loss

874
Type I Job Loss

918
Total Loss in Jobs*

$43.6 million
Earning Loss*

$3.1 million
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Full-Service Restaurants	75	79	82
Elementary and Secondary Schools (Local Government)	65	65	69
Federal Government, Civilian, Excluding Postal Service	56	59	65
Janitorial Services	46	48	50
Corporate, Subsidiary, and Regional Managing Offices	41	43	46
Temporary Help Services	32	37	39
Drywall and Insulation Contractors	27	28	29
All Other Professional, Scientific, and Technical Services	19	20	21
Child Day Care Services	17	18	18
Offices of Dentists	16	17	18
Other Industries	421	460	481
All Industries	815	874	918

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was $37,608,445 where the total effect of Type I is 9% higher and Type II 16% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $20,903,268 and an economic impact of $22,120,187 loss on Type I and $23,693,551 on Type II effects, for the top 10 industries, which represents 54% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Federal Government, Civilian, Excluding Postal Service	$5,315,893	$5,555,907	$6,147,940
Elementary and Secondary Schools (Local Government)	$2,903,583	$2,917,365	$3,077,774
Corporate, Subsidiary, and Regional Managing Offices	$2,485,681	$2,657,745	$2,800,496
Temporary Help Services	$2,363,941	$2,679,247	$2,880,651
Full-Service Restaurants	$1,676,952	$1,756,420	$1,812,983
All Other Professional, Scientific, and Technical Services	$1,485,807	$1,600,527	$1,714,183
Janitorial Services	$1,349,482	$1,413,254	$1,453,236
Drywall and Insulation Contractors	$1,140,946	$1,189,124	$1,249,166
Hospitals (Local Government)	$1,129,956	$1,241,100	$1,365,129
Offices of Dentists	$1,051,026	$1,109,498	$1,191,992
Other Industries	$16,705,177	$18,743,375	$19,875,144
All Industries	$37,608,445	$40,863,562	$43,568,695

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Geary County lost $3.1 million on TPI, where 21% corresponds to Federal, 36% to State and 43% to Local Government taxes. The top 10 industries represent 46% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

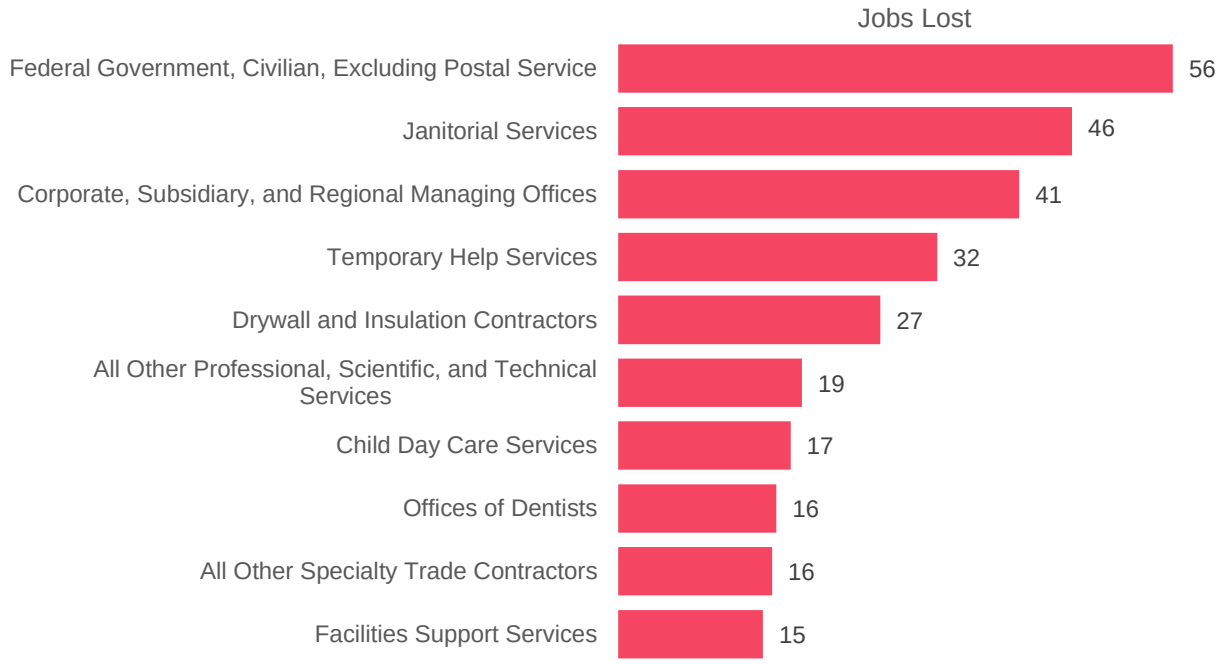
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Full-Service Restaurants	$429,638	$65,603	$162,397	$201,639
Wireless Telecommunications Carriers (except Satellite)	$198,385	$58,247	$67,388	$72,750
Hotels (except Casino Hotels) and Motels	$127,948	$15,770	$49,386	$62,792
Direct Title Insurance Carriers	$117,162	$24,926	$42,373	$49,863
Automotive Body, Paint, and Interior Repair and Maintenance	$111,690	$12,784	$43,378	$55,528
Temporary Help Services	$109,996	$42,606	$34,561	$32,829
Corporate, Subsidiary, and Regional Managing Offices	$103,405	$17,797	$38,540	$47,068
Commercial Banking	$79,804	$36,924	$23,441	$19,440
Janitorial Services	$77,034	$13,165	$28,737	$35,132
New Car Dealers	$74,964	$10,847	$28,498	$35,618
Other Industries	$1,670,318	$362,424	$602,136	$705,758
All Industries	**$3,100,343**	661,093	$1,120,835	$1,318,416

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected”. Figure 07 displays the industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 508. The number of job losses during the pandemic increased to 582 for Type I and Type II economic effects. In other words, because of the 508 lost jobs, there was an additional 42 jobs lost in the supply chain. Additionally, there were 32 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

61 Industries
Negatively Affected

508
Initial Job Loss

550
Type I Job Loss

582
Total Loss in Jobs*

$32.9 million
Earning Loss*

$1.8 million
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Federal Government, Civilian, Excluding Postal Service	56	59	65
Janitorial Services	46	48	50
Corporate, Subsidiary, and Regional Managing Offices	41	43	46
Temporary Help Services	32	37	39
Drywall and Insulation Contractors	27	28	29
All Other Professional, Scientific, and Technical Services	19	20	21
Child Day Care Services	17	18	18
Offices of Dentists	16	17	18
All Other Specialty Trade Contractors	16	16	17
Facilities Support Services	15	18	19
All Industries	508	550	582

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $238 million, where the total effect of Type I is 9% higher and Type II 17% increase over the initial effect.

Table 06: Most Affected Industries Scenario, Top 10 by Earnings Loss

Industry Name	Initial Effect	Type I	Type II
Federal Government, Civilian, Excluding Postal Service	$5,315,893	$5,555,907	$6,147,940
Corporate, Subsidiary, and Regional Managing Offices	$2,485,681	$2,657,745	$2,800,496
Temporary Help Services	$2,363,941	$2,679,247	$2,880,651
All Other Professional, Scientific, and Technical Services	$1,485,807	$1,600,527	$1,714,183
Janitorial Services	$1,349,482	$1,413,254	$1,453,236
Drywall and Insulation Contractors	$1,140,946	$1,189,124	$1,249,166
Hospitals (Local Government)	$1,129,956	$1,241,100	$1,365,129
Offices of Dentists	$1,051,026	$1,109,498	$1,191,992
Computer Systems Design Services	$933,703	$987,534	$1,097,662
Other Support Activities for Air Transportation	$816,239	$985,116	$1,059,274
All Industries	$28,120,964	$30,718,148	$32,923,808

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost nearly $1.8 million on TPI where 25% corresponds to federal government, 35% to state and 40% to local governments (Table 07).

Table 07: Most Affected Industries Scenario, Top 10 Industries by Loss on Taxes on Production & Imports

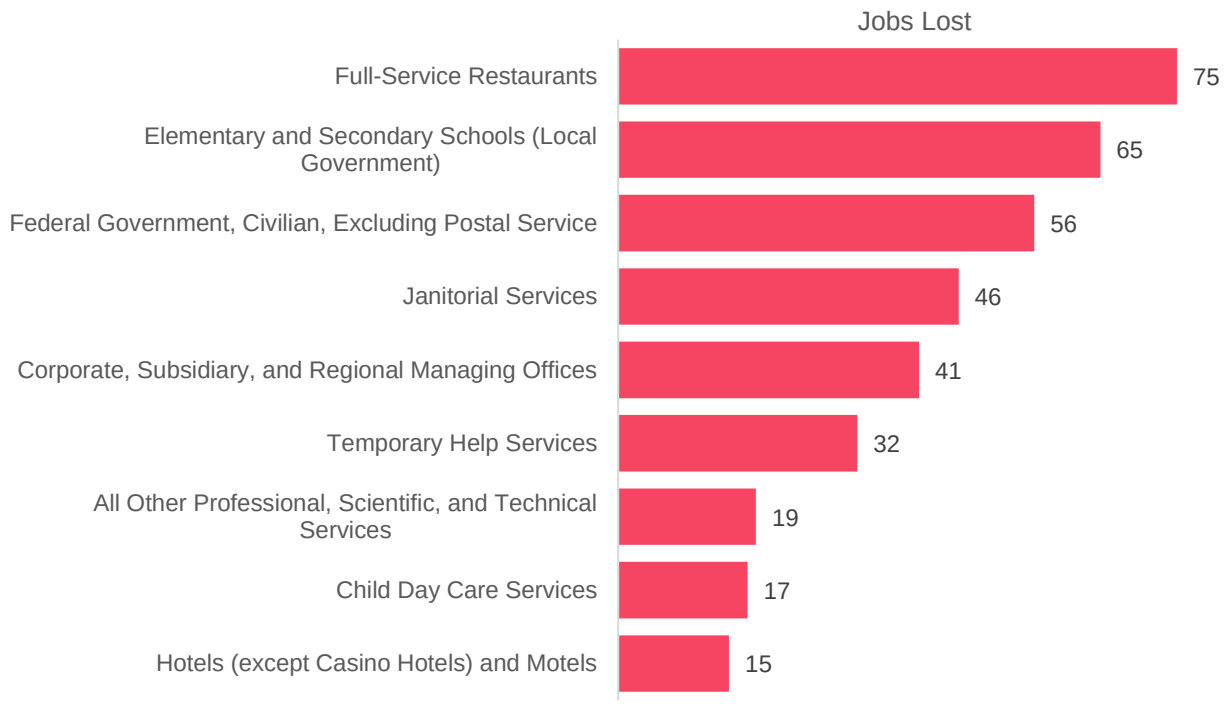
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Wireless Telecommunications Carriers (except Satellite)	$198,385	$58,247	$67,388	$72,750
Direct Title Insurance Carriers	$117,162	$24,926	$42,373	$49,863
Automotive Body, Paint, and Interior Repair and Maintenance	$111,690	$12,784	$43,378	$55,528
Temporary Help Services	$109,996	$42,606	$34,561	$32,829
Corporate, Subsidiary, and Regional Managing Offices	$103,405	$17,797	$38,540	$47,068
Commercial Banking	$79,804	$36,924	$23,441	$19,440
Janitorial Services	$77,034	$13,165	$28,737	$35,132
Facilities Support Services	$54,606	$20,700	$17,280	$16,626
Drywall and Insulation Contractors	$52,709	$18,497	$17,083	$17,129
All Other Professional, Scientific, and Technical Services	$51,427	$16,324	$17,136	$17,967
All Industries	**$1,769,034**	**$434,728**	**$623,926**	**$710,379**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people and lost jobs from 2019 to 2020. We called this set of industries the “Most Relevant.” There are nine industries in this scenario. Figure 08 displays the industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the nine industries amounts to 367 jobs during 2020.

The job losses increased to 385 for Type I and 406 for Type II economic effects. In other words, because of the 367 losses on jobs there were 18 jobs that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

9 Industries
Negatively Affected

367
Initial Job Loss

385
Type I Job Loss

406
Total Loss in Jobs*

$20.4 million
Earning Loss*

$979,000
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Full-Service Restaurants	75	79	82
Elementary and Secondary Schools (Local Government)	65	65	69
Federal Government, Civilian, Excluding Postal Service	56	59	65
Janitorial Services	46	48	50
Corporate, Subsidiary, and Regional Managing Offices	41	43	46
Temporary Help Services	32	37	39
All Other Professional, Scientific, and Technical Services	19	20	21
Child Day Care Services	17	18	18
Hotels (except Casino Hotels) and Motels	15	16	16
All Industries	367	385	406

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

In terms of earnings loss, the initial loss was $18.1 million where the total effect of Type I was 6% higher and Type II increased 13% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Federal Government, Civilian, Excluding Postal Service	$5,315,893	$5,555,907	$6,147,940
Elementary and Secondary Schools (Local Government)	$2,903,583	$2,917,365	$3,077,774
Corporate, Subsidiary, and Regional Managing Offices	$2,485,681	$2,657,745	$2,800,496
Temporary Help Services	$2,363,941	$2,679,247	$2,880,651
Full-Service Restaurants	$1,676,952	$1,756,420	$1,812,983
All Other Professional, Scientific, and Technical Services	$1,485,807	$1,600,527	$1,714,183
Janitorial Services	$1,349,482	$1,413,254	$1,453,236
Child Day Care Services	$309,670	$315,433	$319,968
Hotels (except Casino Hotels) and Motels	$249,755	$260,015	$265,903
All Industries	$18,140,765	$19,155,913	$20,473,134

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Geary County lost $979,232 on TPI, of which 19% corresponded to federal government, 37% to state and 44% to local governments (Table 10).

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Full-Service Restaurants	$429,638	$65,603	$162,397	$201,639
Hotels (except Casino Hotels) and Motels	$127,948	$15,770	$49,386	$62,792
Temporary Help Services	$109,996	$42,606	$34,561	$32,829
Corporate, Subsidiary, and Regional Managing Offices	$103,405	$17,797	$38,540	$47,068
Janitorial Services	$77,034	$13,165	$28,737	$35,132
All Other Professional, Scientific, and Technical Services	$51,427	$16,324	$17,136	$17,967
Federal Government, Civilian, Excluding Postal Service	$48,886	$9,388	$17,956	$21,543
Elementary and Secondary Schools (Local Government)	$20,835	$3,905	$7,679	$9,252
Child Day Care Services	$10,063	$1,874	$3,712	$4,477
All Industries	**$979,232**	$186,431	$360,103	$432,698

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on Geary County in each of the output scenarios.

Interestingly, in terms of net jobs, Geary County actually gained jobs from 2019 to 2020. While some industries gained jobs, it is important to note the impact of the 815 jobs lost across other industries. This had a negative total earnings impact of nearly 20 million on the local economy.

> The results of this study demonstrate the profound effect of COVID-19 on Geary County across **multiple scenarios**.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.

Lightcast

COVID-19: Economic Impact Analysis on Lyon County

Executive Summary Report

August 2022

FLINT HILLS REGION

Acknowledgements

Lightcast gratefully acknowledges the excellent support of the Flint Hills Regional Council (FHRC). A special thank you goes to Jerry Lonergan and Janna L. Williams at FHRC.

This report is prepared for the FHRC by Lightcast. The content is solely the responsibility of the author and does not necessarily represent the official views of the FHRC. Proper acknowledgement of Lightcast should be included in publications, presentations, or other developed materials.

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INTRODUCTION

Lyon County is one of seven counties in the Flint Hills Economic Development District (FHEDD). FHEDD includes Chase, Geary, Lyon, Morris, Pottawatomie, Riley and Wabaunsee Counties. In 2020, the Lyon County population was just over 33,000, with a total regional employment of about 16,600 jobs.

The Lyon County economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Lyon County generates new dollars and creates opportunities in the region. When COVID-19 arrived, all these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

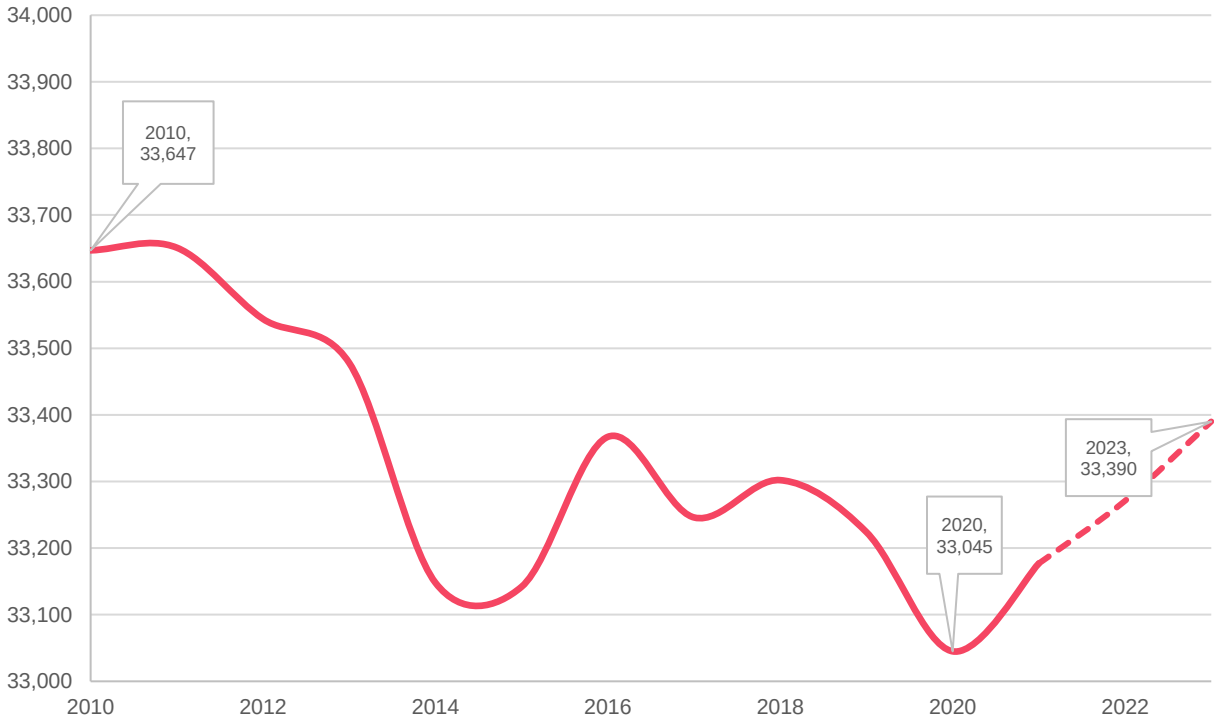
Labor Force in Lyon creates new opportunities in the region.

The purpose of this report is to outline the county's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, 33,647 people resided in Lyon County. Population in the county has fluctuated from 2010 to 2021, seeing a dip and then an increase around 2015, but it is projected to continue to grow to 33,390 people by 2023 (Figure 01).

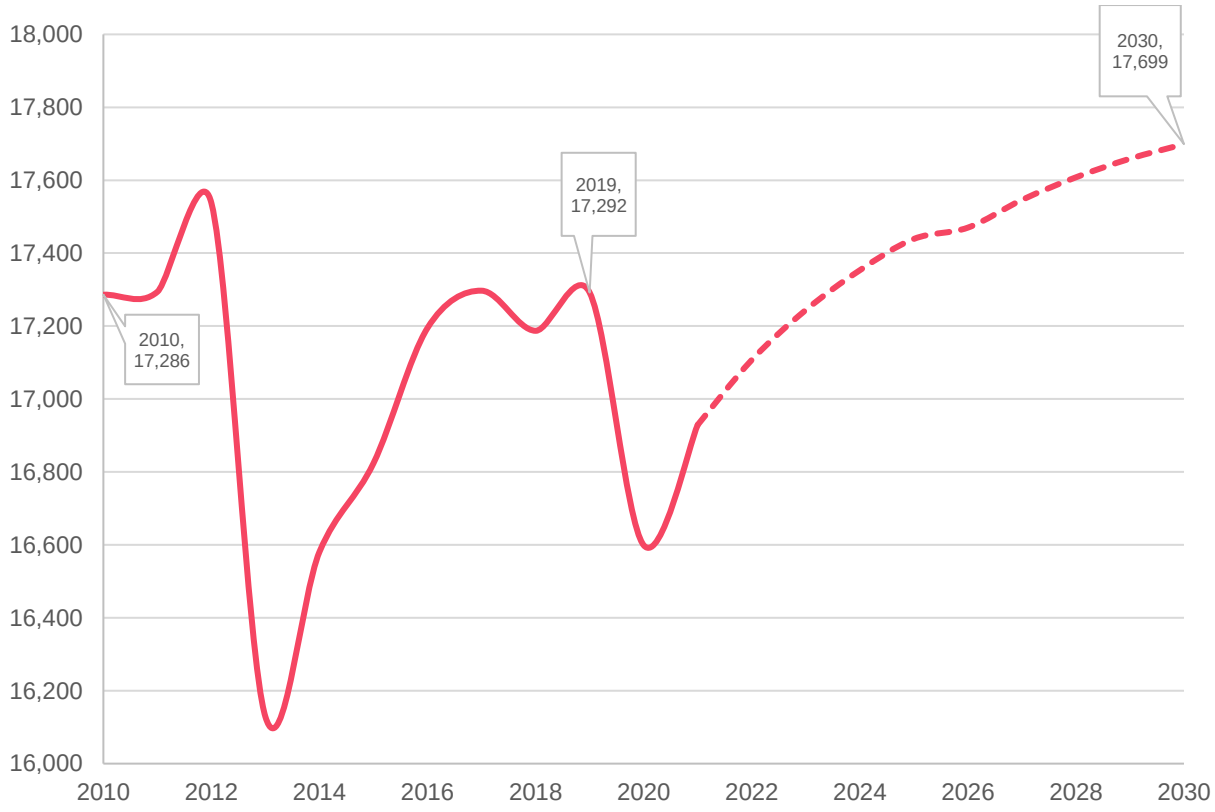
Figure 01: Historical and Projected Population in Lyon County, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Lyon County supported over 17,000 annual average jobs in 2010, but similar to the population, the jobs in the county have seen a fluctuation. There was a major loss of jobs from 2012 to 2013. From 2019 to 2020, the county lost nearly 700 jobs. Jobs are projected to grow to a peak of 17,700 jobs through 2030. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

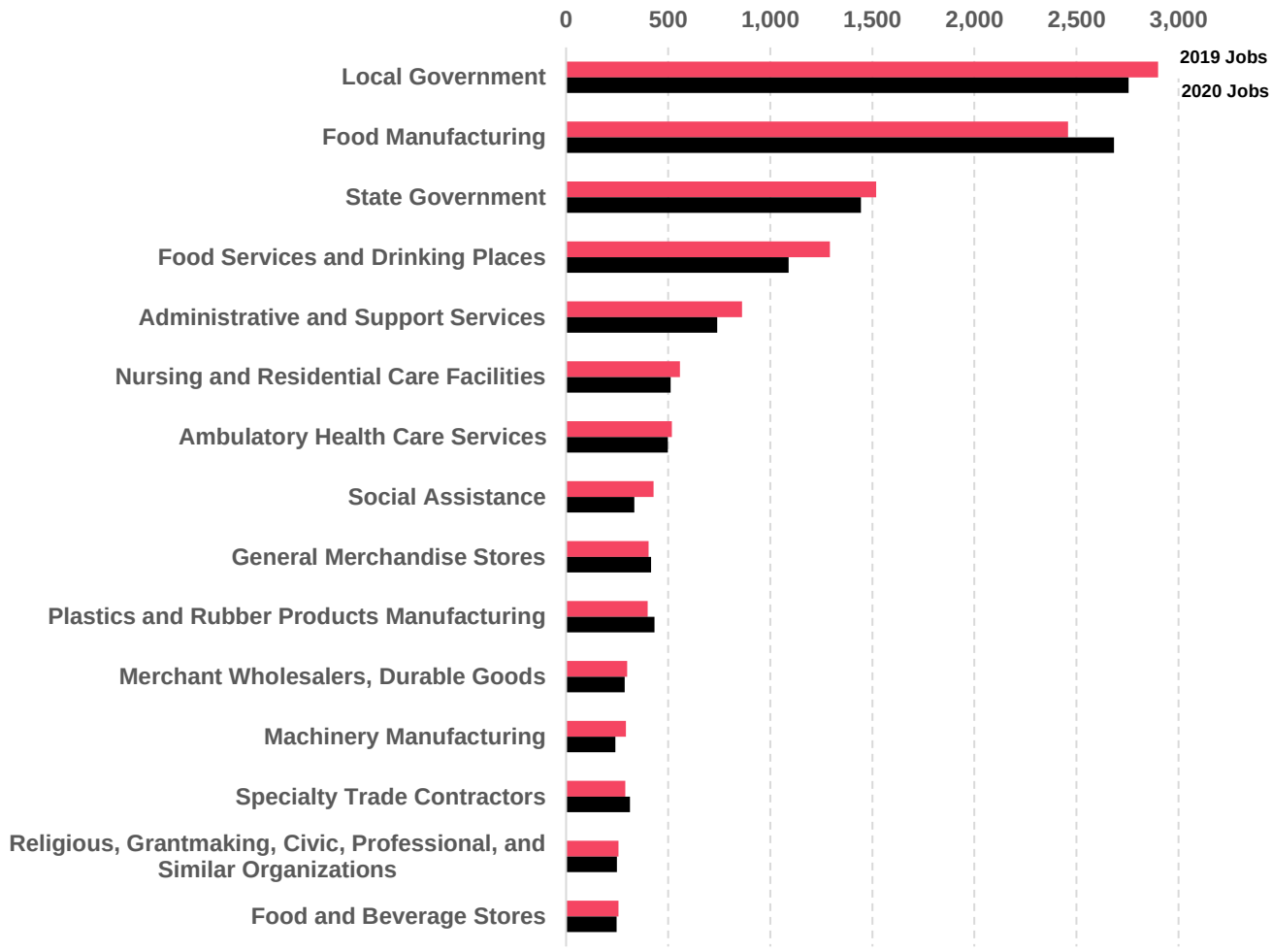
Figure 02: Historical and Projected Jobs in Lyon, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Lyon County. In 2019 and in 2020, Local Government and Food Manufacturing had the highest number of jobs out of all industries. Local Government saw a slight decrease in jobs, whereas Food Manufacturing saw an increase.

