

COVID-19: Economic Impact Analysis on Crawford County Service Region

September 2021

EXECUTIVE SUMMARY REPORT



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Acknowledgements

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Emsi Burning Glass 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 Emsi Burning Glass to align programs with regional needs and demonstrate their institution's economic impact on their region. Visit economicmodeling.com/ci-consulting to learn more or connect with us.



INTRODUCTION

Crawford county is one of nine counties located along the Mississippi River in Western Wisconsin that are members of the Mississippi River Regional Planning Commission (MRRPC)¹. MRRPC includes Buffalo, Crawford, Jackson, La Crosse, Monroe, Pepin, Pierce, Trempealeau, and Vernon counties. In 2020, the Crawford county population was 16,113², with a total regional employment of 7,727. The average earnings per job in 2020 was \$50,831, which is \$23,322 below the national average earnings per job.³

The Crawford county economy creates value in many ways. The employed labor force in Crawford generates new dollars and creates opportunities in the region.

MRRPC tracks Crawford's industries and studies the changes in taxes, earnings, and job market. An understanding of the regional economy and the economic impact effects of COVID-19 is vital to Crawford's efforts seeking to adapt to the post-pandemic economy.

Labor Force in Crawford
creates new opportunities
in their 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.

¹ <https://mrrpc.com/about/>

² <https://www.census.gov/library/stories/state-by-state.html>

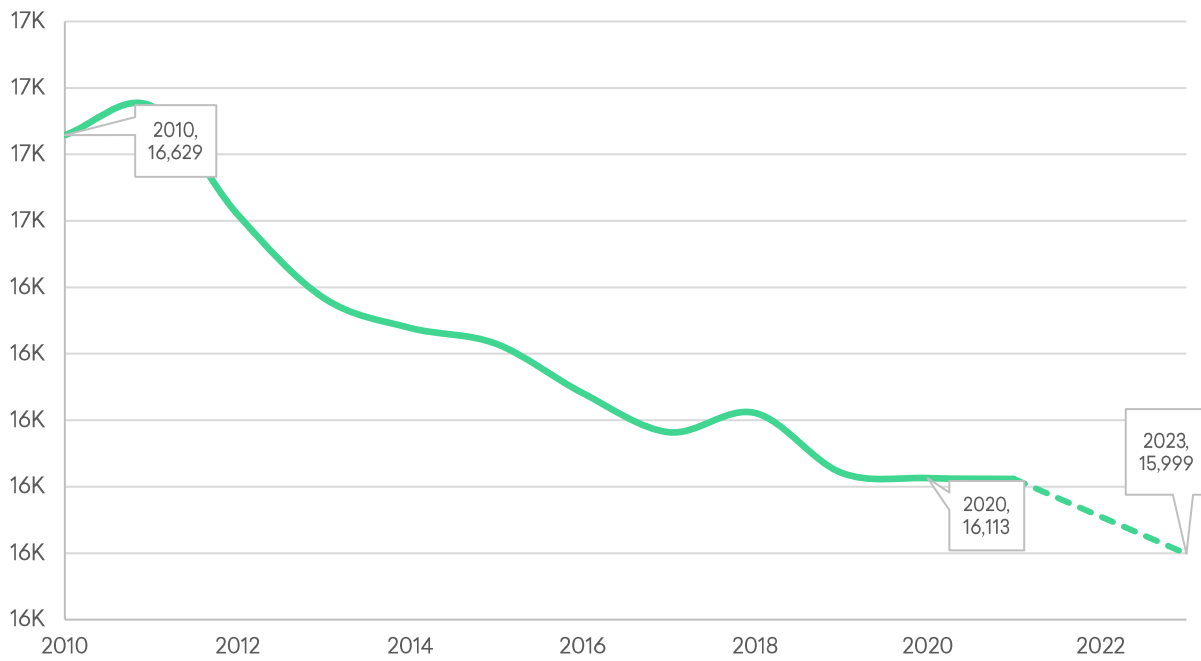
³ Emsi Burning Glass proprietary data, collected on August 23, 2021.



ECONOMIC OVERVIEW

In 2010, 16,629 people resided in Crawford. The county's population is projected to be 15,999 people by 2023 (Figure 01).

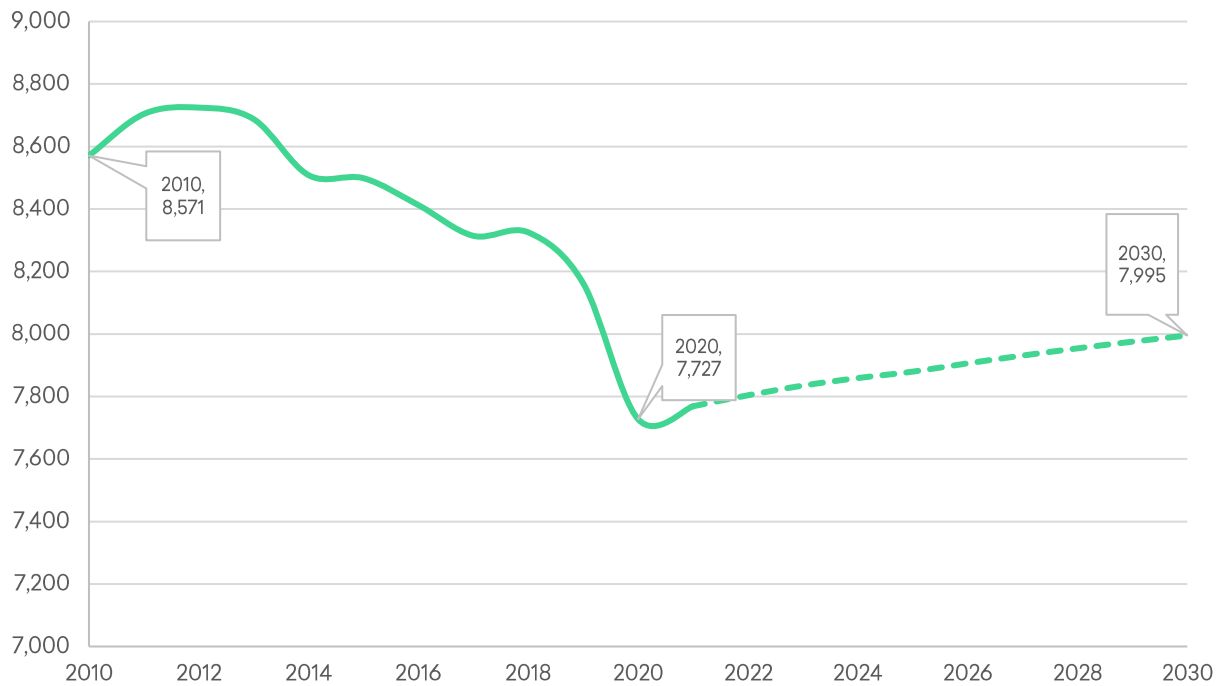
Figure 01: Historical and Projected Population in Crawford, 2010 to 2023



Source: Emsi Burning Glass demographics data, U.S. Census Bureau.

As shown in Figure 02, Crawford supported 8,571 jobs in 2010 and by 2020, the region had 7,727 jobs. In 2020 alone, the region lost 435 jobs. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