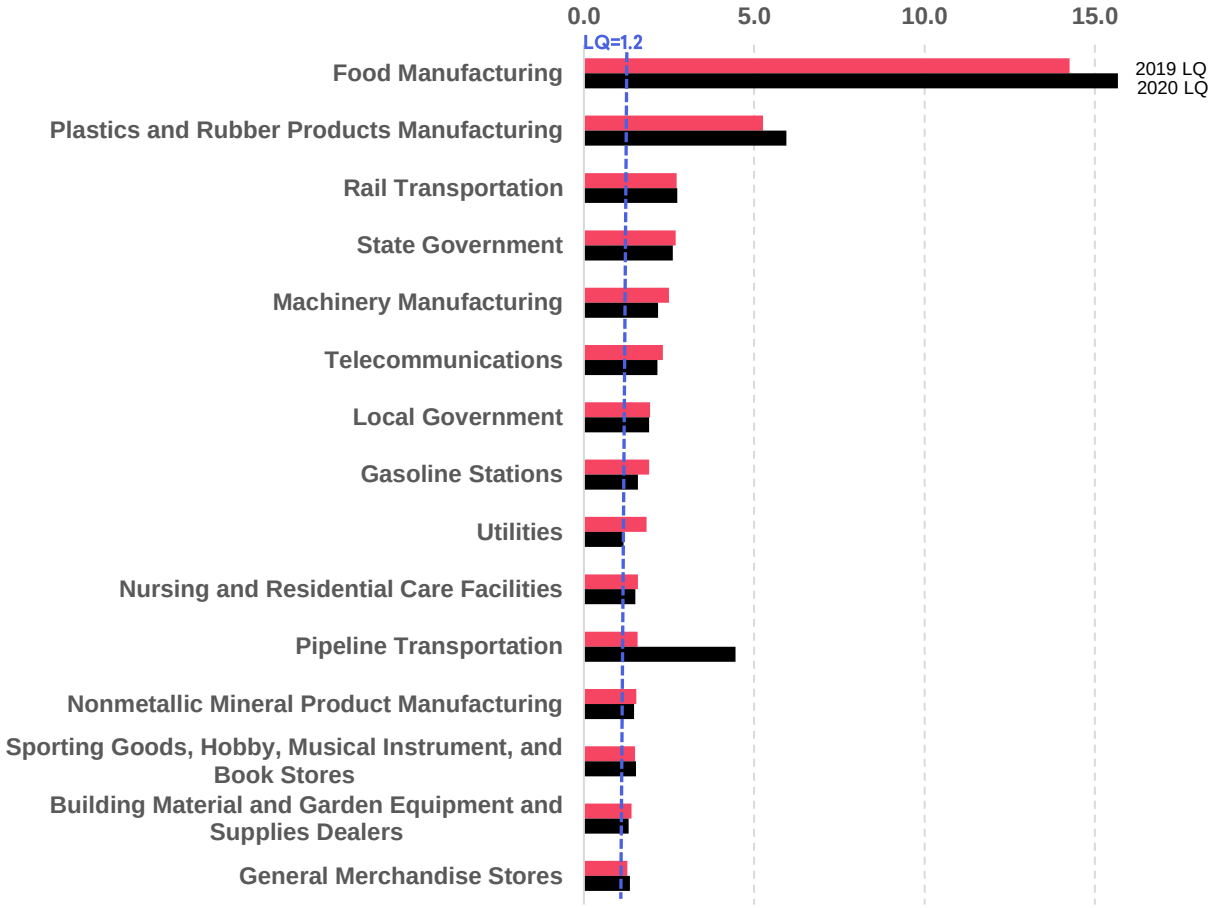
Figure 03: Top Industry Subsectors in Lyon by Jobs



Source: Lightcast 2022.2.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. Lyon County has an extremely high concentration of Food Manufacturing and Plastics and Rubber Products Manufacturing. Its concentration of Pipeline Transportation also increased dramatically from 2019 to 2020.

Figure 04: Top Industry Subsectors in Lyon by Employment Concentration (LQ)



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, seven industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Local Government
- Food Manufacturing
- State Government
- Nursing and Residential Care Facilities
- Plastics and Rubber Products Manufacturing
- General Merchandise Stores
- Machinery Manufacturing

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Lyon County falls below the region, the state of Kansas and the United States in terms of median household income and slightly below the region in per capita income. Lyon County shows lower unemployment rates when compared against the different regions. Poverty rates in Lyon County are slightly higher than the region, but on par with the state poverty rates and below the national.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Lyon County	**$46,338**	**4.54%**	**$26,904**	**7.80%**
Flint Hills Region	**$54,243**	**5.07%**	**$26,844**	**7.10%**
Kansas	**$59,597**	**5.89%**	**$31,814**	**7.80%**
United States	**$62,843**	**8.07%**	**$34,103**	**9.50%**

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Lyon County, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Lyon County shows the highest percentage of high school or less level attainment when compared against the different regions. The county is about on par with the comparison regions for Some College and Associate's Degrees.

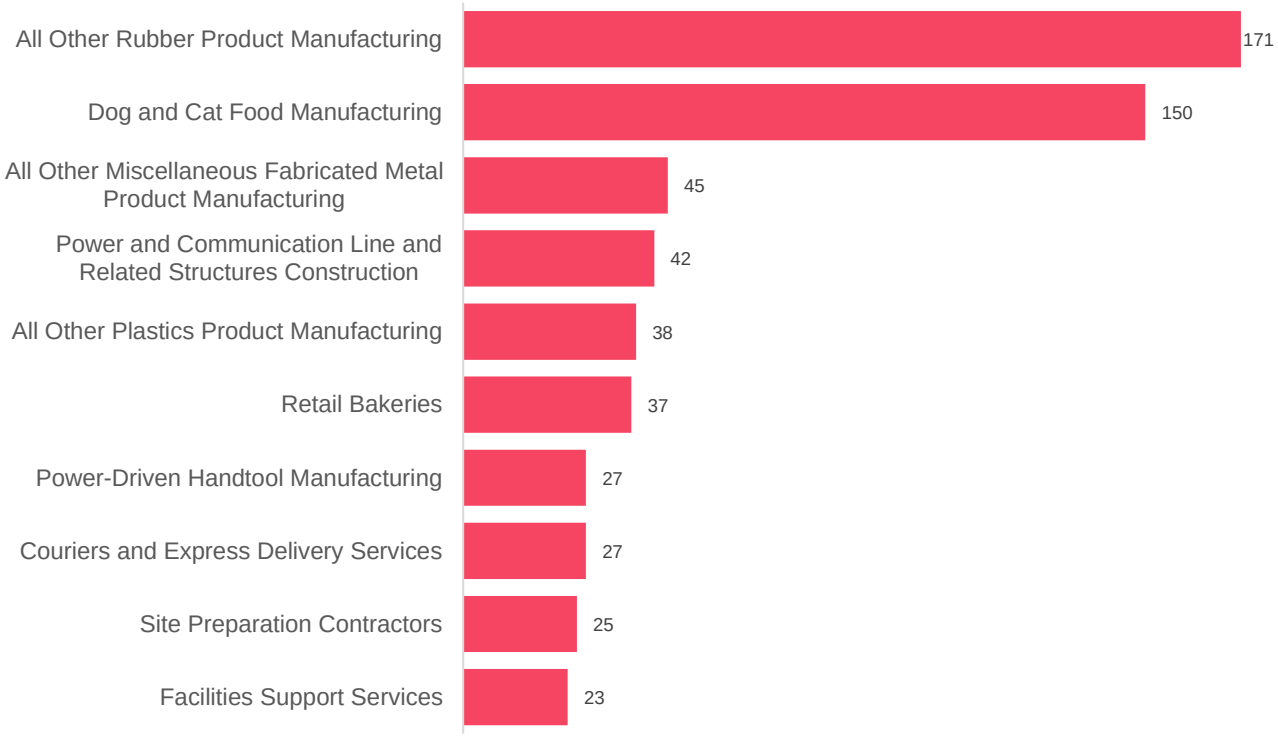
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Lyon County	12.7%	27.3%	24.1%	8.3%	16.0%	11.6%
Flint Hills	6.7%	24.6%	24.4%	9.4%	20.8%	14.1%
Kansas	8.8%	25.2%	22.4%	9.0%	21.6%	13.0%
United States	11.5%	26.5%	20.1%	8.7%	20.3%	12.8%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Lyon County that experienced job gains during 2020. Those industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

Lyon County's labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

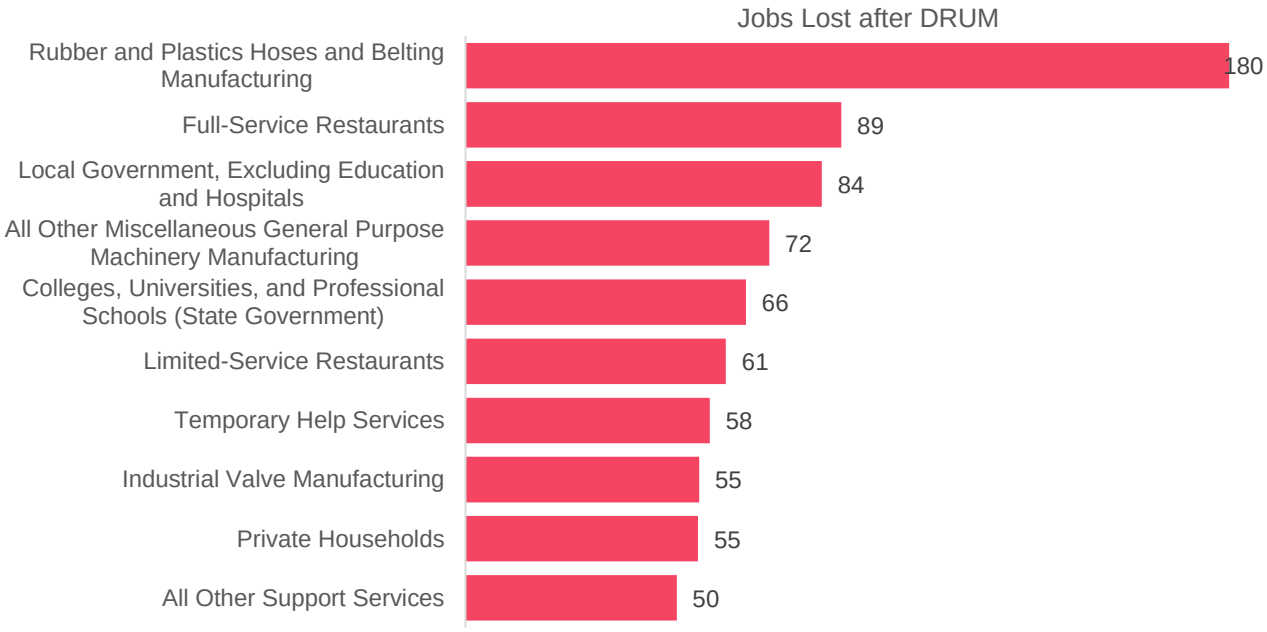
Lyon County COVID Impact Overview

362	17,292	16,599	607
Number of Industries in Lyon County	Jobs in 2019	Jobs in 2020	Net Job Loss After DRUM

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario were 188. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 1,571 jobs. Job losses shown by Figure 06 represent close to 50% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 1,803 for Type I and 1,971 for Type II economic effect. In other words, because of the initial 1,571 lost jobs, there are 232 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are 168 jobs that were lost because they were no longer supported by the jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

188 Industries
Negatively Affected

1,571
Initial Job Loss

1,803
Type I Job Loss

1,971
Total Loss in Jobs*

$87 million
Earning Loss*

$14.1 million
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Rubber and Plastics Hoses and Belting Manufacturing	180	180	180
Full-Service Restaurants	89	94	99
Local Government, Excluding Education and Hospitals	84	93	104
All Other Miscellaneous General Purpose Machinery Manufacturing	72	87	113
Colleges, Universities, and Professional Schools (State Government)	66	67	75
Limited-Service Restaurants	61	68	71
Temporary Help Services	58	65	70
Industrial Valve Manufacturing	55	55	55
Private Households	55	55	56
All Other Support Services	50	57	60
Other Industries	802	983	1,089
All Industries	1,571	1,803	1,971

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was $58.7 million where the total effect of Type I is 18% higher and Type II 23% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $32,026,632 and an economic impact of $42,354,632 loss on Type I and $50,898,631 on Type II effects, for the top 10 industries, which represents 58% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
All Other Miscellaneous General Purpose Machinery Manufacturing	$8,885,558	$10,773,400	$13,985,770
Fossil Fuel Electric Power Generation	$5,803,454	$10,684,834	$13,662,575
Local Government, Excluding Education and Hospitals	$4,075,093	$4,502,192	$5,051,908
Colleges, Universities, and Professional Schools (State Government)	$2,929,935	$2,990,233	$3,302,290
Child and Youth Services	$2,134,482	$3,681,617	$4,061,869
Temporary Help Services	$1,985,204	$2,228,730	$2,412,699
Meat Processed from Carcasses	$1,740,500	$2,647,076	$3,032,586
Full-Service Restaurants	$1,692,927	$1,789,052	$1,888,817
Other Engine Equipment Manufacturing	$1,466,681	$1,724,341	$2,052,434
Colleges, Universities, and Professional Schools (Local Government)	$1,312,797	$1,333,156	$1,447,683
Other Industries	$26,626,580	$32,462,216	$36,118,378
All Industries	$58,653,211	$74,816,848	$87,017,009

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Lyon County lost nearly $14.2 million on TPI, where 15% corresponds to Federal, 38% to State and 47% to Local Government taxes. The top 10 industries represent 70% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

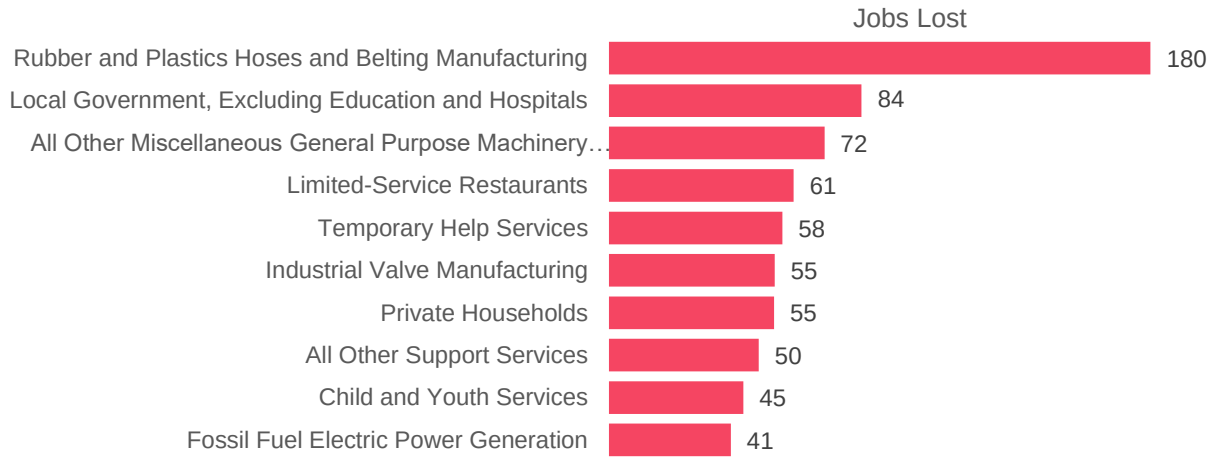
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Fossil Fuel Electric Power Generation	$5,862,539	$861,817	$2,225,021	$2,775,700
All Other Miscellaneous General Purpose Machinery Manufacturing	$773,259	$200,720	$269,816	$302,723
Rubber and Plastics Hoses and Belting Manufacturing	$511,565	$63,461	$197,110	$250,994
Wired Telecommunications Carriers	$449,602	$84,926	$165,519	$199,157
Gasoline Stations with Convenience Stores	$444,431	$54,912	$171,509	$218,011
Full-Service Restaurants	$435,681	$57,315	$167,185	$211,181
Limited-Service Restaurants	$406,416	$54,016	$155,805	$196,595
Child and Youth Services	$381,445	$51,482	$146,019	$183,944
Electric Power Distribution	$377,486	$55,449	$143,280	$178,758
Meat Processed from Carcasses	$311,276	$62,312	$113,640	$135,325
Other Industries	$4,221,345	$644,771	$1,595,364	$1,981,211
All Industries	**$14,175,044**	2,191,180	$5,350,266	$6,633,598

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected” and it included 92 industries in Lyon County. Figure 07 displays the industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 1,230. The number of job losses during the pandemic increased to 1,437 for Type I and 1,578 for Type II economic effects. In other words, because of the 1,230 lost jobs, there was an additional 207 jobs lost in the supply chain. Additionally, there were 141 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

92 Industries
Negatively Affected

1,230
Initial Job Loss

1,437
Type I Job Loss

1,578
Total Loss in Jobs*

$48 million
Earning Loss*

$12.3 million
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Rubber and Plastics Hoses and Belting Manufacturing	180	180	180
Local Government, Excluding Education and Hospitals	84	93	104
All Other Miscellaneous General Purpose Machinery Manufacturing	72	87	113
Limited-Service Restaurants	61	68	71
Temporary Help Services	58	65	70
Industrial Valve Manufacturing	55	55	55
Private Households	55	55	56
All Other Support Services	50	57	60
Child and Youth Services	45	77	85
Fossil Fuel Electric Power Generation	41	75	95
All Industries	1,230	1,437	1,578

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $48.2 million, where the total effect of Type I is 31% higher and Type II 53% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
All Other Miscellaneous General Purpose Machinery Manufacturing	$8,885,558	$10,773,400	$13,985,770
Fossil Fuel Electric Power Generation	$5,803,454	$10,684,834	$13,662,575
Local Government, Excluding Education and Hospitals	$4,075,093	$4,502,192	$5,051,908
Child and Youth Services	$2,134,482	$3,681,617	$4,061,869
Temporary Help Services	$1,985,204	$2,228,730	$2,412,699
Meat Processed from Carcasses	$1,740,500	$2,647,076	$3,032,586
Other Engine Equipment Manufacturing	$1,466,681	$1,724,341	$2,052,434
Colleges, Universities, and Professional Schools (Local Government)	$1,312,797	$1,333,156	$1,447,683
All Other Support Services	$1,176,234	$1,339,960	$1,416,659
All Other Business Support Services	$1,040,159	$1,155,401	$1,231,305
All Industries	$48,288,206	$63,181,286	$74,070,616

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost $12.3 million on TPI where 16% corresponds to federal government, 38% to state and 47% to local governments (Table 07).

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

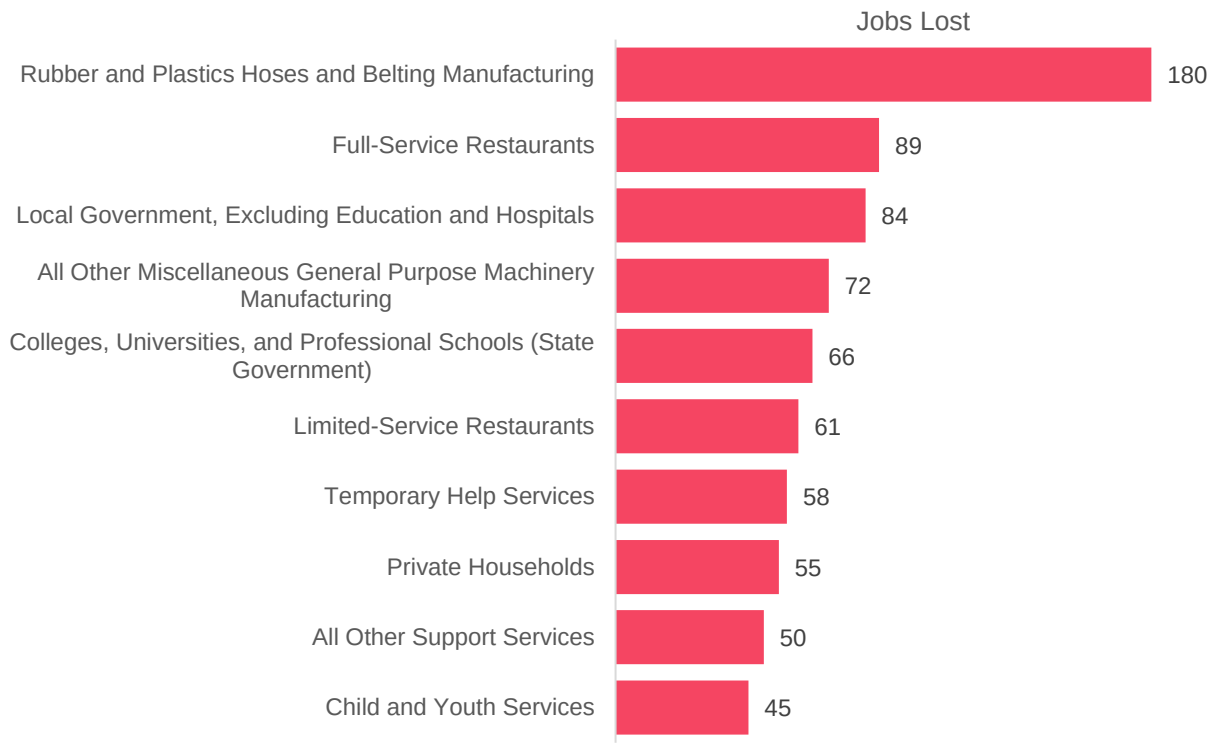
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Fossil Fuel Electric Power Generation	$5,862,539	$861,817	$2,225,021	$2,775,700
All Other Miscellaneous General Purpose Machinery Manufacturing	$773,259	$200,720	$269,816	$302,723
Rubber and Plastics Hoses and Belting Manufacturing	$511,565	$63,461	$197,110	$250,994
Wired Telecommunications Carriers	$449,602	$84,926	$165,519	$199,157
Gasoline Stations with Convenience Stores	$444,431	$54,912	$171,509	$218,011
Limited-Service Restaurants	$406,416	$54,016	$155,805	$196,595
Child and Youth Services	$381,445	$51,482	$146,019	$183,944
Electric Power Distribution	$377,486	$55,449	$143,280	$178,758
Meat Processed from Carcasses	$311,276	$62,312	$113,640	$135,325
Industrial Valve Manufacturing	$310,091	$36,073	$120,113	$153,905
All Industries	**$12,299,361**	**$1,932,768**	**$4,633,704**	**$5,732,889**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people (over 100) and lost jobs at least 10 jobs from 2019 to 2020. We called this set of industries the “Most Relevant.” There are 19 industries in this scenario. Figure 08 displays the industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the 19 industries amounts to 953 jobs during 2020.

The job losses increased to 1,076 for Type I and 1,171 for Type II economic effects. In other words, because of the 953 losses on jobs there were 123 that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

19 Industries
Negatively Affected

953
Initial Job Loss

1,076
Type I Job Loss

1,171
Total Loss in Jobs*

$45.6 million
Earning Loss*

$4.6 million
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Rubber and Plastics Hoses and Belting Manufacturing	180	180	180
Full-Service Restaurants	89	94	99
Local Government, Excluding Education and Hospitals	84	93	104
All Other Miscellaneous General Purpose Machinery Manufacturing	72	87	113
Colleges, Universities, and Professional Schools (State Government)	66	67	75
Limited-Service Restaurants	61	68	71
Temporary Help Services	58	65	70
Private Households	55	55	56
All Other Support Services	50	57	60
Child and Youth Services	45	77	85
All Industries	953	1,076	1,171

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

In terms of earnings loss, the initial loss was $32.8 million where the total effect of Type I was 20% higher and Type II increased 39% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
All Other Miscellaneous General Purpose Machinery Manufacturing	$8,885,558	$10,773,400	$13,985,770
Local Government, Excluding Education and Hospitals	$4,075,093	$4,502,192	$5,051,908
Colleges, Universities, and Professional Schools (State Government)	$2,929,935	$2,990,233	$3,302,290
Child and Youth Services	$2,134,482	$3,681,617	$4,061,869
Temporary Help Services	$1,985,204	$2,228,730	$2,412,699
Meat Processed from Carcasses	$1,740,500	$2,647,076	$3,032,586
Full-Service Restaurants	$1,692,927	$1,789,052	$1,888,817
Other Engine Equipment Manufacturing	$1,466,681	$1,724,341	$2,052,434
Colleges, Universities, and Professional Schools (Local Government)	$1,312,797	$1,333,156	$1,447,683
All Other Support Services	$1,176,234	$1,339,960	$1,416,659
All Industries	$32,825,366	$39,413,631	$45,639,243

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Lyon County lost $4.1 million on TPI, of which 17% corresponded to federal government, 37% to state and 46% to local governments (Table 10).

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
All Other Miscellaneous General Purpose Machinery Manufacturing	$773,259	$200,720	$269,816	$302,723
Rubber and Plastics Hoses and Belting Manufacturing	$511,565	$63,461	$197,110	$250,994
Wired Telecommunications Carriers	$449,602	$84,926	$165,519	$199,157
Gasoline Stations with Convenience Stores	$444,431	$54,912	$171,509	$218,011
Full-Service Restaurants	$435,681	$57,315	$167,185	$211,181
Limited-Service Restaurants	$406,416	$54,016	$155,805	$196,595
Child and Youth Services	$381,445	$51,482	$146,019	$183,944
Meat Processed from Carcasses	$311,276	$62,312	$113,640	$135,325
Hotels (except Casino Hotels) and Motels	$248,958	$28,581	$96,667	$123,710
Other Engine Equipment Manufacturing	$174,900	$40,272	$62,422	$72,206
All Industries	**$4,137,532**	$697,997	$1,545,690	$1,893,845

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on Lyon County in each of the output scenarios.

One of the most relevant results came from the total effect on TPI by job losses in All Industries, where nearly 50% is attributed to the 10 industries under the first scenario. The job projections indicate future growth which is positive for the county. Finally, the 1,571 initial lost jobs translated to $87 million in earnings lost and a $14 million loss on TPI. This loss will affect the region deeply.

> The results of this study demonstrate the profound effect of COVID-19 on Lyon across **multiple scenarios**.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.

Lightcast

COVID-19: Economic Impact Analysis on Morris County

Executive Summary Report

August 2022

FLINT HILLS REGION

Acknowledgements

Lightcast gratefully acknowledges the excellent support of the Flint Hills Regional Council (FHRC). A special thank you goes to Jerry Lonergan and Janna L. Williams at FHRC.

This report is prepared for the FHRC by Lightcast. The content is solely the responsibility of the author and does not necessarily represent the official views of the FHRC. Proper acknowledgement of Lightcast should be included in publications, presentations, or other developed materials.

Lightcast provides labor market data that helps to create better outcomes for communities. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. A variety of our clients use Lightcast to align programs with regional needs and demonstrate their institution's economic impact on their region. Visit https://lightcast.io/ to learn more or connect with us.

INTRODUCTION

Morris County is one of seven counties in the Flint Hills Economic Development District (FHEDD). FHEDD includes Chase, Geary, Lyon, Morris, Pottawatomie, Riley and Wabaunsee Counties. In 2020, the Morris County population was just over 5,500, with a total regional employment of about 2,000 jobs.

The Morris County economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Morris County generates new dollars and creates opportunities in the region. When COVID-19 arrived, all of these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

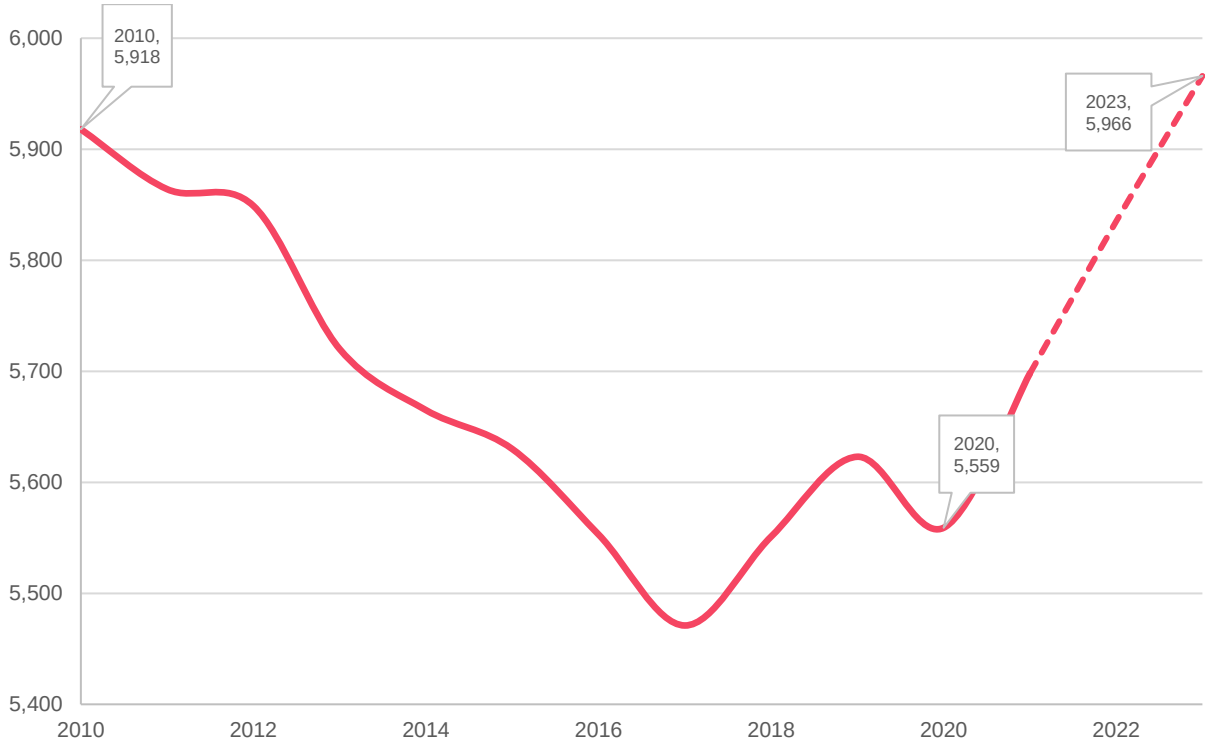
Labor Force in Morris creates new opportunities in the region.

The purpose of this report is to outline the county's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, nearly 6,000 people resided in Morris County. Population in the county has decreased from 2010 to 2017, but increased steadily from 2017 to 2019, dipping slightly in 2020. The county is projected to grow past population levels in 2010 by 2023 (Figure 01).

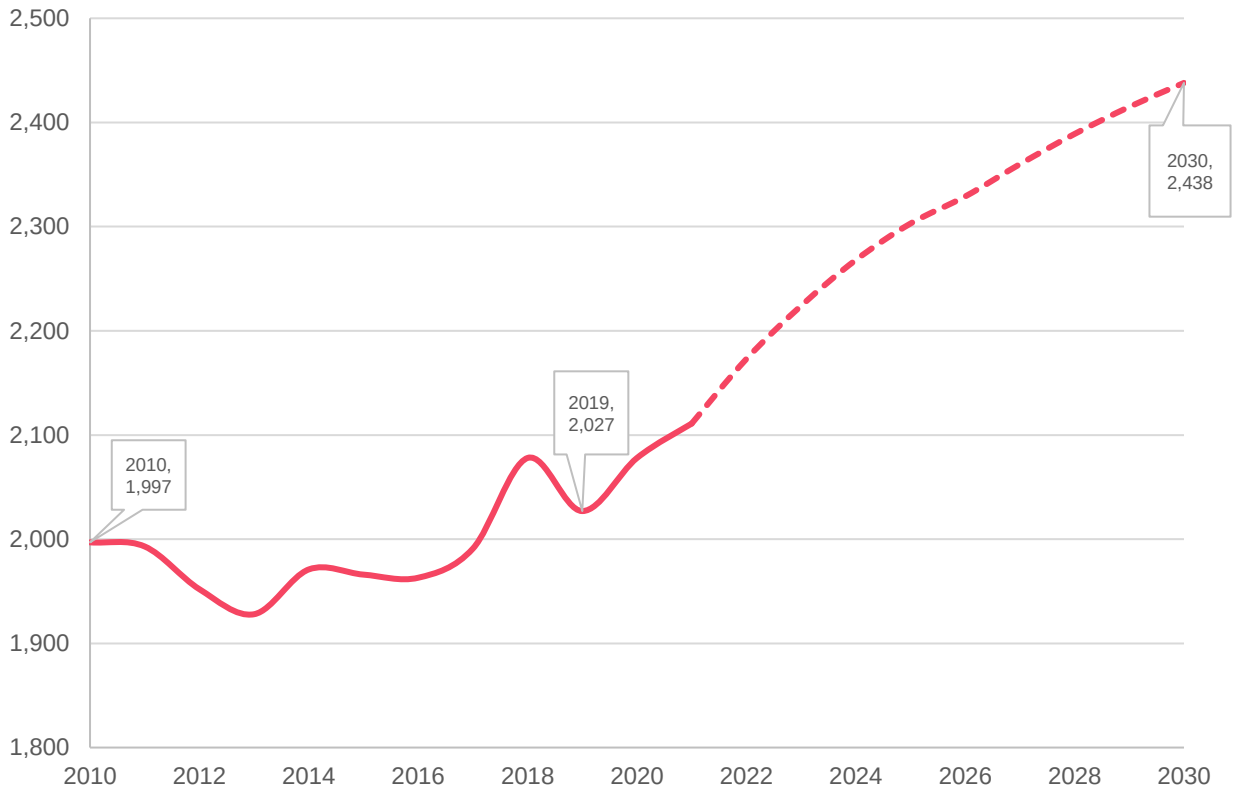
Figure 01: Historical and Projected Population in Morris County, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Morris County supported an annual average of just about 2,000 jobs in 2010. Jobs grew steadily from 2010 to 2018, dipping slightly in 2019, but then growing from 2019 to 2021. Jobs are projected to grow to a peak of almost 2,500 jobs through 2030. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

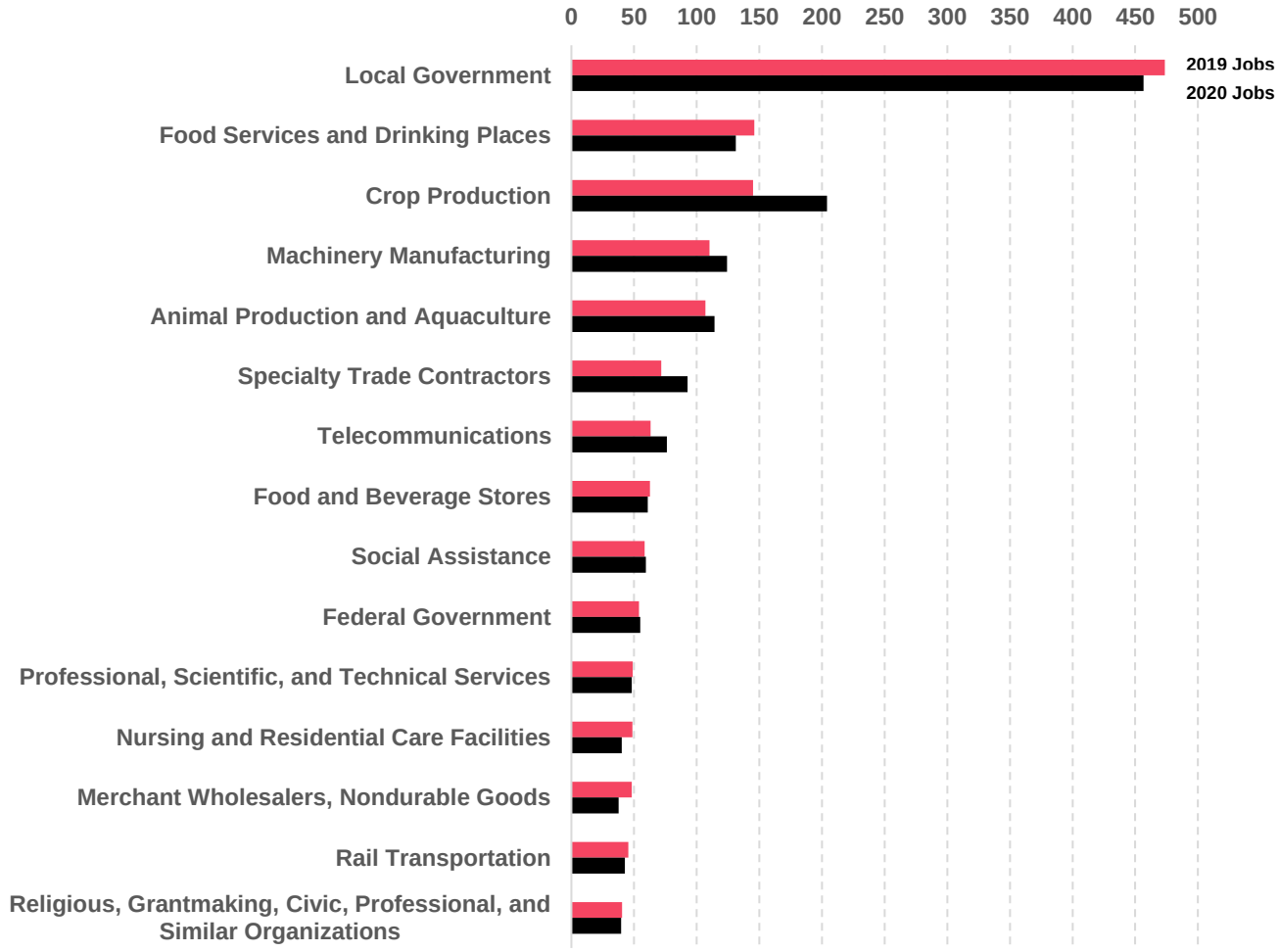
Figure 02: Historical and Projected Jobs in Morris, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Morris County. In 2019 and in 2020, Local Government had the highest number of jobs out of all industries. Crop Production saw the highest increase of jobs from 2019 to 2020.

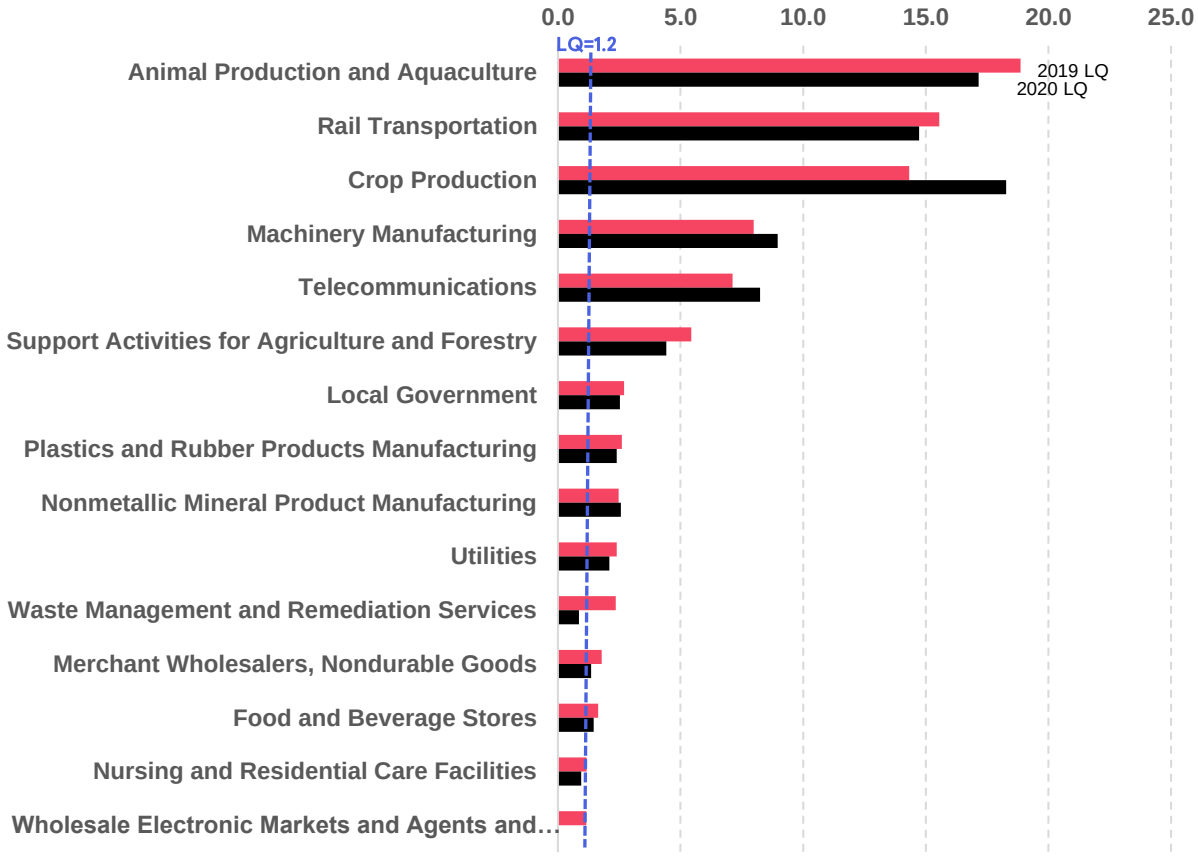
Figure 03: Top Industry Subsectors in Morris by Jobs



Source: Lightcast 2022.2.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. Morris County has an extremely high concentration of Animal Production and Aquaculture, Rail Transportation and Crop Production.

Figure 04: Top Industry Subsectors in Morris by Employment Concentration (LQ)



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, nine industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Local Government
- Crop Production
- Machinery Manufacturing
- Animal Production and Aquaculture
- Telecommunications
- Food and Beverage Stores
- Rail Transportation
- Nursing and Residential Care Facilities
- Merchant Wholesalers, Nondurable Goods

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Morris County falls below the state of Kansas and the United States in terms of median household income and per capita income, but above the regional average. Morris County shows lower unemployment rates and poverty rates when compared against the different regions.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Morris County	$55,658	3.82%	$29,558	4.20%
Flint Hills Region	$54,243	5.07%	$26,844	7.10%
Kansas	$59,597	5.89%	$31,814	7.80%
United States	$62,843	8.07%	$34,103	9.50%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Morris County, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Morris County shows the highest percentage of High School and Associate Degree level attainment when compared against the different regions. The county is about on par with the comparison regions for Some College and slightly below for Bachelor's degrees.

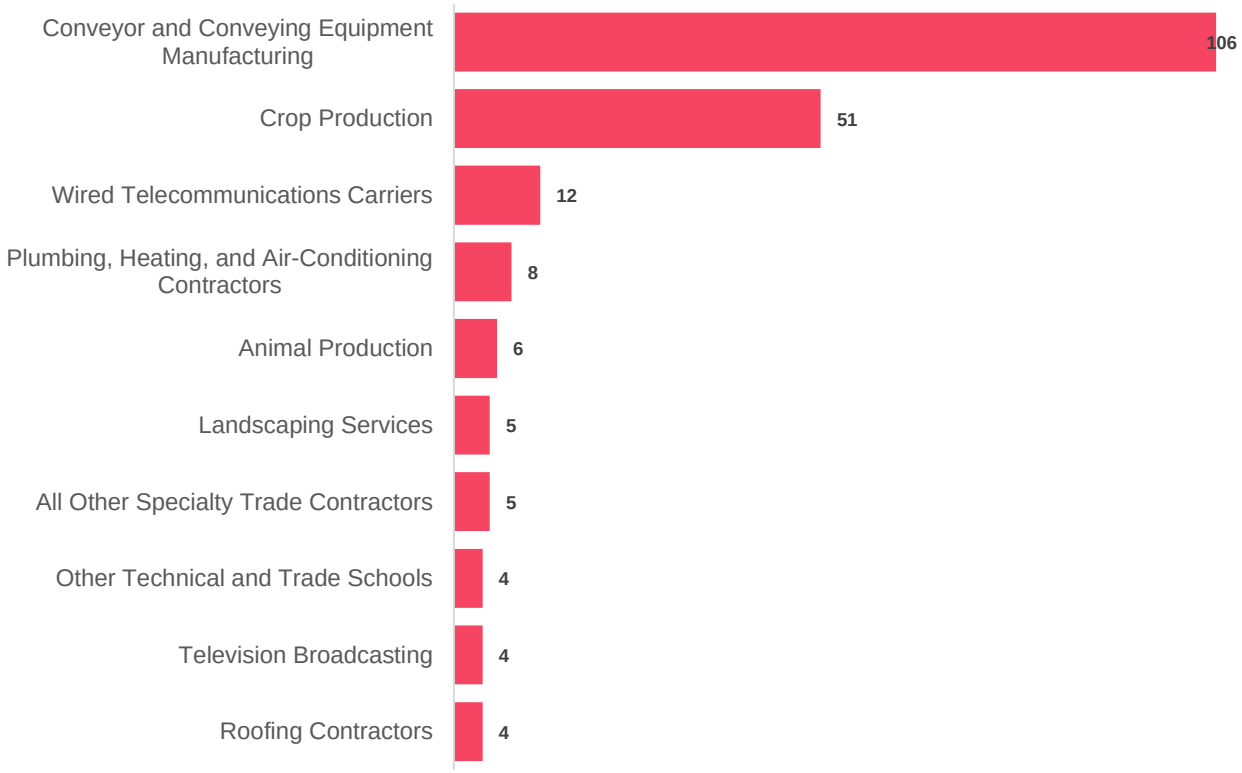
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Morris County	8.5%	34.1%	23.3%	10.8%	18.2%	5.2%
Flint Hills	6.7%	24.6%	24.4%	9.4%	20.8%	14.1%
Kansas	8.8%	25.2%	22.4%	9.0%	21.6%	13.0%
United States	11.5%	26.5%	20.1%	8.7%	20.3%	12.8%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Morris County that experienced job gains during 2020. The top 10 industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

Morris County's labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

Morris County COVID Impact Overview

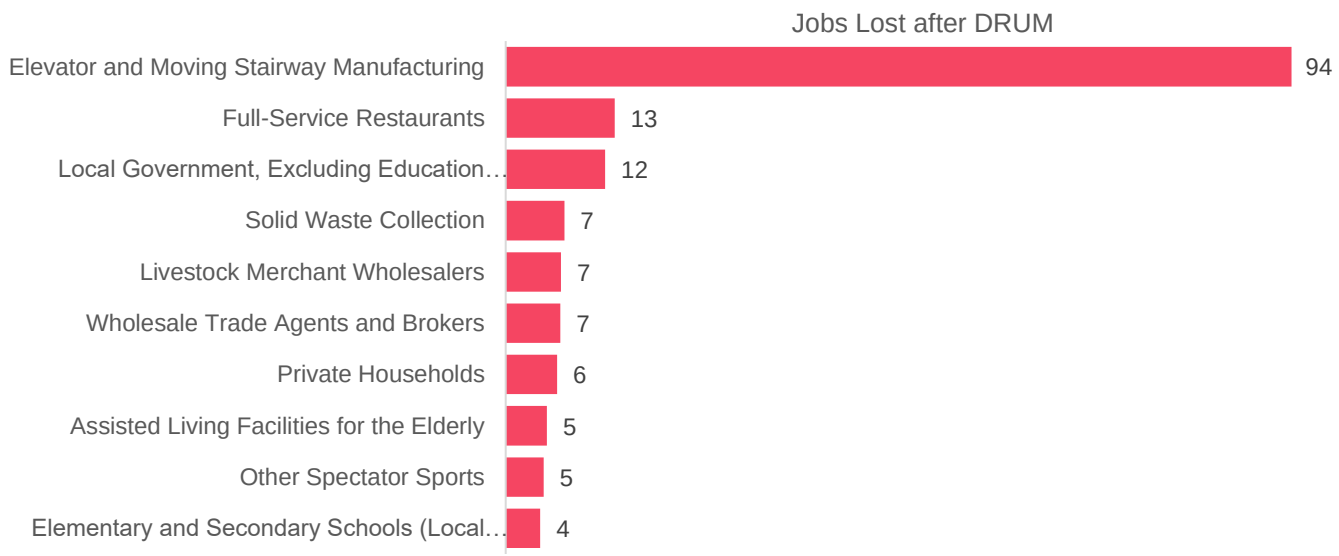
171	2,027	2,077	44
Number of Industries in Morris County	Jobs in 2019	Jobs in 2020	Net Job Gain* After DRUM

*Across all industries, Morris County actually saw a net increase in jobs driven by the industries shown on page 11.
Note: The remainder of this analysis excludes those industries that gained jobs.

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario was 71. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 200 jobs. Job losses shown by Figure 06 represent close to 80% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 209 for Type I and 215 for Type II economic effect. In other words, because of the initial 200 lost jobs, there are 9 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are 6 jobs that were lost because they were no longer supported by the 200 jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

71 Industries
Negatively Affected

200
Initial Job Loss

209
Type I Job Loss

215
Total Loss in Jobs*

$3.98 million
Earning Loss*

$1.9 million
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Elevator and Moving Stairway Manufacturing	94	94	94
Full-Service Restaurants	13	14	14
Local Government, Excluding Education and Hospitals	12	13	13
Solid Waste Collection	7	8	8
Livestock Merchant Wholesalers	7	7	8
Wholesale Trade Agents and Brokers	7	7	7
Private Households	6	6	6
Assisted Living Facilities for the Elderly	5	5	6
Other Spectator Sports	5	5	5
Elementary and Secondary Schools (Local Government)	4	4	4
Other Industries	41	46	50
All Industries	200	209	215

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was $3.26 million where the total effect of Type I is 14% higher and Type II 22% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $1,864,173 and an economic impact of $2,078,062 loss on Type I and $2,223,328 on Type II effects, for the top 10 industries, which represents 56% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	$357,775	$383,619	$403,778
Rail transportation	$257,771	$327,267	$365,629
Full-Service Restaurants	$200,216	$208,121	$215,162
Farm Management Services	$182,964	$185,256	$200,662
Assisted Living Facilities for the Elderly	$176,768	$195,463	$207,437
Solid Waste Collection	$173,467	$187,738	$194,785
Wholesale Trade Agents and Brokers	$146,298	$147,339	$151,035
Livestock Merchant Wholesalers	$141,077	$157,172	$162,485
Elementary and Secondary Schools (Local Government)	$127,112	$129,466	$136,168
Electric Power Distribution	$100,724	$156,620	$186,188
Other Industries	$1,399,815	$1,637,052	$1,757,041
All Industries	$3,263,987	$3,715,114	$3,980,369

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Morris County lost $1.9 million on TPI, where 13% corresponds to Federal, 38% to State and 49% to Local Government taxes. The top 10 industries represent 90% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

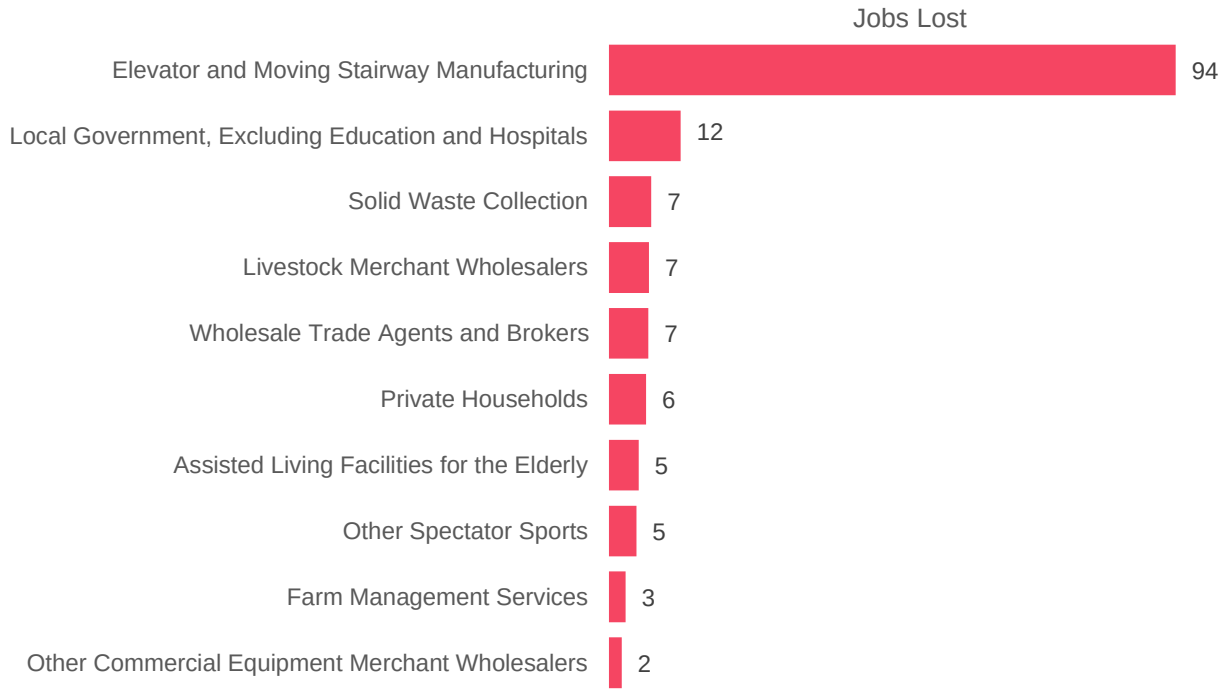
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Petroleum Bulk Stations and Terminals	$686,697	$69,233	$268,691	$348,773
Elevator and Moving Stairway Manufacturing	$604,509	$72,043	$233,587	$298,879
Electric Power Distribution	$103,569	$18,517	$38,413	$46,639
Livestock Merchant Wholesalers	$99,145	$14,124	$37,751	$47,270
Full-Service Restaurants	$52,833	$8,090	$19,964	$24,779
Rail transportation	$40,072	$11,187	$13,769	$15,116
Farm Supplies Merchant Wholesalers	$34,062	$4,914	$12,953	$16,195
Solid Waste Collection	$29,213	$7,064	$10,334	$11,814
Limited-Service Restaurants	$26,320	$4,097	$9,927	$12,296
Direct Title Insurance Carriers	$23,911	$5,053	$8,657	$10,201
Other Industries	$193,234	$35,136	$71,509	$86,588
All Industries	**$1,893,565**	249,458	$725,556	$918,551

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected”. Figure 07 displays the top 10 industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 168. The number of job losses during the pandemic increased to 175 for Type I and 179 for Type II economic effects. In other words, because of the 168 lost jobs, there was an additional 7 jobs lost in the supply chain. Additionally, there were 4 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

45 Industries
Negatively Affected

168
Initial Job Loss

175
Type I Job Loss

179
Total Loss in Jobs*

$2.7 million
Earning Loss*

$1.7 million
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Elevator and Moving Stairway Manufacturing	94	94	94
Local Government, Excluding Education and Hospitals	12	13	13
Solid Waste Collection	7	8	8
Livestock Merchant Wholesalers	7	7	8
Wholesale Trade Agents and Brokers	7	7	7
Private Households	6	6	6
Assisted Living Facilities for the Elderly	5	5	6
Other Spectator Sports	5	5	5
Farm Management Services	3	3	3
Other Commercial Equipment Merchant Wholesalers	2	2	2
All Industries	168	175	179

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $2,237,692, where the total effect of Type I is 12% higher and Type II 20% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	$357,775	$383,619	$403,778
Farm Management Services	$182,964	$185,256	$200,662
Assisted Living Facilities for the Elderly	$176,768	$195,463	$207,437
Solid Waste Collection	$173,467	$187,738	$194,785
Wholesale Trade Agents and Brokers	$146,298	$147,339	$151,035
Livestock Merchant Wholesalers	$141,077	$157,172	$162,485
Electric Power Distribution	$100,724	$156,620	$186,188
Computer Systems Design Services	$94,896	$102,301	$120,412
Other Commercial Equipment Merchant Wholesalers	$76,521	$84,158	$88,706
Private Households	$63,831	$63,831	$64,962
All Industries	$2,237,692	$2,513,574	$2,683,833

* Total Type II Loss

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost $1.7 million on TPI where 13% corresponds to federal government, 38% to state and 49% to local governments (Table 07).

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

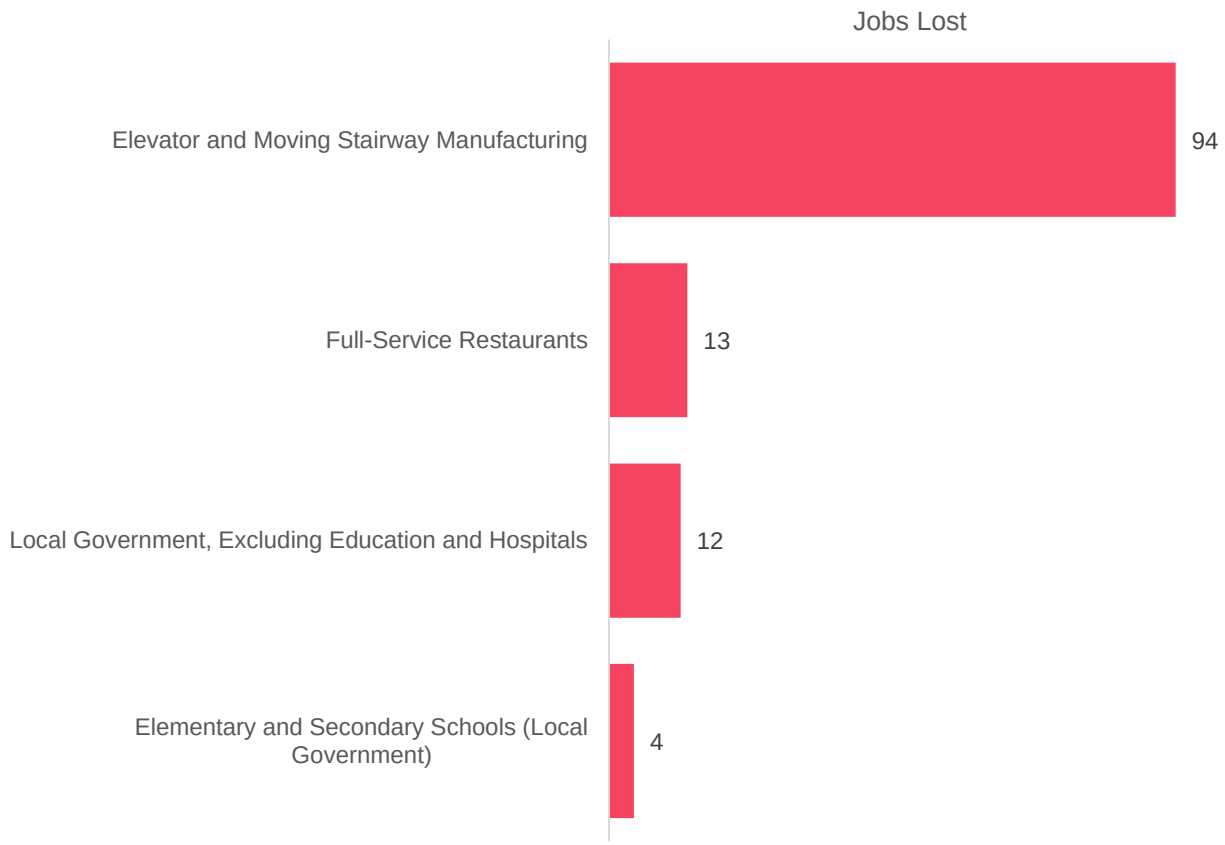
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Petroleum Bulk Stations and Terminals	$686,697	$69,233	$268,691	$348,773
Elevator and Moving Stairway Manufacturing	$604,509	$72,043	$233,587	$298,879
Electric Power Distribution	$103,569	$18,517	$38,413	$46,639
Livestock Merchant Wholesalers	$99,145	$14,124	$37,751	$47,270
Farm Supplies Merchant Wholesalers	$34,062	$4,914	$12,953	$16,195
Solid Waste Collection	$29,213	$7,064	$10,334	$11,814
Direct Title Insurance Carriers	$23,911	$5,053	$8,657	$10,201
Grain and Field Bean Merchant Wholesalers	$15,723	$2,243	$5,986	$7,494
Other Commercial Equipment Merchant Wholesalers	$13,953	$2,589	$5,149	$6,214
Assisted Living Facilities for the Elderly	$13,258	$1,999	$5,018	$6,241
All Industries	**$1,719,018**	**$216,077**	**$661,409**	**$841,532**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people and lost jobs from 2019 to 2020. We called this set of industries the “Most Relevant.” There are four industries in this scenario. Figure 08 displays the industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the four industries amounts to 123 jobs during 2020. The job losses increased to 125 for Type I and 126 for Type II economic effects. In other words, because of the 123 losses on jobs there were two that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

4 Industries
Negatively Affected

123
Initial Job Loss

125
Type I Job Loss

126
Total Loss in Jobs*

$755,108
Earning Loss*

$664,322
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Elevator and Moving Stairway Manufacturing	94	94	94
Full-Service Restaurants	13	14	14
Local Government, Excluding Education and Hospitals	12	13	13
Elementary and Secondary Schools (Local Government)	4	4	4
All Industries	123	125	126

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

In terms of earnings loss, the initial loss was $685,103 where the total effect of Type I was 5% higher and Type II increased 10% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	$357,775	$383,619	$403,778
Full-Service Restaurants	$200,216	$208,121	$215,162
Elementary and Secondary Schools (Local Government)	$127,112	$129,466	$136,168
(*)Elevator and Moving Stairway Manufacturing	$0	$0	$0
All Industries	$685,103	$721,207	$755,108

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

(*) Elevator and Moving Stairway Manufacturing lost jobs in 2020, leaving 0 jobs remaining to measure the earnings economic impact in the region.

* Total Type II Loss

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Morris County lost $664,322 on TPI, of which 12% corresponded to federal government, 9% to state and 49% to local governments (Table 10).

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Elevator and Moving Stairway Manufacturing	$604,509	$72,043	$233,587	$298,879
Full-Service Restaurants	$52,833	$8,090	$19,964	$24,779
Local Government, Excluding Education and Hospitals	$5,752	$1,336	$2,050	$2,366
Elementary and Secondary Schools (Local Government)	$1,228	$266	$443	$519
All Industries	**$664,322**	$81,735	$256,043	$326,544

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on Morris County in each of the output scenarios.

One of the most relevant results came from the total effect on TPI by job losses in All Industries, where nearly 90% is attributed to the 10 industries under the first scenario. While Morris County saw a net gain of jobs from 2019 to 2020, the 200 initial lost jobs translated to $3.9 million in earnings lost and a nearly $1.9 million loss on TPI. This loss will affect the region deeply.

> The results of this study demonstrate the profound effect of COVID-19 on Morris County across **multiple scenarios**.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.

Lightcast

COVID-19: Economic Impact Analysis on Pottawatomie County

Executive Summary Report

August 2022

FLINT HILLS REGION

Acknowledgements

Lightcast gratefully acknowledges the excellent support of the Flint Hills Regional Council (FHRC). A special thank you goes to Jerry Lonergan and Janna L. Williams at FHRC.

This report is prepared for the FHRC by Lightcast. The content is solely the responsibility of the author and does not necessarily represent the official views of the FHRC. Proper acknowledgement of Lightcast should be included in publications, presentations, or other developed materials.

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INTRODUCTION

Pottawatomie County is one of seven counties in the Flint Hills Economic Development District (FHEDD). FHEDD includes Chase, Geary, Lyon, Morris, Pottawatomie, Riley and Wabaunsee Counties. In 2020, the Pottawatomie County population was just over 24,700, with a total regional employment of about 11,000 jobs.

The Pottawatomie County economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Pottawatomie County generates new dollars and creates opportunities in the region. When COVID-19 arrived, all of these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

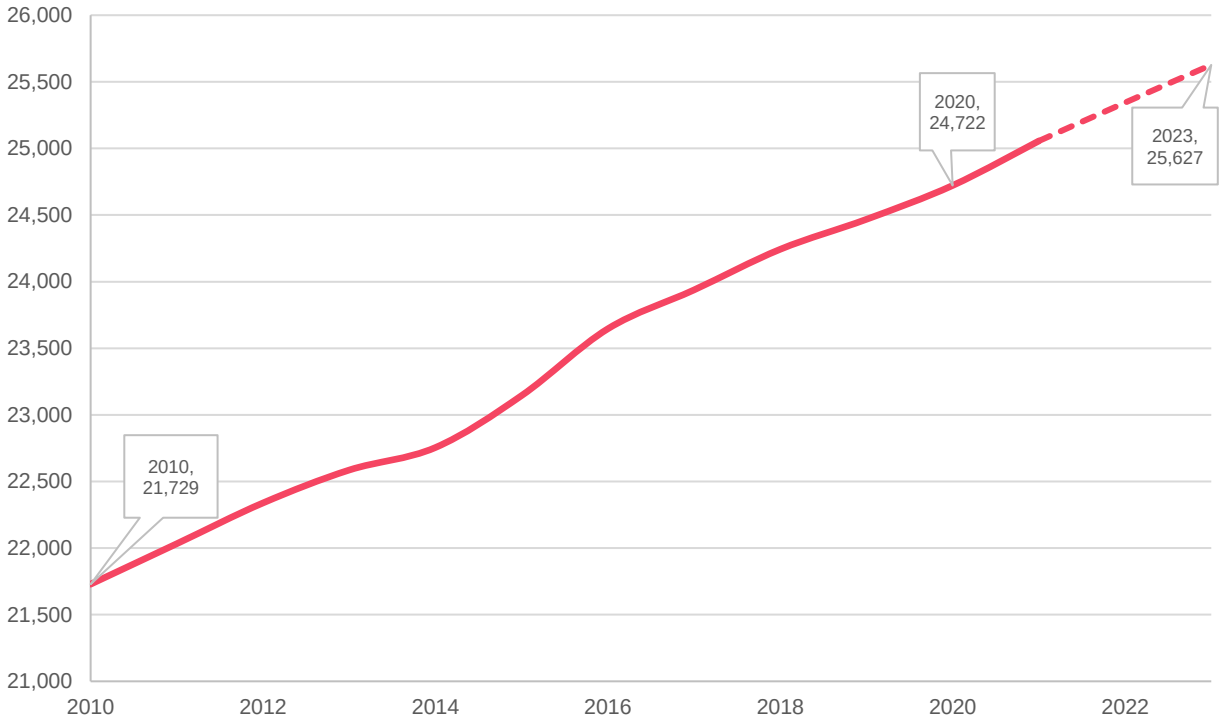
Labor Force in Pottawatomie creates new opportunities in the region.

The purpose of this report is to outline the county's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, just under 22,000 people resided in Pottawatomie County. Population in the county has increased consistently from 2010 to 2020 and is projected to continue to grow to over 25,600 people in 2023 (Figure 01).

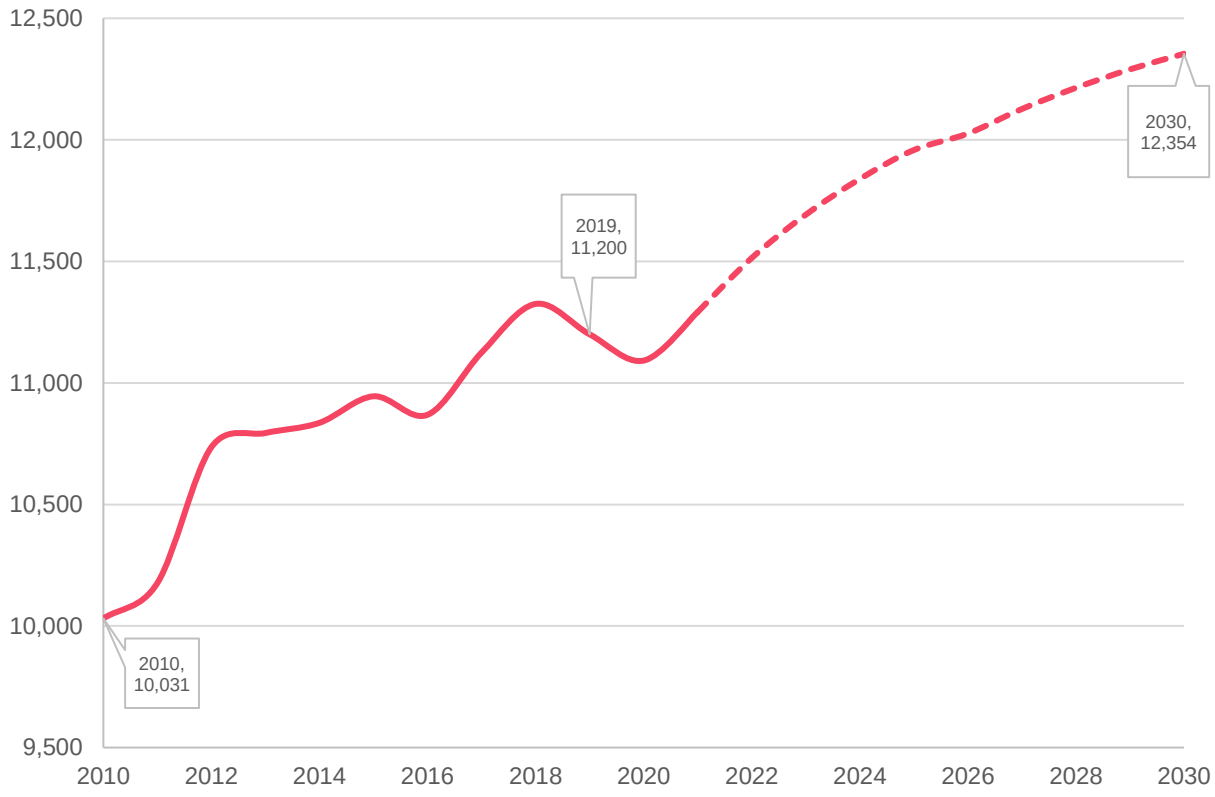
Figure 01: Historical and Projected Population in Pottawatomie County, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Pottawatomie County supported an annual average of just about 10,000 jobs in 2010. Jobs have also grown fairly consistently from 2010 to 2021, dipping slightly in 2016 and 2020. Jobs are projected to grow to a peak of 12,354 jobs through 2030. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

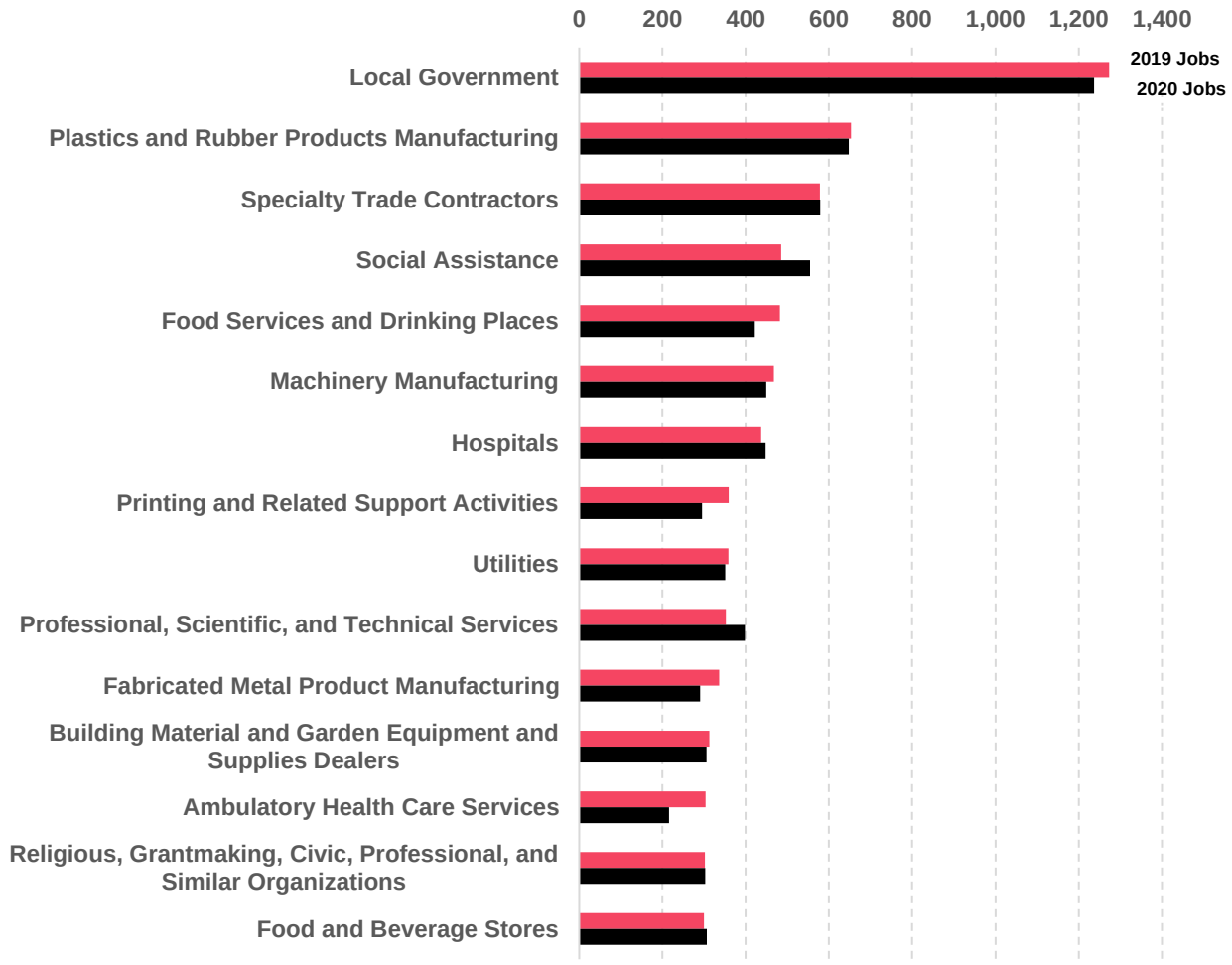
Figure 02: Historical and Projected Jobs in Pottawatomie, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Pottawatomie County. In 2019 and in 2020, Local Government had the highest number of jobs out of all industries. Social Assistance and Professional, Technical and Scientific Services saw the highest increase of jobs from 2019 to 2020.

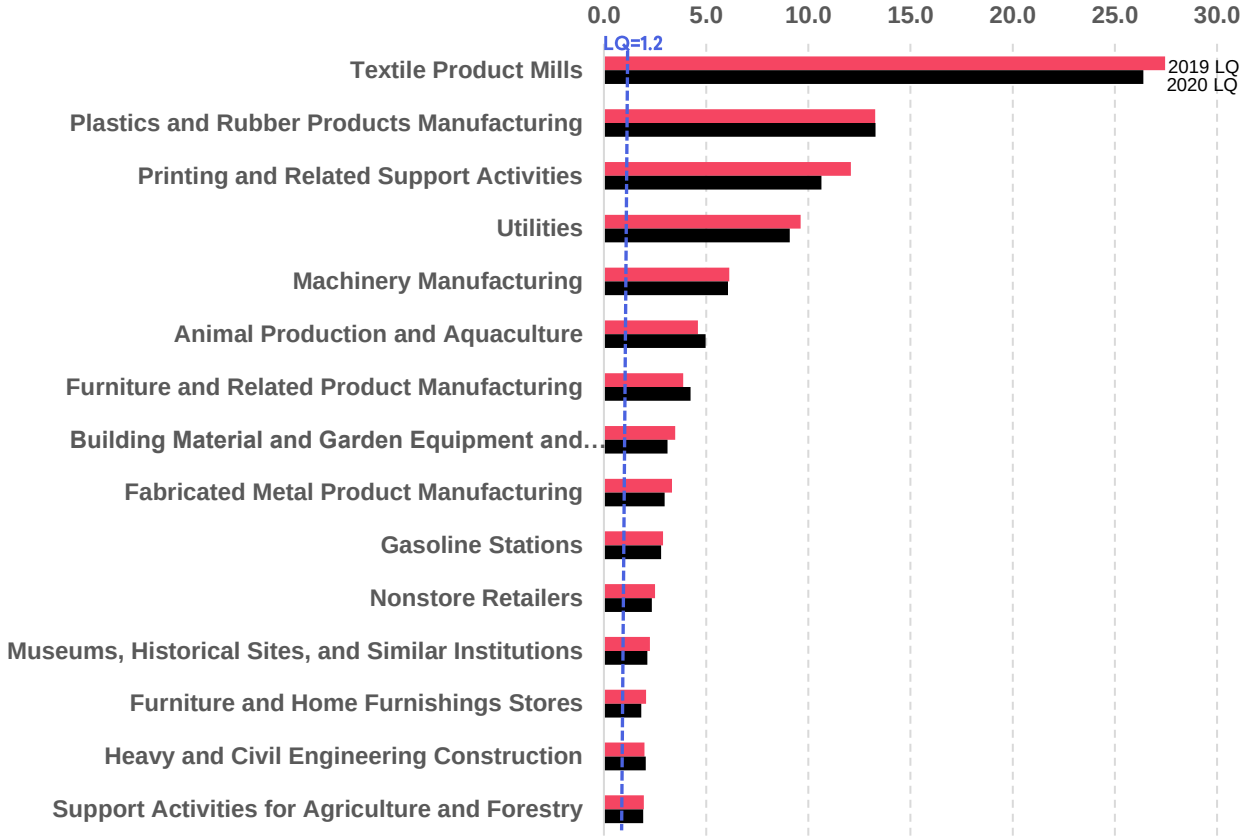
Figure 03: Top Industry Subsectors in Pottawatomie by Jobs



Source: Lightcast 2022.2.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. Pottawatomie County has an extremely high concentration of Textile Product Mills; Plastics and Rubber Manufacturing; and Printing and Related Support Activities.

Figure 04: Top Industry Subsectors in Pottawatomie by Employment Concentration (LQ)



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, six industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Plastics and Rubber Manufacturing
- Machinery Manufacturing
- Utilities
- Building Material and Garden Equipment and Supplies Dealers
- Printing and Related Support Activities
- Fabricated Metal Product Manufacturing

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Pottawatomie County has a higher median household income than all comparison regions, but the average per capita income is lower than Kansas and the US. Unemployment rates are lower than all comparison regions and poverty rate is on par with the region, which is lower than the state and national averages.

Table 01: Income, Unemployment, and Poverty Characteristics

Source:	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Pottawatomie County	**$66,835**	**4.08%**	**$29,345**	**7.10%**
Flint Hills Region	**$54,243**	**5.07%**	**$26,844**	**7.10%**
Kansas	**$59,597**	**5.89%**	**$31,814**	**7.80%**
United States	**$62,843**	**8.07%**	**$34,103**	**9.50%**

American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Pottawatomie County, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Pottawatomie County shows the highest percentage of High School and Bachelor's Degree level attainment when compared against the different regions.

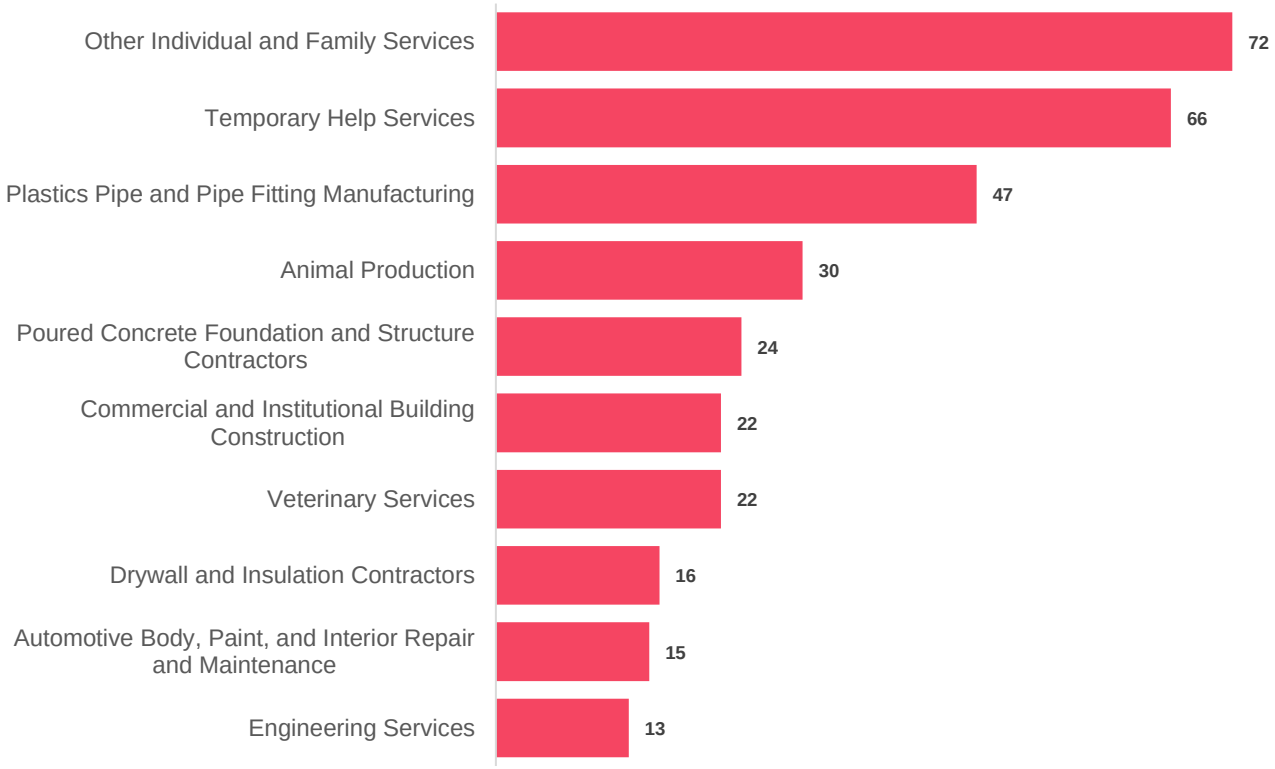
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Pottawatomie County	5.7%	28.0%	23.8%	7.6%	22.6%	12.2%
Flint Hills	6.7%	24.6%	24.4%	9.4%	20.8%	14.1%
Kansas	8.8%	25.2%	22.4%	9.0%	21.6%	13.0%
United States	11.5%	26.5%	20.1%	8.7%	20.3%	12.8%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Pottawatomie County that experienced job gains during 2020. The top 10 industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

Pottawatomie County's labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

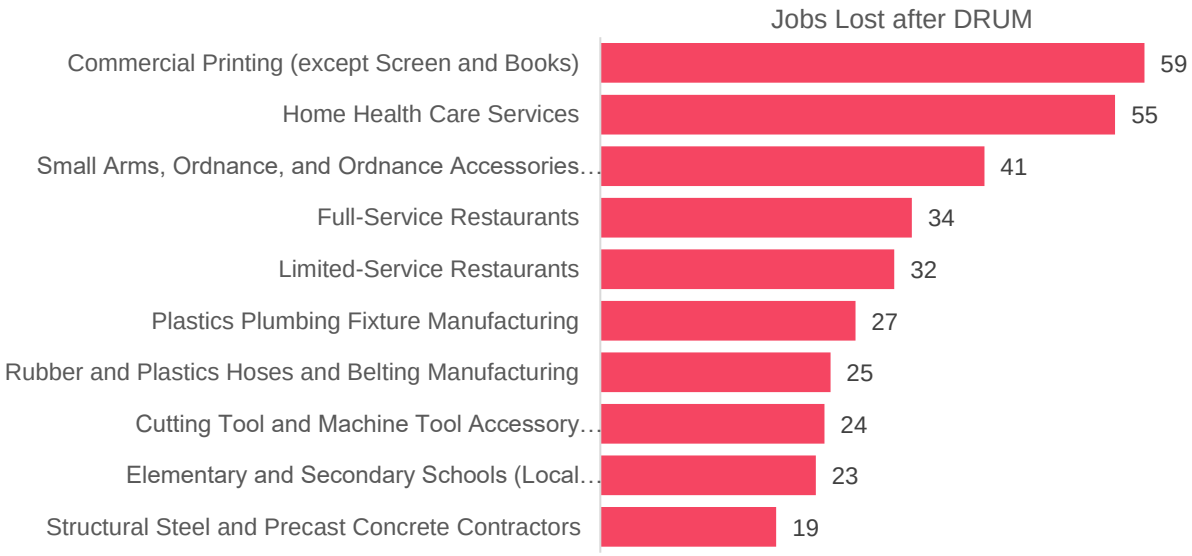
Pottawatomie County COVID Impact Overview

309	11,200	11,092	98
Number of Industries in Pottawatomie County	Jobs in 2019	Jobs in 2020	Net Job Loss After DRUM

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario was 137. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 708 jobs. Job losses shown by Figure 06 represent close to 50% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 794 for Type I and 848 for Type II economic effect. In other words, because of the initial 708 lost jobs, there are 86 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are an additional 54 jobs that were lost because they were no longer supported by the jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

137 Industries
Negatively Affected

708
Initial Job Loss

794
Type I Job Loss

848
Total Loss in Jobs*

$37.5 million
Earning Loss*

$5.2 million
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Commercial Printing (except Screen and Books)	59	68	74
Home Health Care Services	55	57	59
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	41	41	41
Full-Service Restaurants	34	36	37
Limited-Service Restaurants	32	35	36
Plastics Plumbing Fixture Manufacturing	27	33	36
Rubber and Plastics Hoses and Belting Manufacturing	25	29	32
Cutting Tool and Machine Tool Accessory Manufacturing	24	27	29
Elementary and Secondary Schools (Local Government)	23	24	26
Structural Steel and Precast Concrete Contractors	19	19	19
Other Industries	369	425	458
All Industries	708	794	848

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was $28,297,844 where the total effect of Type I is 20% higher and Type II 33% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $15 million and an economic impact of $18.6 million loss on Type I and $20.8 million on Type II effects, for the top 10 industries, which represents 56% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Commercial Printing (except Screen and Books)	$3,313,017	$3,831,625	$4,170,383
Rubber and Plastics Hoses and Belting Manufacturing	$2,101,250	$2,454,917	$2,714,988
Fossil Fuel Electric Power Generation	$1,705,614	$3,028,393	$3,845,762
Plastics Plumbing Fixture Manufacturing	$1,546,963	$1,880,184	$2,049,651
Cutting Tool and Machine Tool Accessory Manufacturing	$1,540,048	$1,701,582	$1,858,739
Home Health Care Services	$1,440,866	$1,483,688	$1,544,186
Elementary and Secondary Schools (Local Government)	$945,047	$976,292	$1,062,710
All Other Miscellaneous Textile Product Mills	$908,558	$1,019,067	$1,089,064
Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	$828,689	$1,191,713	$1,325,355
Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	$674,255	$1,062,075	$1,170,191
Other Industries	$13,293,539	$15,306,471	$16,663,877
All Industries	$28,297,844	$33,936,008	$37,494,906

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Pottawatomie County lost $5.2 million on TPI, where 17% corresponds to Federal, 37% to State and 45% to Local Government taxes. The top 10 industries represent 67% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

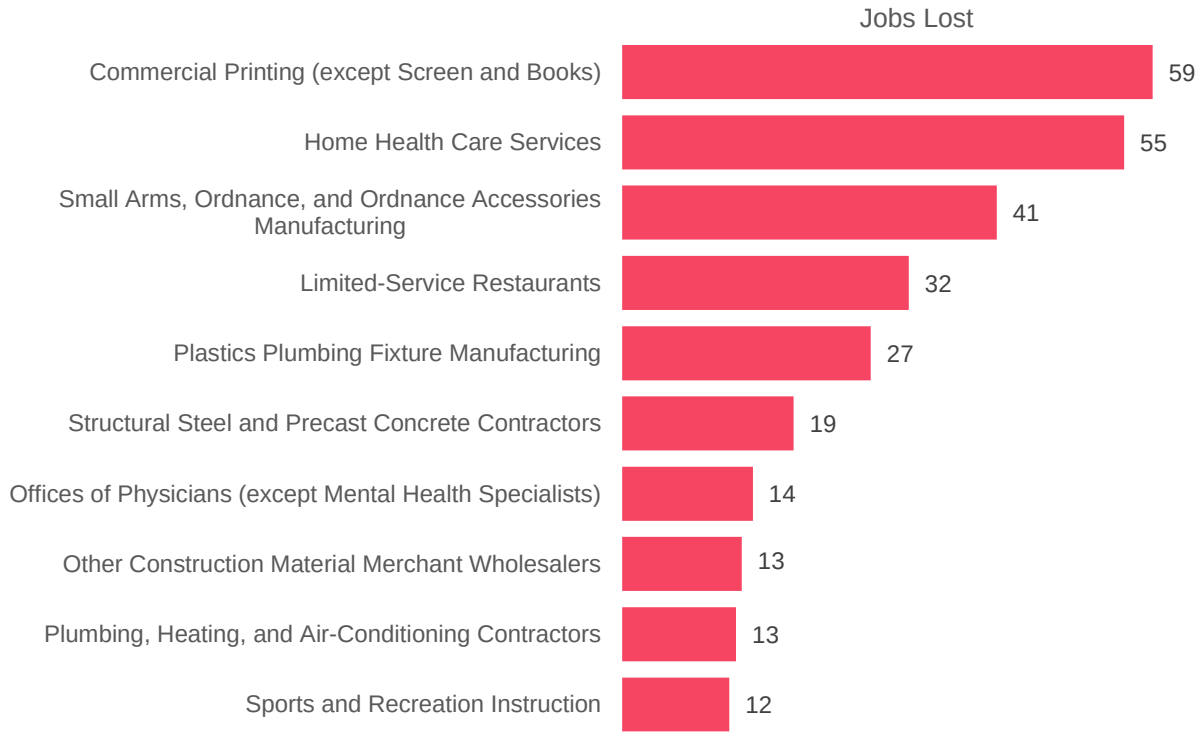
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Fossil Fuel Electric Power Generation	$1,694,513	$268,642	$637,810	$788,061
Commercial Printing (except Screen and Books)	$294,826	$83,176	$101,068	$110,582
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	$278,888	$31,234	$108,359	$139,295
Other Construction Material Merchant Wholesalers	$221,332	$24,028	$86,201	$111,103
Limited-Service Restaurants	$210,214	$29,674	$80,117	$100,423
Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	$198,506	$42,401	$71,746	$84,359
Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	$185,293	$31,365	$69,203	$84,725
Full-Service Restaurants	$158,959	$22,117	$60,670	$76,172
Plastics Plumbing Fixture Manufacturing	$144,277	$40,244	$49,584	$54,449
Rubber and Plastics Hoses and Belting Manufacturing	$110,065	$23,319	$39,833	$46,914
Other Industries	$1,737,181	$315,568	$642,892	$778,720
All Industries	**$5,234,054**	911,768	$1,947,483	$2,374,802

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected”. Figure 07 displays the top 10 industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 428. The number of job losses during the pandemic increased to 480 for Type I and 512 for Type II economic effects. In other words, because of the 428 lost jobs, there was an additional 52 jobs lost in the supply chain. Additionally, there were 32 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

28 Industries
Negatively Affected

428
Initial Job Loss

480
Type I Job Loss

512
Total Loss in Jobs*

$16 million
Earning Loss*

$3.8 million
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Commercial Printing (except Screen and Books)	59	68	74
Home Health Care Services	55	57	59
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	41	41	41
Limited-Service Restaurants	32	35	36
Plastics Plumbing Fixture Manufacturing	27	33	36
Structural Steel and Precast Concrete Contractors	19	19	19
Offices of Physicians (except Mental Health Specialists)	14	15	17
Other Construction Material Merchant Wholesalers	13	13	13
Plumbing, Heating, and Air-Conditioning Contractors	13	14	15
Sports and Recreation Instruction	12	12	12
All Industries	428	480	512

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $15,991,257, where the total effect of Type I is 23% higher and Type II 37% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Commercial Printing (except Screen and Books)	$3,313,017	$3,831,625	$4,170,383
Fossil Fuel Electric Power Generation	$1,705,614	$3,028,393	$3,845,762
Plastics Plumbing Fixture Manufacturing	$1,546,963	$1,880,184	$2,049,651
Home Health Care Services	$1,440,866	$1,483,688	$1,544,186
Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	$828,689	$1,191,713	$1,325,355
Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	$674,255	$1,062,075	$1,170,191
Plumbing, Heating, and Air-Conditioning Contractors	$671,933	$758,654	$827,512
Offices of Physicians (except Mental Health Specialists)	$655,297	$694,313	$764,379
All Other Miscellaneous Chemical Product and Preparation Manufacturing	$606,656	$738,937	$858,557
Commercial Banking	$572,740	$671,857	$756,134
All Industries	$15,991,257	$19,716,930	$21,958,966

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost $3.85 million on TPI where 18% corresponds to federal government, 37% to state and 45% to local governments (Table 07).

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

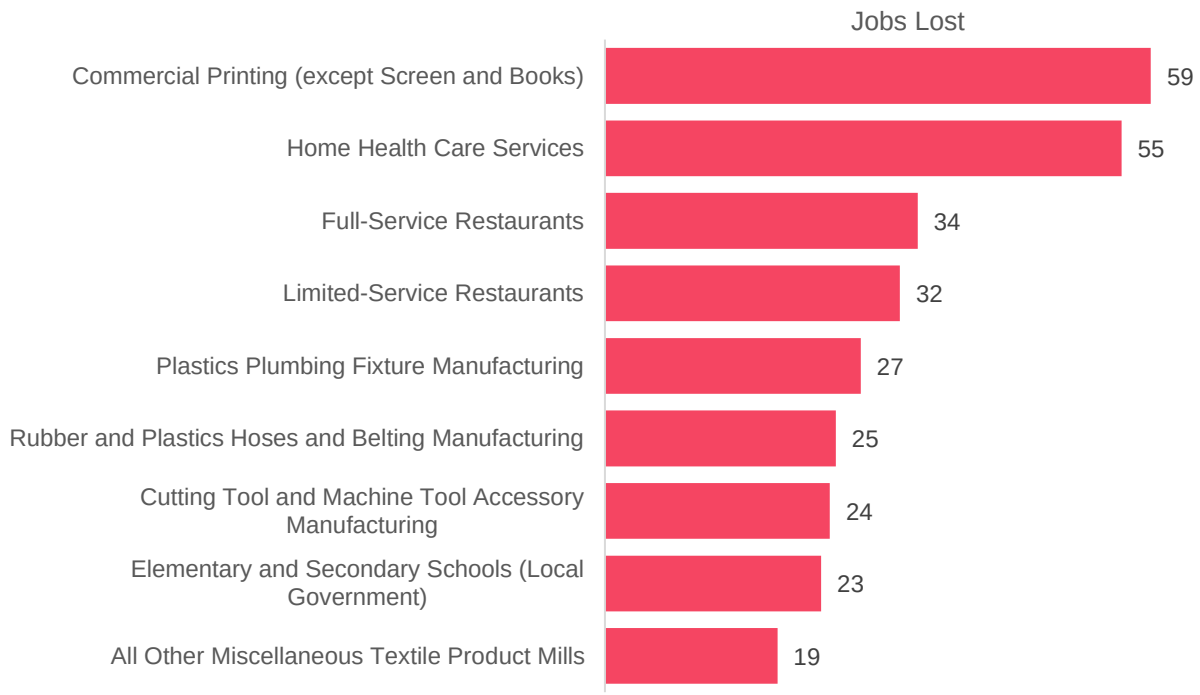
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Fossil Fuel Electric Power Generation	$1,694,513	$268,642	$637,810	$788,061
Commercial Printing (except Screen and Books)	$294,826	$83,176	$101,068	$110,582
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	$278,888	$31,234	$108,359	$139,295
Other Construction Material Merchant Wholesalers	$221,332	$24,028	$86,201	$111,103
Limited-Service Restaurants	$210,214	$29,674	$80,117	$100,423
Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	$198,506	$42,401	$71,746	$84,359
Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	$185,293	$31,365	$69,203	$84,725
Plastics Plumbing Fixture Manufacturing	$144,277	$40,244	$49,584	$54,449
All Other Miscellaneous Chemical Product and Preparation Manufacturing	$107,734	$29,108	$37,281	$41,345
Furniture Stores	$95,740	$11,012	$37,169	$47,559
All Industries	**$3,852,303**	**$681,886**	**$1,430,386**	**$1,740,032**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people and lost jobs from 2019 to 2020. We called this set of industries the “Most Relevant.” There are nine industries in this scenario. Figure 08 displays the industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the nine industries amounts to 297 jobs during 2020. The job losses increased to 330 for Type I and 352 for Type II economic effects. In other words, because of the 297 losses on jobs there were 33 that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

9 Industries
Negatively Affected

297
Initial Job Loss

330
Type I Job Loss

352
Total Loss in Jobs*

$13 million
Earning Loss*

$1.1 million
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Commercial Printing (except Screen and Books)	59	68	74
Home Health Care Services	55	57	59
Full-Service Restaurants	34	36	37
Limited-Service Restaurants	32	35	36
Plastics Plumbing Fixture Manufacturing	27	33	36
Rubber and Plastics Hoses and Belting Manufacturing	25	29	32
Cutting Tool and Machine Tool Accessory Manufacturing	24	27	29
Elementary and Secondary Schools (Local Government)	23	24	26
All Other Miscellaneous Textile Product Mills	19	21	22
All Industries	297	330	352

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

In terms of earnings loss, the initial loss was $12,946,838 where the total effect of Type I was 13% higher and Type II increased 22% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Commercial Printing (except Screen and Books)	$3,313,017	$3,831,625	$4,170,383
Rubber and Plastics Hoses and Belting Manufacturing	$2,101,250	$2,454,917	$2,714,988
Plastics Plumbing Fixture Manufacturing	$1,546,963	$1,880,184	$2,049,651
Cutting Tool and Machine Tool Accessory Manufacturing	$1,540,048	$1,701,582	$1,858,739
Home Health Care Services	$1,440,866	$1,483,688	$1,544,186
Elementary and Secondary Schools (Local Government)	$945,047	$976,292	$1,062,710
All Other Miscellaneous Textile Product Mills	$908,558	$1,019,067	$1,089,064
Full-Service Restaurants	$641,058	$681,744	$703,062
Limited-Service Restaurants	$510,031	$568,849	$584,366
All Industries	$12,946,838	$14,597,948	$15,777,149

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Pottawatomie County lost $1.1 million on TPI, of which 22% corresponded to federal government, 36% to state and 42% to local governments (Table 10).

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Commercial Printing (except Screen and Books)	$294,826	$83,176	$101,068	$110,582
Limited-Service Restaurants	$210,214	$29,674	$80,117	$100,423
Full-Service Restaurants	$158,959	$22,117	$60,670	$76,172
Plastics Plumbing Fixture Manufacturing	$144,277	$40,244	$49,584	$54,449
Rubber and Plastics Hoses and Belting Manufacturing	$110,065	$23,319	$39,833	$46,914
Cutting Tool and Machine Tool Accessory Manufacturing	$80,236	$19,672	$28,311	$32,253
All Other Miscellaneous Textile Product Mills	$64,618	$12,637	$23,672	$28,310
Home Health Care Services	$37,866	$6,536	$14,108	$17,222
Elementary and Secondary Schools (Local Government)	$10,370	$1,937	$3,823	$4,609
All Industries	**$1,111,430**	$239,312	$401,185	$470,933

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on Pottawatomie County in each of the output scenarios.

One of the most relevant results came from the total effect on TPI by job losses in All Industries, where nearly 67% is attributed to the 10 industries under the first scenario. Job losses in Pottawatomie County tended to be spread out across industries, with the top 10 industries accounting for 48 percent of all jobs lost. The 708 initial lost jobs translated to $28.3 million in earnings lost and a $5.2 million loss on TPI. This loss will affect the region deeply.

The results of this study demonstrate the profound effect of COVID-19 on Pottawatomie across **multiple scenarios**.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.

Lightcast

COVID-19: Economic Impact Analysis on Riley County

Executive Summary Report

August 2022

FLINT HILLS

REGION

Acknowledgements

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This report is prepared for the FHRC by Lightcast. The content is solely the responsibility of the author and does not necessarily represent the official views of the FHRC. Proper acknowledgement of Lightcast should be included in publications, presentations, or other developed materials.

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INTRODUCTION

Riley County is one of seven counties in the Flint Hills Economic Development District (FHEDD). FHEDD includes Chase, Geary, Lyon, Morris, Riley, Pottawatomie and Wabaunsee Counties. In 2020, the Riley County population was just over 73,000, with a total regional employment of about 31,500 jobs.

The Riley County economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Riley County generates new dollars and creates opportunities in the region. When COVID-19 arrived, all these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

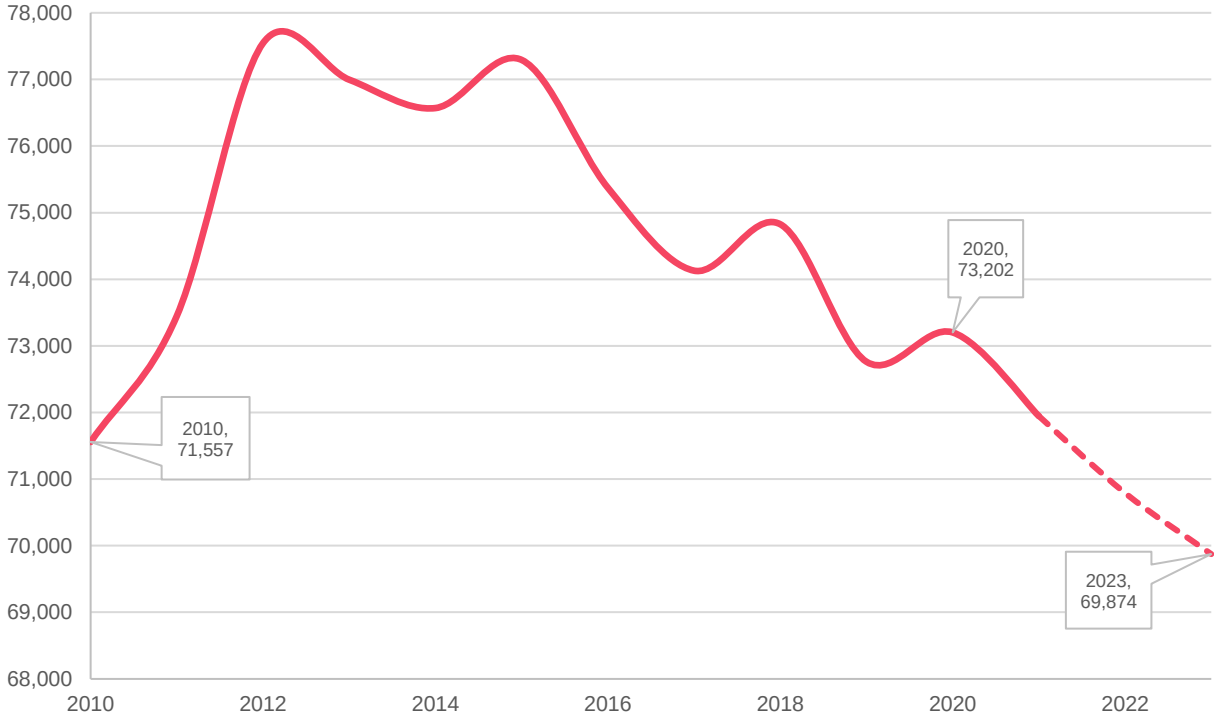
Labor Force in Riley creates new opportunities in the region.

The purpose of this report is to outline the county's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, about 71,500 people resided in Riley County. Riley County is the largest county by population in the Flint Hills region. Population in the county increased from 2010 to 2012 up to nearly 78,000 people but has fallen steadily since then. Population decline is expected to continue through 2023 (Figure 01).

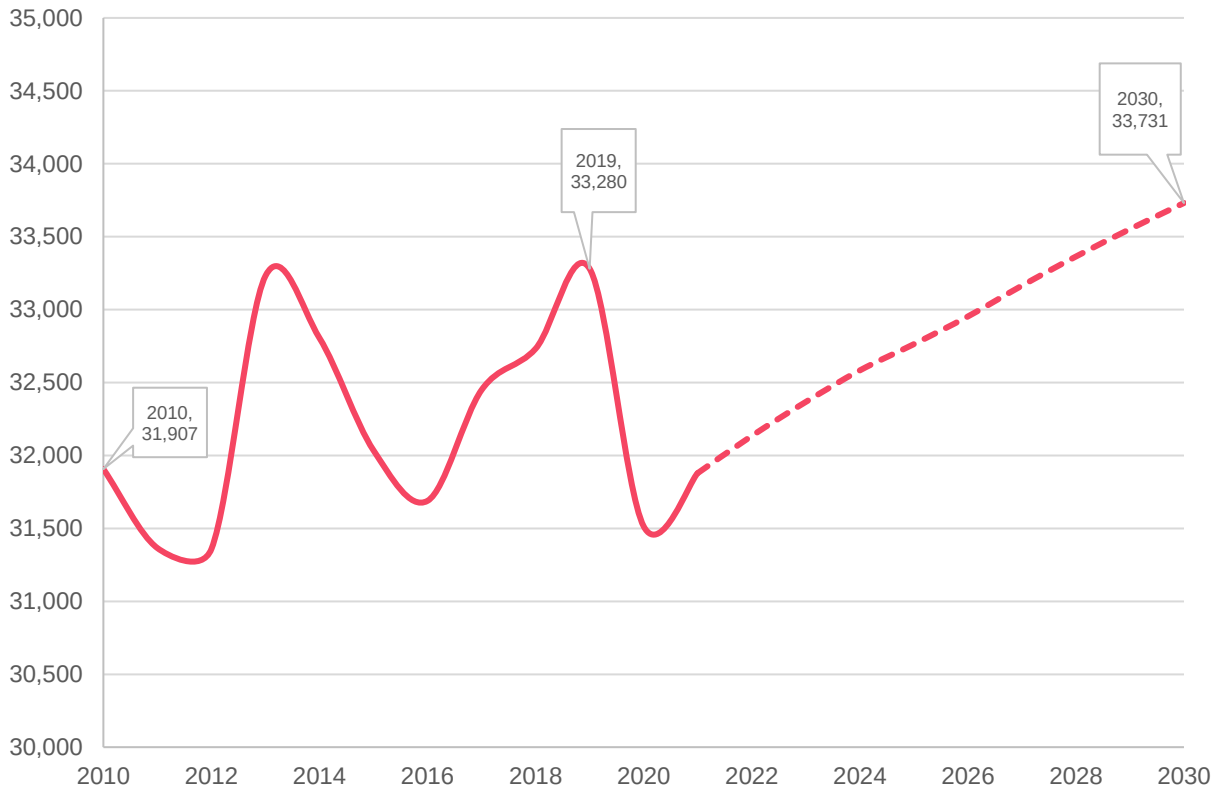
Figure 01: Historical and Projected Population in Riley County, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Riley County supported an annual average of just about 32,000 jobs in 2010. Jobs growth fluctuated between about 31,000 and 33,500 jobs from 2021 to 2020. Contrary to population decline, jobs are projected to grow to a peak of nearly 34,000 jobs through 2030. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

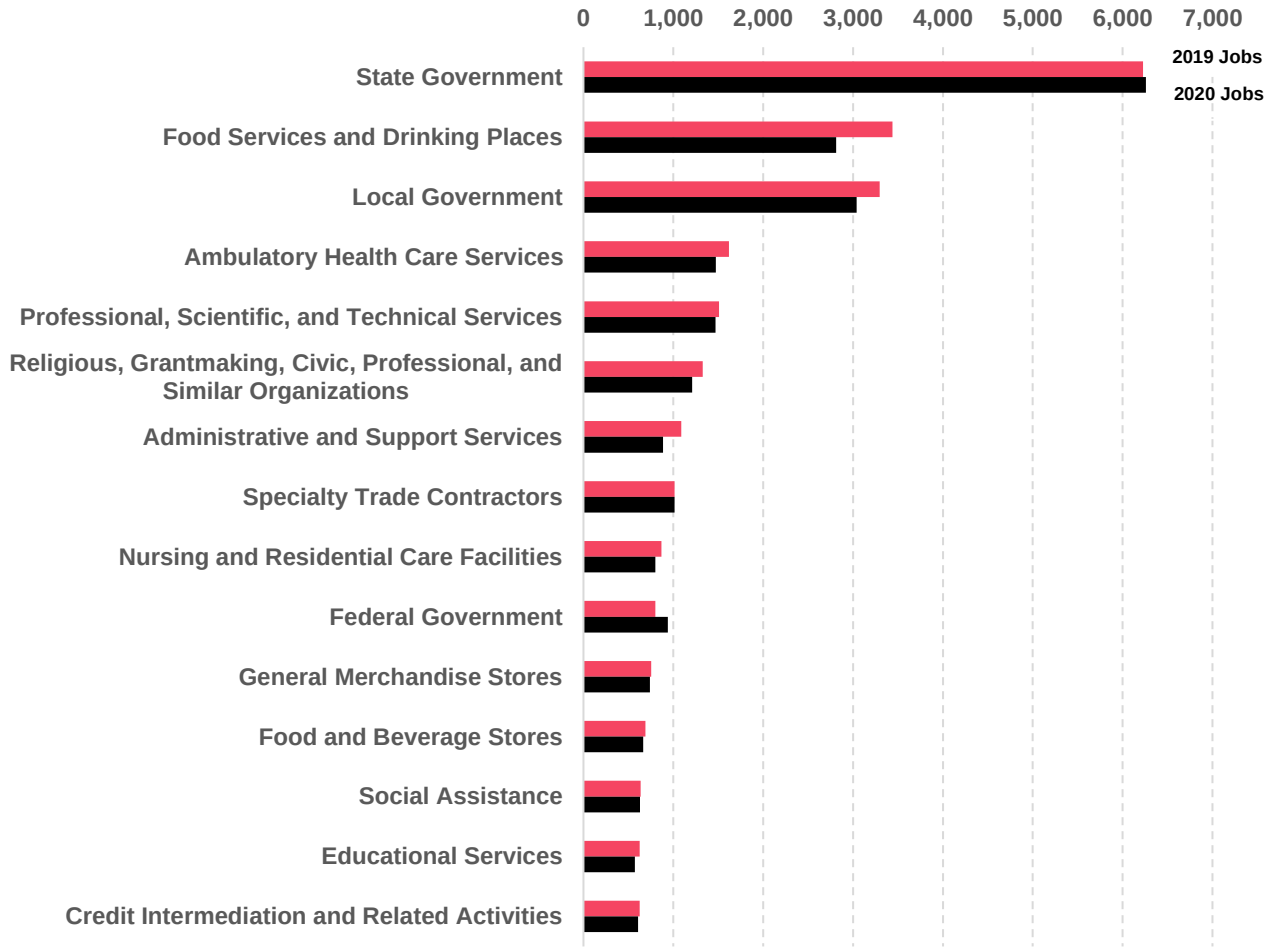
Figure 02: Historical and Projected Jobs in Riley, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Riley County. In 2019 and in 2020, State Government had the highest number of jobs out of all industries, followed by Food Services and Drinking Places and Local Government. Federal Government saw the highest increase of jobs from 2019 to 2020.

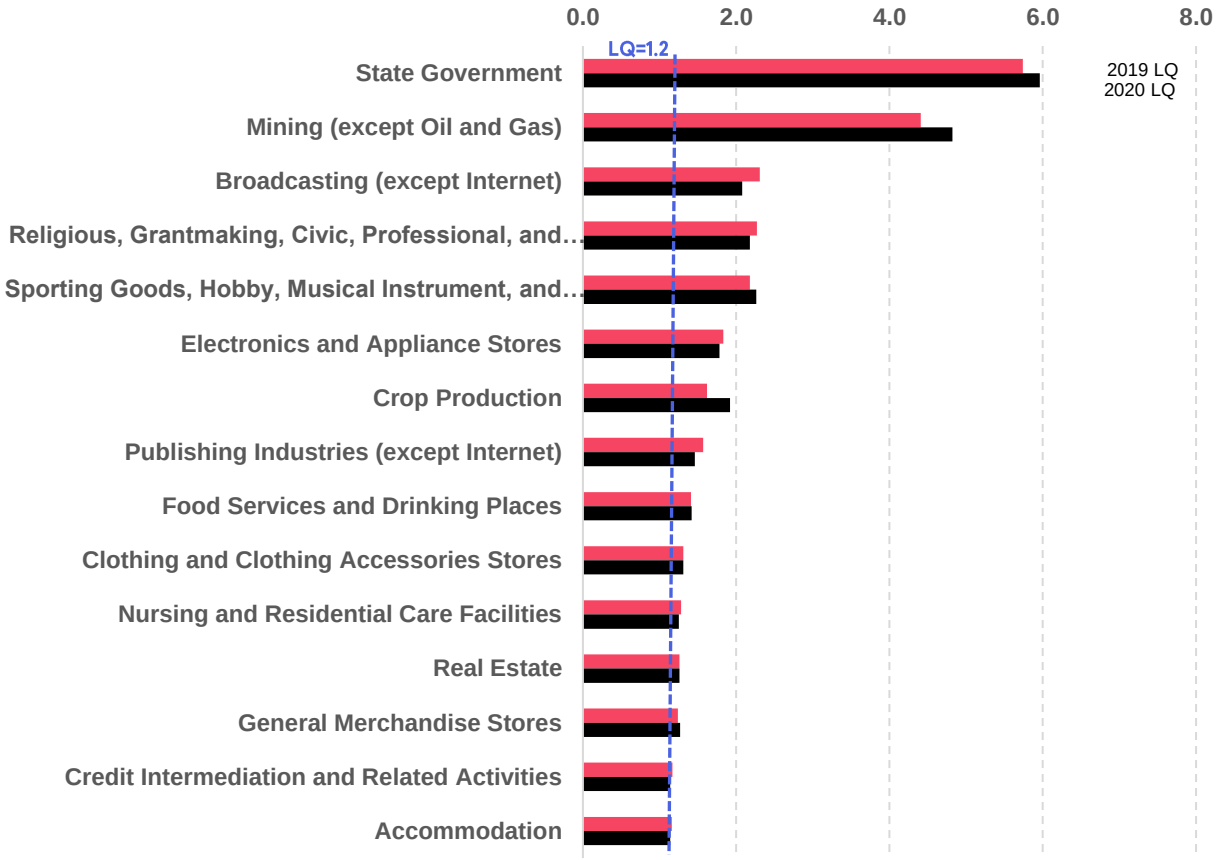
Figure 03: Top Industry Subsectors in Riley by Jobs



Source: Lightcast 2022.2.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. Riley County has an extremely high concentration of State Government and Mining (except Oil and Gas).

Figure 04: Top Industry Subsectors in Riley by Employment Concentration (LQ)



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, six industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- State Government
- Food Services and Drinking Places
- Religious, Grantmaking, Civic, Professional, and Similar Organizations
- Nursing and Residential Care Facilities
- General Merchandise Stores
- Credit Intermediation and Related Activities

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Riley County has a lower median household income than all comparison regions, but the average per capita income is higher than the region. Unemployment rates are lower than all comparison regions and poverty rate, while slightly higher than the region, is below the state and national averages.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Riley County	**$51,208**	**4.78%**	**$27,272**	**7.40%**
Flint Hills Region	**$54,243**	**5.07%**	**$26,844**	**7.10%**
Kansas	**$59,597**	**5.89%**	**$31,814**	**7.80%**
United States	**$62,843**	**8.07%**	**$34,103**	**9.50%**

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Riley County, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Riley County shows the highest percentage of Bachelor's Degrees and higher level attainment when compared against the different regions, indicating a highly-educated workforce.

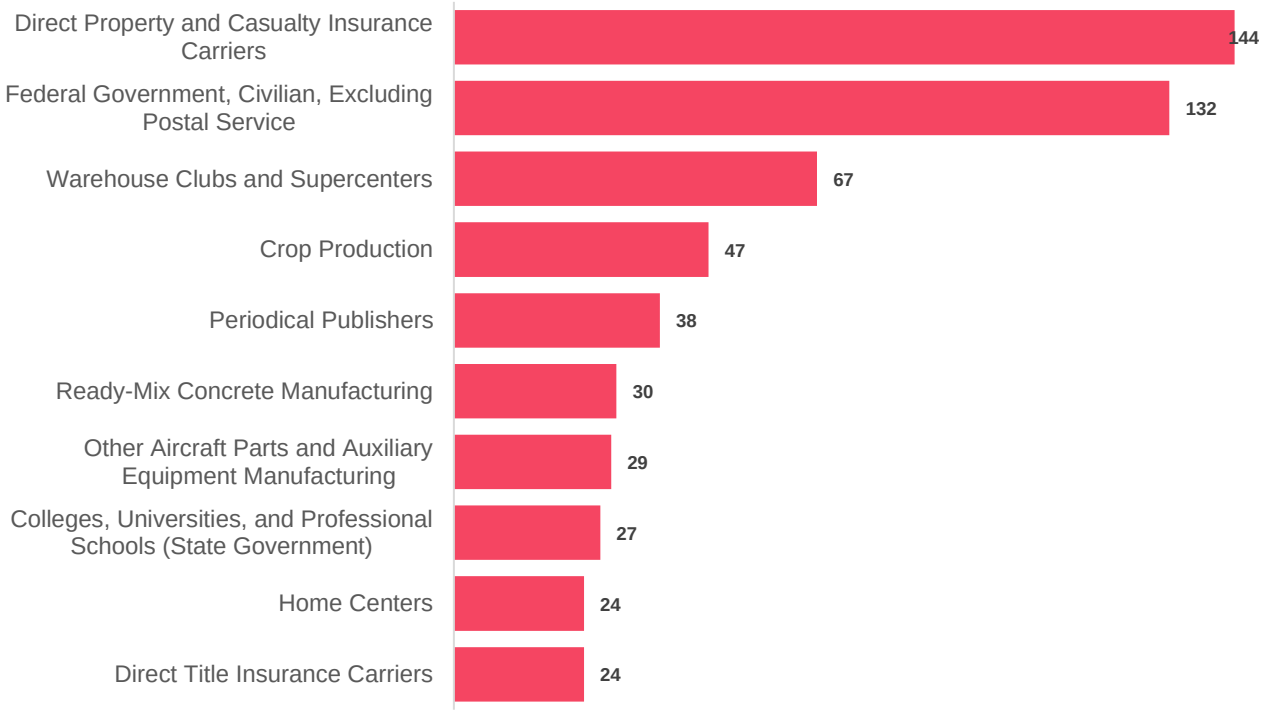
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Riley County	**4.3%**	**19.7%**	**22.1%**	**7.7%**	**25.5%**	**20.6%**
Flint Hills	**6.7%**	**24.6%**	**24.4%**	**9.4%**	**20.8%**	**14.1%**
Kansas	**8.8%**	**25.2%**	**22.4%**	**9.0%**	**21.6%**	**13.0%**
United States	**11.5%**	**26.5%**	**20.1%**	**8.7%**	**20.3%**	**12.8%**

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Riley County that experienced job gains during 2020. The top 10 industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

Riley County's labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

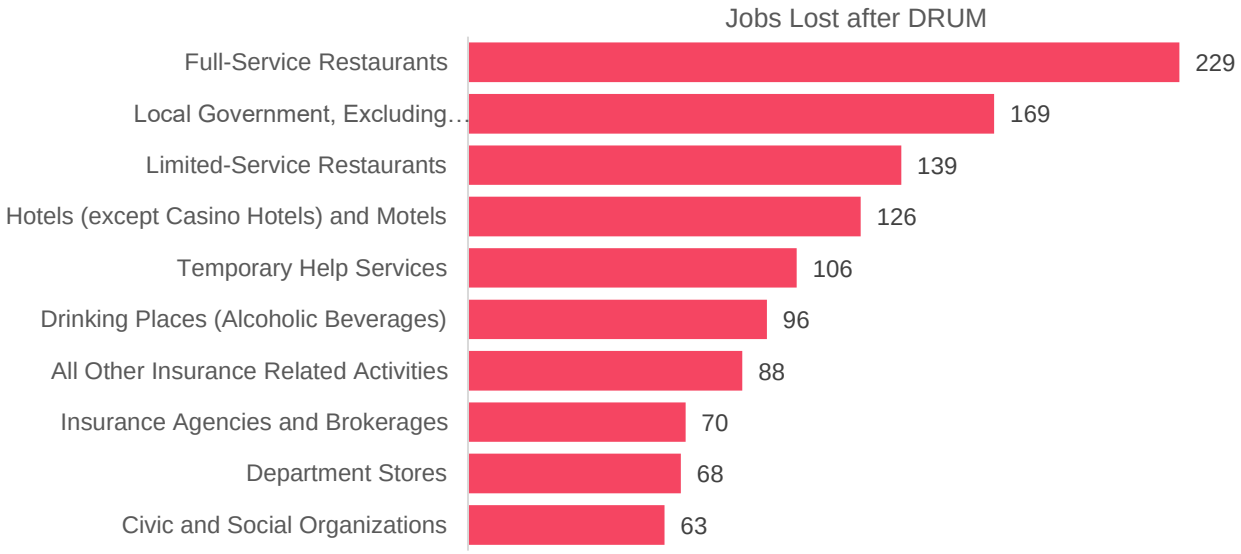
Riley County COVID Impact Overview

443	33,280	31,515	1,516
Number of Industries in Riley County	Jobs in 2019	Jobs in 2020	Net Job Loss After DRUM

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario was 168. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 2,633 jobs. Job losses shown by Figure 06 represent about 44% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 3,162 for Type I and 3,480 for Type II economic effect. In other words, because of the initial 2,633 lost jobs, there are 529 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are an additional 318 jobs that were lost because they were no longer supported by the jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

168 Industries
Negatively Affected

2,633
Initial Job Loss

3,162
Type I Job Loss

3,480
Total Loss in Jobs*

$148 million
Earning Loss*

$18.7 million
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Full-Service Restaurants	229	248	262
Local Government, Excluding Education and Hospitals	169	207	245
Limited-Service Restaurants	139	164	175
Hotels (except Casino Hotels) and Motels	126	138	146
Temporary Help Services	106	123	137
Drinking Places (Alcoholic Beverages)	96	99	102
All Other Insurance Related Activities	88	129	140
Insurance Agencies and Brokerages	70	121	135
Department Stores	68	74	78
Civic and Social Organizations	63	73	79
Other Industries	1,477	1,787	1,981
All Industries	2,633	3,162	3,480

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was $98,540,833 where the total effect of Type I is 31% higher and Type II 51% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $41.4 million and an economic impact of $52 million loss on Type I and $59 million on Type II effects, for the top 10 industries, which represents 40% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	$12,073,819	$14,794,322	$17,478,032
Temporary Help Services	$4,951,454	$5,750,455	$6,407,117
Full-Service Restaurants	$4,484,986	$4,851,242	$5,137,558
Insurance Agencies and Brokerages	$3,455,466	$5,992,501	$6,678,976
Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	$3,018,744	$4,223,666	$4,948,141
Limited-Service Restaurants	$2,746,958	$3,237,264	$3,440,717
Hotels (except Casino Hotels) and Motels	$2,743,617	$2,987,041	$3,180,255
All Other Insurance Related Activities	$2,726,376	$3,981,052	$4,313,600
Offices of Physicians (except Mental Health Specialists)	$2,702,172	$3,108,213	$3,589,893
Security Systems Services (except Locksmiths)	$2,566,505	$3,325,222	$3,852,331
Other Industries	$57,070,736	$77,197,281	$89,452,912
All Industries	$98,540,833	$129,448,259	$148,479,530

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Riley County lost $18.7 million on TPI, where 17% corresponds to Federal, 37% to State and 46% to Local Government taxes. The top 10 industries represent 53% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

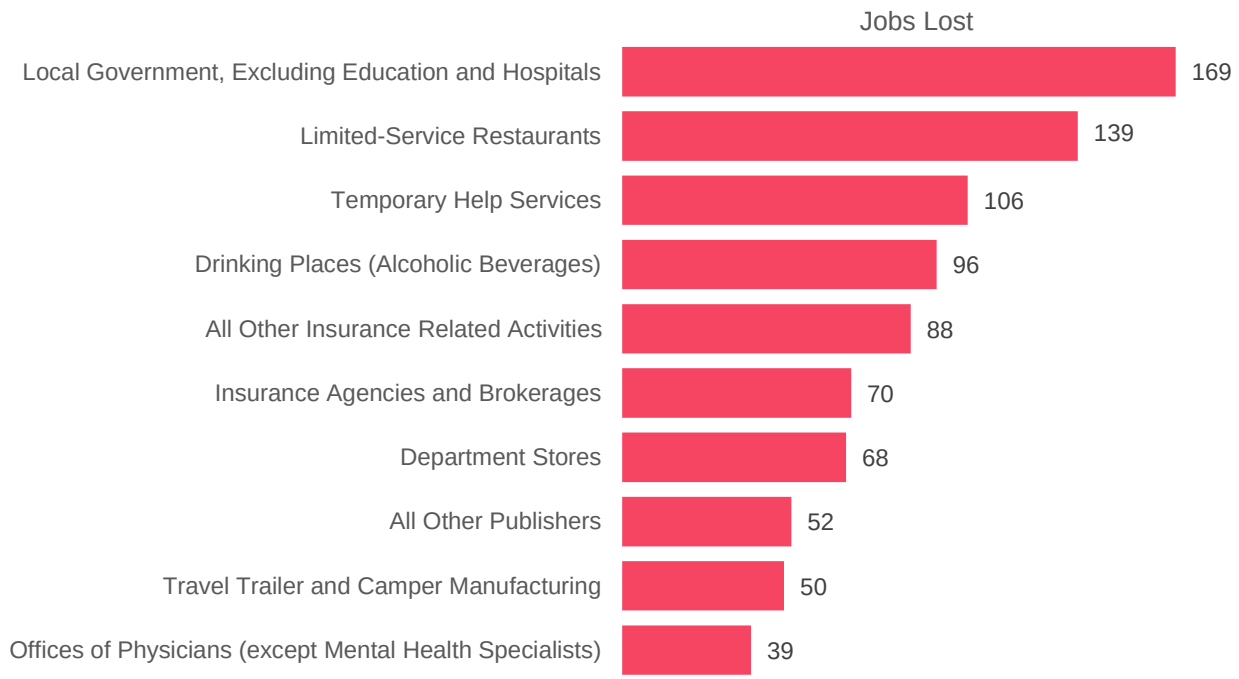
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Electric Bulk Power Transmission and Control	$2,083,331	$342,560	$780,823	$959,948
Hotels (except Casino Hotels) and Motels	$1,460,293	$175,281	$564,934	$720,078
Limited-Service Restaurants	$1,241,526	$180,453	$471,758	$589,315
Full-Service Restaurants	$1,233,340	$176,703	$469,344	$587,294
Direct Health and Medical Insurance Carriers	$1,126,784	$216,001	$413,962	$496,821
Department Stores	$848,978	$96,022	$330,037	$422,918
New Car Dealers	$642,349	$88,007	$245,537	$308,805
Metal Service Centers and Other Metal Merchant Wholesalers	$482,093	$83,835	$179,445	$218,812
Insurance Agencies and Brokerages	$420,709	$126,865	$141,999	$151,845
Local Government, Excluding Education and Hospitals	$382,133	$67,472	$141,961	$172,700
Other Industries	$8,781,091	$1,647,863	$3,235,284	$3,897,944
All Industries	**$18,702,628**	3,201,061	$6,975,086	$8,526,481

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected”. Figure 07 displays the top 10 industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 1,447. The number of job losses during the pandemic increased to 1,779 for Type I and 1,962 for Type II economic effects. In other words, because of the 1,447 lost jobs, there was an additional 332 jobs lost in the supply chain. Additionally, there were 183 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

40 Industries
Negatively Affected

1,446
Initial Job Loss

1,779
Type I Job Loss

1,962
Total Loss in Jobs*

$83.8 million
Earning Loss*

$8.6 million
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	169	207	245
Limited-Service Restaurants	139	164	175
Temporary Help Services	106	123	137
Drinking Places (Alcoholic Beverages)	96	99	102
All Other Insurance Related Activities	88	129	140
Insurance Agencies and Brokerages	70	121	135
Department Stores	68	74	78
All Other Publishers	52	59	65
Travel Trailer and Camper Manufacturing	50	50	50
Offices of Physicians (except Mental Health Specialists)	39	45	52
All Industries	1,447	1,779	1,962

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $56.7 million, where the total effect of Type I is 30% higher and Type II 48% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	$12,073,819	$14,794,322	$17,478,032
Temporary Help Services	$4,951,454	$5,750,455	$6,407,117
Insurance Agencies and Brokerages	$3,455,466	$5,992,501	$6,678,976
Limited-Service Restaurants	$2,746,958	$3,237,264	$3,440,717
All Other Insurance Related Activities	$2,726,376	$3,981,052	$4,313,600
Offices of Physicians (except Mental Health Specialists)	$2,702,172	$3,108,213	$3,589,893
Security Systems Services (except Locksmiths)	$2,566,505	$3,325,222	$3,852,331
Direct Health and Medical Insurance Carriers	$2,391,223	$6,210,665	$7,193,858
Offices of Physical, Occupational and Speech Therapists, and Audiologists	$1,949,516	$2,091,803	$2,388,638
Metal Service Centers and Other Metal Merchant Wholesalers	$1,810,340	$2,932,926	$3,437,456
All Industries	$56,733,423	$74,037,014	$83,767,455

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

* Total Type II Loss

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost $8.6 million on TPI where 18% corresponds to federal government, 37% to state and 45% to local governments (Table 07).

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

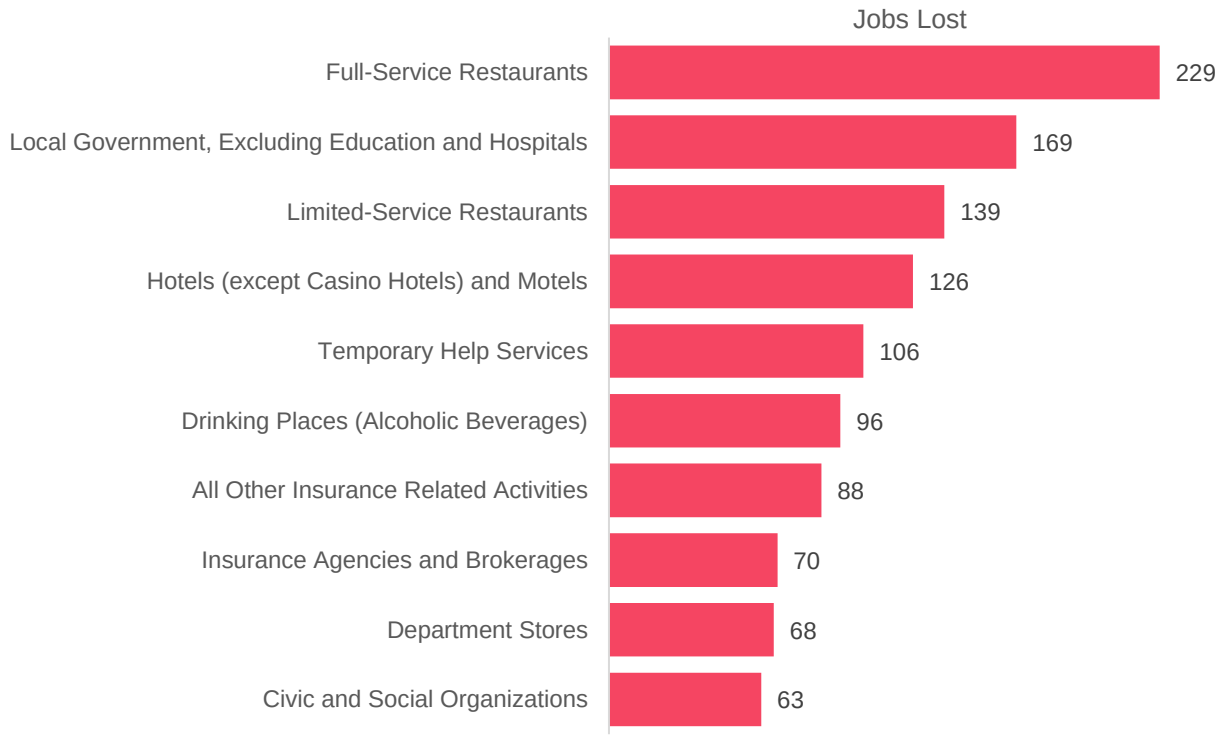
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Limited-Service Restaurants	$1,241,526	$180,453	$471,758	$589,315
Direct Health and Medical Insurance Carriers	$1,126,784	$216,001	$413,962	$496,821
Department Stores	$848,978	$96,022	$330,037	$422,918
Metal Service Centers and Other Metal Merchant Wholesalers	$482,093	$83,835	$179,445	$218,812
Insurance Agencies and Brokerages	$420,709	$126,865	$141,999	$151,845
Local Government, Excluding Education and Hospitals	$382,133	$67,472	$141,961	$172,700
Clothing Accessories Stores	$347,741	$42,601	$134,294	$170,846
All Other Insurance Related Activities	$329,089	$100,012	$110,865	$118,212
Gasoline Stations with Convenience Stores	$326,883	$43,387	$125,331	$158,165
Temporary Help Services	$281,507	$84,990	$94,988	$101,529
All Industries	**$8,624,320**	**$1,567,550**	**$3,191,612**	**$3,865,158**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people and lost more than 15 jobs from 2019 to 2020. We called this set of industries the “Most Relevant.” There are 30 industries in this scenario. Figure 08 displays the top 10 industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the industries amounts to 1,629 jobs during 2020. The job losses increased to 1,935 for Type I and 2,128 for Type II economic effects. In other words, because of the 1,629 losses on jobs there were 306 jobs that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

30 Industries
Negatively Affected

1,629
Initial Job Loss

1,935
Type I Job Loss

2,127
Total Loss in Jobs*

$84.6 million
Earning Loss*

$9.7 million
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Full-Service Restaurants	229	248	262
Local Government, Excluding Education and Hospitals	169	207	245
Limited-Service Restaurants	139	164	175
Hotels (except Casino Hotels) and Motels	126	138	146
Temporary Help Services	106	123	137
Drinking Places (Alcoholic Beverages)	96	99	102
All Other Insurance Related Activities	88	129	140
Insurance Agencies and Brokerages	70	121	135
Department Stores	68	74	78
Civic and Social Organizations	63	73	79
All Industries	1,629	1,935	2,128

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

* Total Type II Loss

In terms of earnings loss, the initial loss was $61 million where the total effect of Type I was 23% higher and Type II increased 39% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Local Government, Excluding Education and Hospitals	$12,073,819	$14,794,322	$17,478,032
Temporary Help Services	$4,951,454	$5,750,455	$6,407,117
Full-Service Restaurants	$4,484,986	$4,851,242	$5,137,558
Insurance Agencies and Brokerages	$3,455,466	$5,992,501	$6,678,976
Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	$3,018,744	$4,223,666	$4,948,141
Limited-Service Restaurants	$2,746,958	$3,237,264	$3,440,717
Hotels (except Casino Hotels) and Motels	$2,743,617	$2,987,041	$3,180,255
All Other Insurance Related Activities	$2,726,376	$3,981,052	$4,313,600
Offices of Physicians (except Mental Health Specialists)	$2,702,172	$3,108,213	$3,589,893
Offices of Physical, Occupational and Speech Therapists, and Audiologists	$1,949,516	$2,091,803	$2,388,638
All Industries	$61,005,454	$75,187,988	$84,634,469

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Riley County lost $9.7 million on TPI, of which 17% corresponded to federal government, 37% to state and 46% to local governments (Table 10).

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Hotels (except Casino Hotels) and Motels	$1,460,293	$175,281	$564,934	$720,078
Limited-Service Restaurants	$1,241,526	$180,453	$471,758	$589,315
Full-Service Restaurants	$1,233,340	$176,703	$469,344	$587,294
Department Stores	$848,978	$96,022	$330,037	$422,918
New Car Dealers	$642,349	$88,007	$245,537	$308,805
Metal Service Centers and Other Metal Merchant Wholesalers	$482,093	$83,835	$179,445	$218,812
Insurance Agencies and Brokerages	$420,709	$126,865	$141,999	$151,845
Local Government, Excluding Education and Hospitals	$382,133	$67,472	$141,961	$172,700
All Other Insurance Related Activities	$329,089	$100,012	$110,865	$118,212
Gasoline Stations with Convenience Stores	$326,883	$43,387	$125,331	$158,165
All Industries	**$9,677,957**	$1,621,050	$3,619,180	$4,437,727

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on Riley County in each of the output scenarios.

> The results of this study demonstrate the profound effect of COVID-19 on Riley County across **multiple scenarios**.

Riley County has a fairly diverse industry base and during the pandemic, the jo losses were mostly felt within the service industries, such as restaurants and hotels. The top 10 industries that lost jobs accounted for about half of all jobs lost. The 2,633 initial lost jobs translated to $98.5 million in earnings lost and a nearly $18.7 million loss on TPI. This loss will affect the region deeply.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.

Lightcast

COVID-19: Economic Impact Analysis on Wabaunsee County

Executive Summary Report

August 2022

FLINT HILLS REGION

Acknowledgements

Lightcast gratefully acknowledges the excellent support of the Flint Hills Regional Council (FHRC). A special thank you goes to Jerry Lonergan and Janna L. Williams at FHRC.

This report is prepared for the FHRC by Lightcast. The content is solely the responsibility of the author and does not necessarily represent the official views of the FHRC. Proper acknowledgement of Lightcast should be included in publications, presentations, or other developed materials.

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INTRODUCTION

Wabaunsee County is one of seven counties in the Flint Hills Economic Development District (FHEDD). FHEDD includes Chase, Geary, Lyon, Morris, Pottawatomie, Riley and Wabaunsee Counties. In 2020, the Wabaunsee County population was about 7,000 people, with a total regional employment of about 1,700 jobs.

The Wabaunsee County economy creates value in many ways, including jobs, earnings and tax revenue, and the employed labor force in Wabaunsee County generates new dollars and creates opportunities in the region. When COVID-19 arrived, all of these facets were impacted as the economy suffered as job losses resulted in lost earnings and tax revenue for the region.

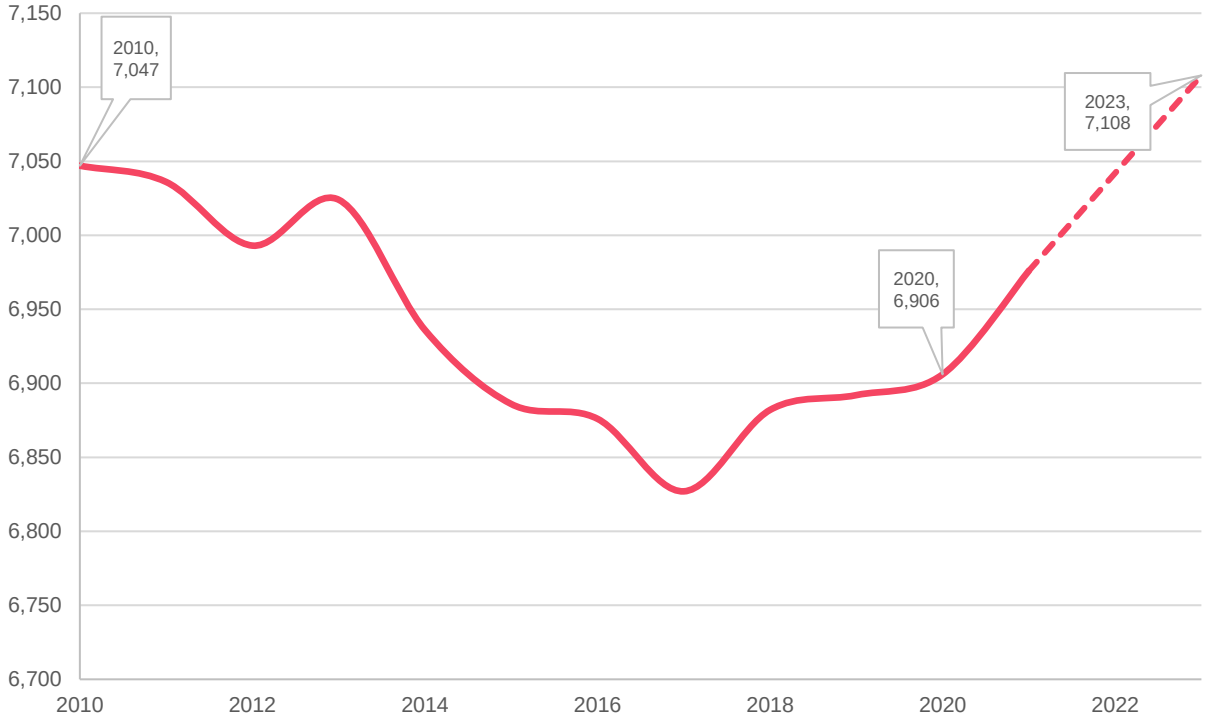
Labor Force in Wabaunsee creates new opportunities in the region.

The purpose of this report is to outline the county's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

ECONOMIC OVERVIEW

In 2010, just over 7,000 people resided in Wabaunsee County. Population in the county decreased from 2010 to 2017 but has been increasing since then. Population is expected to increase through 2023 to surpass 2010 population levels (Figure 01).

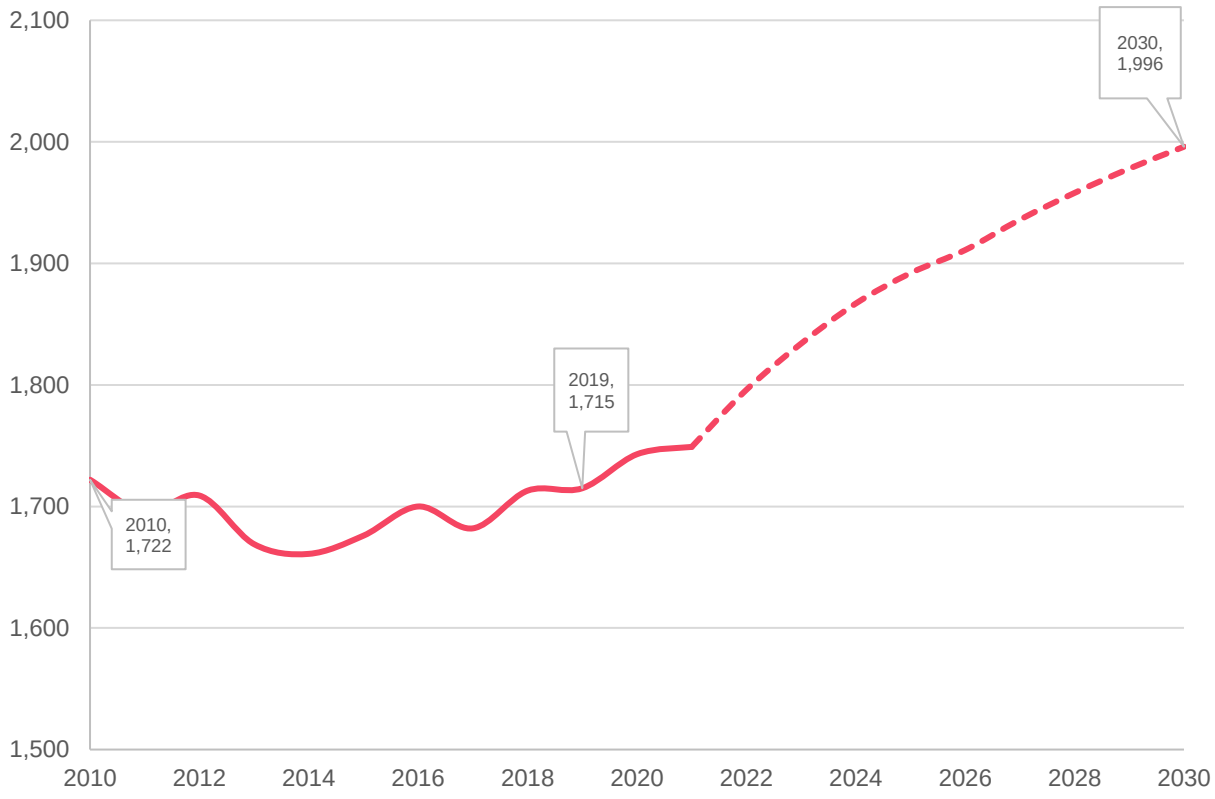
Figure 01: Historical and Projected Population in Wabaunsee County, 2010 to 2023



Source: Lightcast demographics data, U.S. Census Bureau.

As shown in Figure 02, Wabaunsee County supported just over 1,700 jobs in 2010. Jobs growth has fluctuated a bit but has grown over time. Jobs are projected to grow even faster than historical trends to a peak of nearly 2,000 jobs by 2030. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

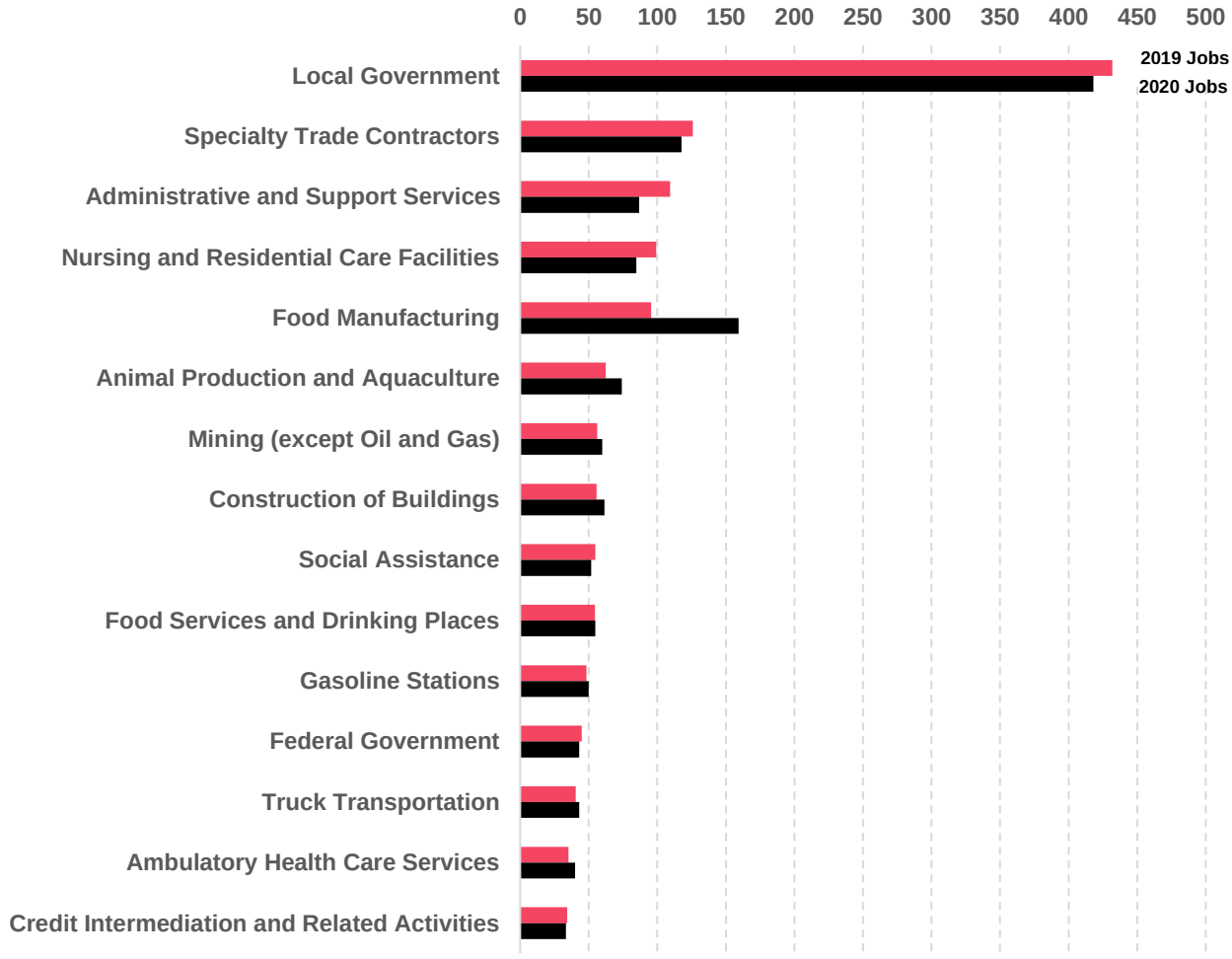
Figure 02: Historical and Projected Jobs in Wabaunsee, 2010 to 2030



Source: Lightcast 2022.2.

Figure 03 displays the top industry subsectors in terms of employment in Wabaunsee County. In 2019 and in 2020, Local Government had the highest number of jobs out of all industries. Food Manufacturing saw the highest increase of jobs from 2019 to 2020.

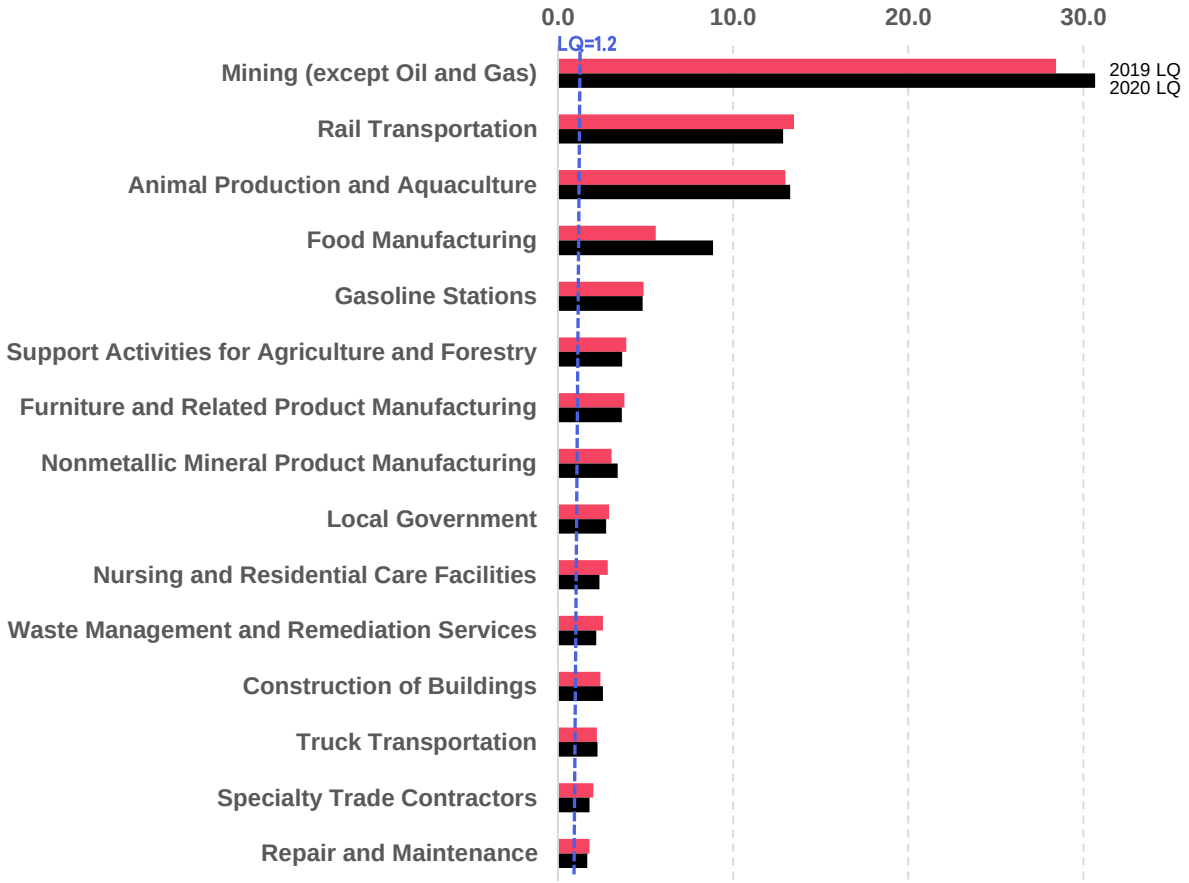
Figure 03: Top Industry Subsectors in Wabaunsee by Jobs



Source: Lightcast 2022.2.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients[1] (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions. Wabaunsee County has an extremely high concentration of Mining (except Oil and Gas); Rail Transportation; Animal Production and Aquaculture; and Food Manufacturing.

Figure 04: Top Industry Subsectors in Wabaunsee by Employment Concentration (LQ)



Source: Lightcast 2022.2.

[1] Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/).

Looking at industries in Figure 03, nine industries are within both the top 15 in terms of total jobs and in relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Local Government
- Food Manufacturing
- Specialty Trade Contractors
- Nursing and Residential Care Facilities
- Animal Production and Aquaculture
- Construction of Buildings
- Mining (except Oil and Gas)
- Gasoline Stations
- Truck Transportation

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Kansas and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Wabaunsee County has a higher median household income than the region and the state, but slightly lower than the US. Average per capita income is higher than the region, but lower when compared to Kansas and the US. Unemployment rates and poverty rates are lower than all comparison regions. Poverty rate is significantly lower.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY (ALL PEOPLE)
Wabaunsee County	$61,178	4.02%	$27,876	2.60%
Flint Hills Region	$54,243	5.07%	$26,844	7.10%
Kansas	$59,597	5.89%	$31,814	7.80%
United States	$62,843	8.07%	$34,103	9.50%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainment levels in Wabaunsee County, the Flint Hills region, Kansas, and U.S. adults. Educational attainment[2] data is useful for targeting specific population groups with less than or greater than average education levels. Here, Wabaunsee County shows the highest percentage of High School, Some College and Associate's Degrees level attainment when compared against the different regions.

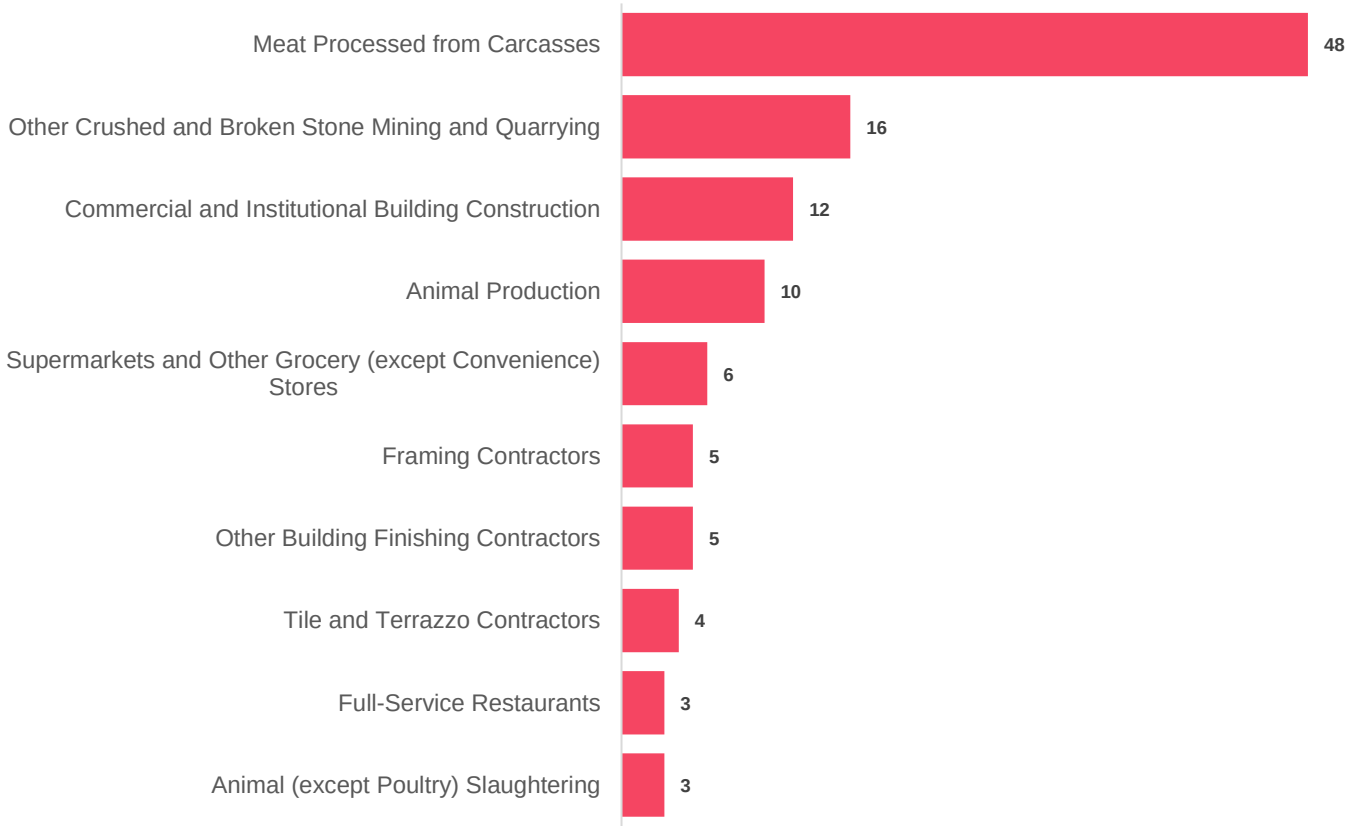
Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Wabaunsee County	**4.5%**	**32.6%**	**27.9%**	**10.2%**	**15.9%**	**9.0%**
Flint Hills	**6.7%**	**24.6%**	**24.4%**	**9.4%**	**20.8%**	**14.1%**
Kansas	**8.8%**	**25.2%**	**22.4%**	**9.0%**	**21.6%**	**13.0%**
United States	**11.5%**	**26.5%**	**20.1%**	**8.7%**	**20.3%**	**12.8%**

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

[2] Educational Attainment of the Population 25 Years and Over

While the majority of this report is focused on the impact of COVID-19 due to job loss, there are also several industries in Wabaunsee County that experienced job gains during 2020. The top 10 industries are listed below, along with their respective jobs gained after DRUM.



ECONOMIC IMPACT ANALYSIS

Wabaunsee County's labor force promotes economic growth inside the region as well as in the state of Kansas through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways; one is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described below. More detail is provided in the following section.

- First Scenario – This group of industries is defined as the top Industries with the highest number of job losses during 2020
- Second Scenario – This scenario focuses on the Most Effected industries, defined as those that fared worse relative to national job loss rates
- Third Scenario – This scenario focuses on those industries that are Most Relevant to the region. This includes industries that are major employers in the region but may or may not be included in the First Scenario.

Each scenario is presented via Type I (initial, direct and indirect) and Type II (induced) Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, retirement, unemployment, and migration (DRUM) previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region. This is referred to as Jobs Lost after DRUM. More information on methodology can be found in the separate appendix document.

Wabaunsee County COVID Impact Overview

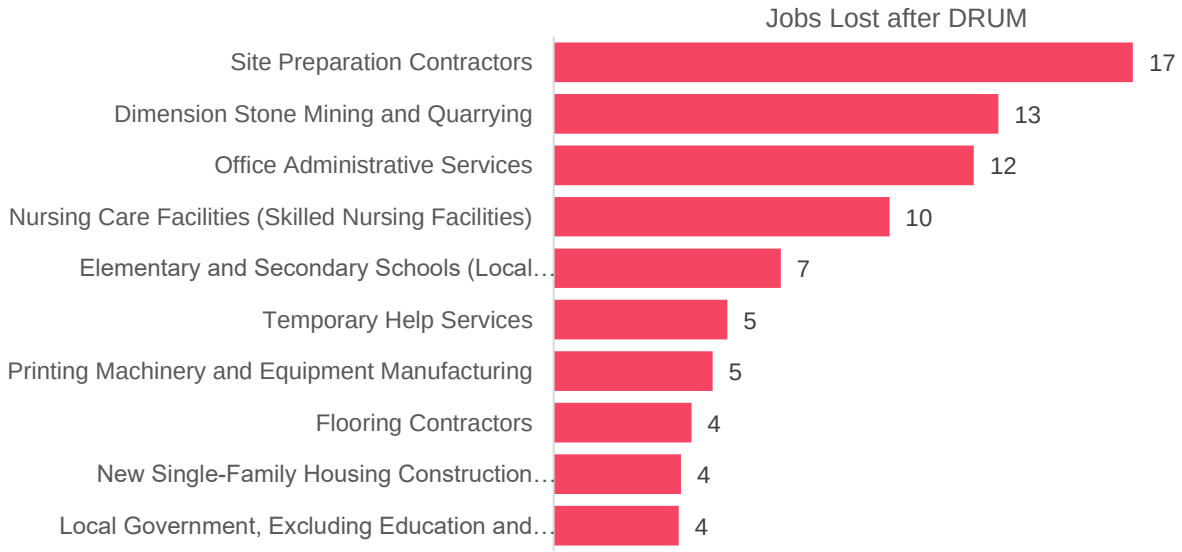
159	1,715	1,243	23
Number of Industries in Wabaunsee County	Jobs in 2019	Jobs in 2020	Net Job Gain* After DRUM

*Across all industries, Wabaunsee County actually saw a net increase in jobs driven by the industries shown on page 11. Note: The remainder of this analysis excludes those industries that gained jobs.

First Scenario:

The first scenario included all industries that lost jobs from 2019 to 2020. The total number of industries in this scenario was 24. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries with the Highest Number of Job Losses during 2020



Source: Lightcast 2022.2

In this scenario, the total number of lost jobs caused by the pandemic sum up to 106 jobs. Job losses shown by Figure 06 represent close to 75% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 116 for Type I and 120 for Type II economic effect. In other words, because of the initial 106 lost jobs, there are 10 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are 4 jobs that were lost because they were no longer supported by the jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

24 Industries
Negatively Affected

106
Initial Job Loss

116
Type I Job Loss

120
Total Loss in Jobs*

$4.8 million
Earning Loss*

$356,441
Loss on TPI*

Table 02: Top 10 Industries with the Highest Number of Job Losses during 2020

Industry Name	Initial Effect	Type I	Type II
Site Preparation Contractors	17	18	19
Dimension Stone Mining and Quarrying	13	15	15
Office Administrative Services	12	14	15
Nursing Care Facilities (Skilled Nursing Facilities)	10	11	11
Elementary and Secondary Schools (Local Government)	7	7	7
Temporary Help Services	5	6	6
Printing Machinery and Equipment Manufacturing	5	5	5
Flooring Contractors	4	4	5
New Single-Family Housing Construction (except For-Sale Builders)	4	4	4
Local Government, Excluding Education and Hospitals	4	4	4
Other Industries	27	30	30
All Industries	106	116	120

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.[3]

* Total Type II Loss

In terms of earnings loss, the total initial loss of earnings was $4.1 million where the total effect of Type I is 11% higher and Type II 16% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of $3,334,749 and an economic impact of $3,708,393 loss on Type I and $3,848,886 on Type II effects, for the top 10 industries, which represents 81% of the total effects on Type II.

Table 03: Top 10 Industries, All Industries Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Office Administrative Services	$754,141	$856,534	$898,446
Site Preparation Contractors	$654,605	$698,152	$717,876
Dimension Stone Mining and Quarrying	$410,915	$460,846	$478,348
Nursing Care Facilities (Skilled Nursing Facilities)	$385,351	$436,457	$448,719
Elementary and Secondary Schools (Local Government)	$279,909	$286,976	$298,393
Flooring Contractors	$233,820	$257,197	$266,964
Temporary Help Services	$195,365	$216,560	$223,712
Rail transportation	$184,577	$245,165	$260,052
New Single-Family Housing Construction (except For-Sale Builders)	$134,042	$142,338	$145,728
Residential Remodelers	$102,025	$108,169	$110,649
Other Industries	$777,810	$872,939	$902,467
All Industries	$4,112,560	$4,581,332	$4,751,353

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Wabaunsee County lost $356,441 on TPI, where 22% corresponds to Federal, 36% to State and 42% to Local Government taxes. The top 10 industries represent 83% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries, All Industries, Loss on Taxes on Production & Imports

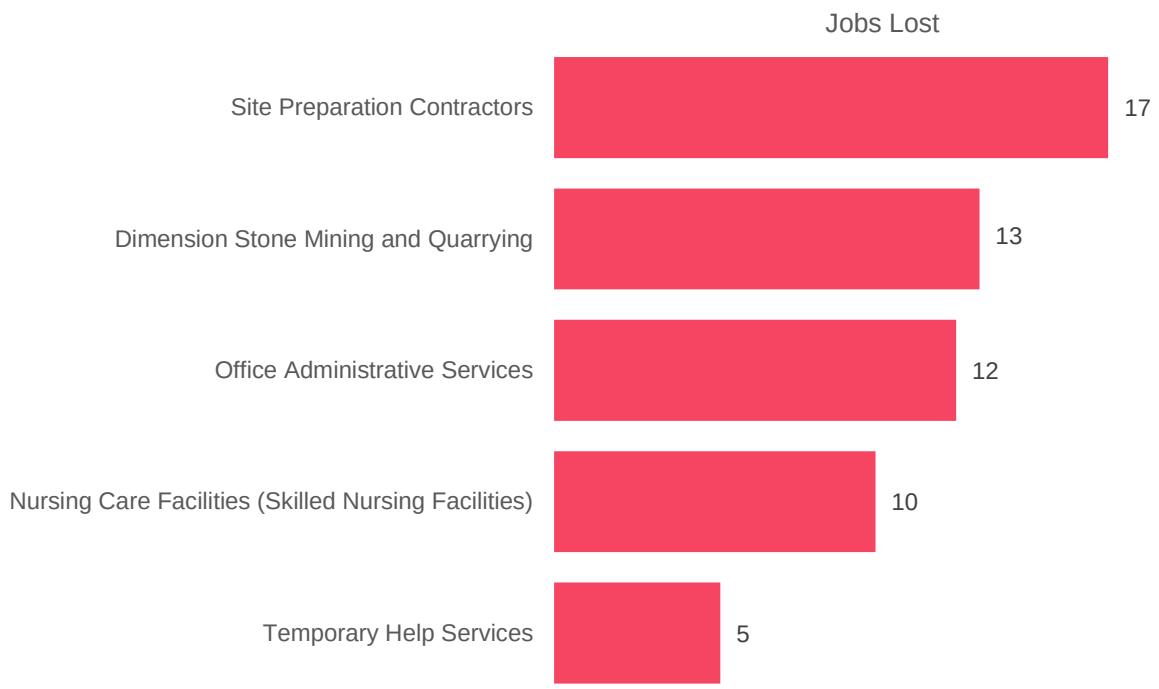
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Dimension Stone Mining and Quarrying	$118,595	$28,824	$41,915	$47,856
Rail transportation	$27,173	$6,617	$9,600	$10,956
Site Preparation Contractors	$26,420	$8,533	$8,764	$9,124
Nursing Care Facilities (Skilled Nursing Facilities)	$26,279	$3,580	$10,051	$12,648
Hardware Stores	$23,201	$2,881	$8,949	$11,370
All Other General Merchandise Stores	$18,987	$2,101	$7,394	$9,492
Solid Waste Collection	$15,172	$3,262	$5,478	$6,432
Office Administrative Services	$13,453	$3,080	$4,806	$5,567
Printing Machinery and Equipment Manufacturing	$12,823	$1,433	$4,966	$6,423
Limited-Service Restaurants	$12,224	$1,740	$4,655	$5,830
Other Industries	$62,114	$17,461	$21,308	$23,345
All Industries	**$356,441**	79,512	$127,886	$149,043

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Second Scenario:

The second scenario looks at industries which performed worse locally in terms of job loss, unemployment, and job postings, than at the national level. We called this set of industries the “Most Affected”. Figure 07 displays the five industries with the corresponding number of jobs lost.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Lightcast 2022.2

Initial number of jobs lost from these industries was 57. The number of job losses during the pandemic increased to 63 for Type I and 65 for Type II economic effects. In other words, because of the 57 lost jobs, there was an additional 6 jobs lost in the supply chain. Additionally, there were 2 more jobs lost from induced effects (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19

5 Industries
Negatively Affected

57
Initial Job Loss

63
Type I Job Loss

65
Total Loss in Jobs*

$2.8 million
Earning Loss*

$192,276
Loss on TPI*

Table 05: Most Affected Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Site Preparation Contractors	17	18	19
Dimension Stone Mining and Quarrying	13	15	15
Office Administrative Services	12	14	15
Nursing Care Facilities (Skilled Nursing Facilities)	10	11	11
Temporary Help Services	5	6	6
All Industries	57	63	65

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [4]

In terms of earnings loss, Table 06 shows an initial loss of $2.4 million, where the total effect of Type I is 11% higher and Type II 15% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Office Administrative Services	$754,141	$856,534	$898,446
Site Preparation Contractors	$654,605	$698,152	$717,876
Dimension Stone Mining and Quarrying	$410,915	$460,846	$478,348
Nursing Care Facilities (Skilled Nursing Facilities)	$385,351	$436,457	$448,719
Temporary Help Services	$195,365	$216,560	$223,712
All Industries	$2,400,378	$2,668,549	$2,767,100

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost $192,276 on TPI where 24% corresponds to federal government, 35% to state and 40% to local governments (Table 07).

* Total Type II Loss

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

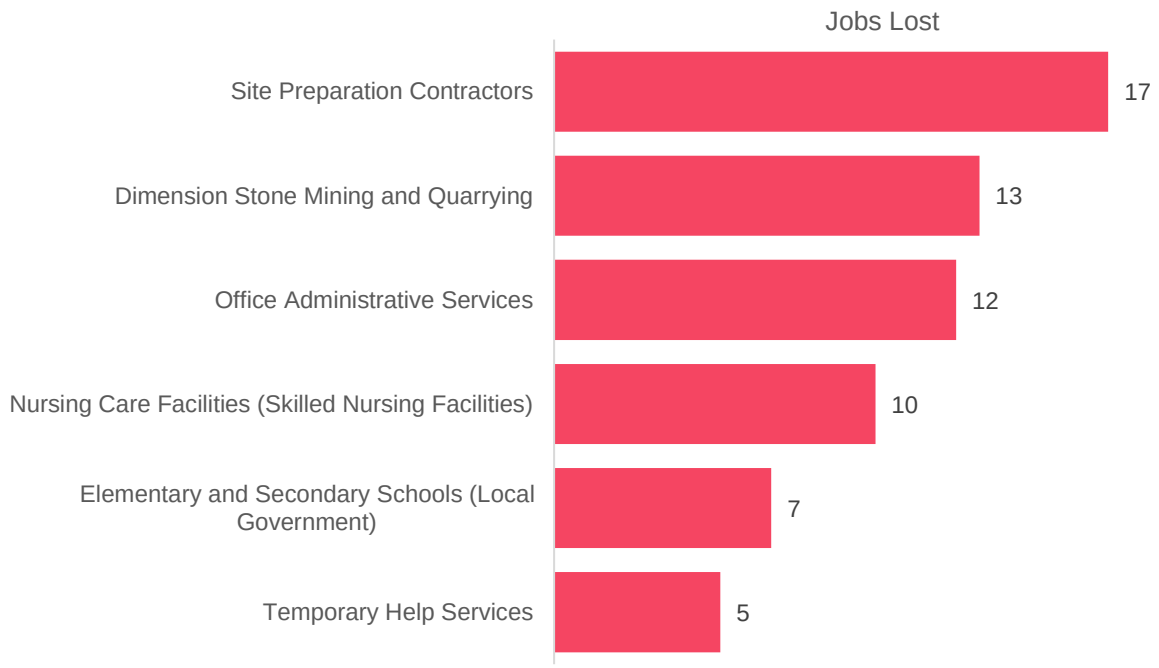
Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Dimension Stone Mining and Quarrying	$118,595	$28,824	$41,915	$47,856
Site Preparation Contractors	$26,420	$8,533	$8,764	$9,124
Nursing Care Facilities (Skilled Nursing Facilities)	$26,279	$3,580	$10,051	$12,648
Office Administrative Services	$13,453	$3,080	$4,806	$5,567
Temporary Help Services	$7,528	$2,764	$2,407	$2,358
All Industries	**$192,276**	**$46,781**	**$67,942**	**$77,553**

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region based on industries that employ the most people (at least 15) and lost more than five jobs. We called this set of industries the “Most Relevant.” There are six industries in this scenario. Figure 08 displays the industries, along with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Lightcast 2022.2

In our third scenario, the total job loss for the six industries amounts to 64 jobs during 2020. The job losses increased to 70 for Type I and 72 for Type II economic effects. In other words, because of the 64 losses on jobs there were 6 that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost.

Total Effects by Job Loss in 2019-20 due to COVID 19

6 Industries
Negatively Affected

64
Initial Job Loss

70
Type I Job Loss

72
Total Loss in Jobs*

$3 million
Earning Loss*

$193,515
Loss on TPI*

Table 08: Most Relevant Industries Scenario Change in Jobs

Industry Name	Initial Effect	Type I	Type II
Site Preparation Contractors	17	18	19
Dimension Stone Mining and Quarrying	13	15	15
Office Administrative Services	12	14	15
Nursing Care Facilities (Skilled Nursing Facilities)	10	11	11
Elementary and Secondary Schools (Local Government)	7	7	7
Temporary Help Services	5	6	6
All Industries	64	70	72

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020. [5]

In terms of earnings loss, the initial loss was $2.7 million where the total effect of Type I was 10% higher and Type II increased 14% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industry Name	Initial Effect	Type I	Type II
Office Administrative Services	$754,141	$856,534	$898,446
Site Preparation Contractors	$654,605	$698,152	$717,876
Dimension Stone Mining and Quarrying	$410,915	$460,846	$478,348
Nursing Care Facilities (Skilled Nursing Facilities)	$385,351	$436,457	$448,719
Elementary and Secondary Schools (Local Government)	$279,909	$286,976	$298,393
Temporary Help Services	$195,365	$216,560	$223,712
All Industries	$2,680,286	$2,955,524	$3,065,493

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Wabaunsee County lost $193,515 on TPI, of which 24% corresponded to federal government, 35% to state and 40% to local governments (Table 10).

* Total Type II Loss

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industry Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Dimension Stone Mining and Quarrying	$118,595	$28,824	$41,915	$47,856
Site Preparation Contractors	$26,420	$8,533	$8,764	$9,124
Nursing Care Facilities (Skilled Nursing Facilities)	$26,279	$3,580	$10,051	$12,648
Office Administrative Services	$13,453	$3,080	$4,806	$5,567
Temporary Help Services	$7,528	$2,764	$2,407	$2,358
Elementary and Secondary Schools (Local Government)	$1,239	$272	$446	$521
All Industries	**$193,515**	$47,053	$68,388	$78,074

Source: Multi-regional social account matrix model (MR-SAM). 2022.2, years 2019/2020.

CONCLUSION:

The results of this study demonstrate the negative economic effects COVID-19 had on Wabaunsee County in each of the output scenarios.

One of the most relevant results came from the total effect on TPI by job losses in All Industries, where nearly 83% is attributed to the 10 industries under the first scenario.

> The results of this study demonstrate the profound effect of COVID-19 on Wabaunsee County across **multiple scenarios**.

While several industries did see growth, the 106 initial lost jobs translated to nearly $4.8 million in earnings lost and a $356,441 loss on TPI. This loss will affect the region deeply.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau and outputs of the Lightcast Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.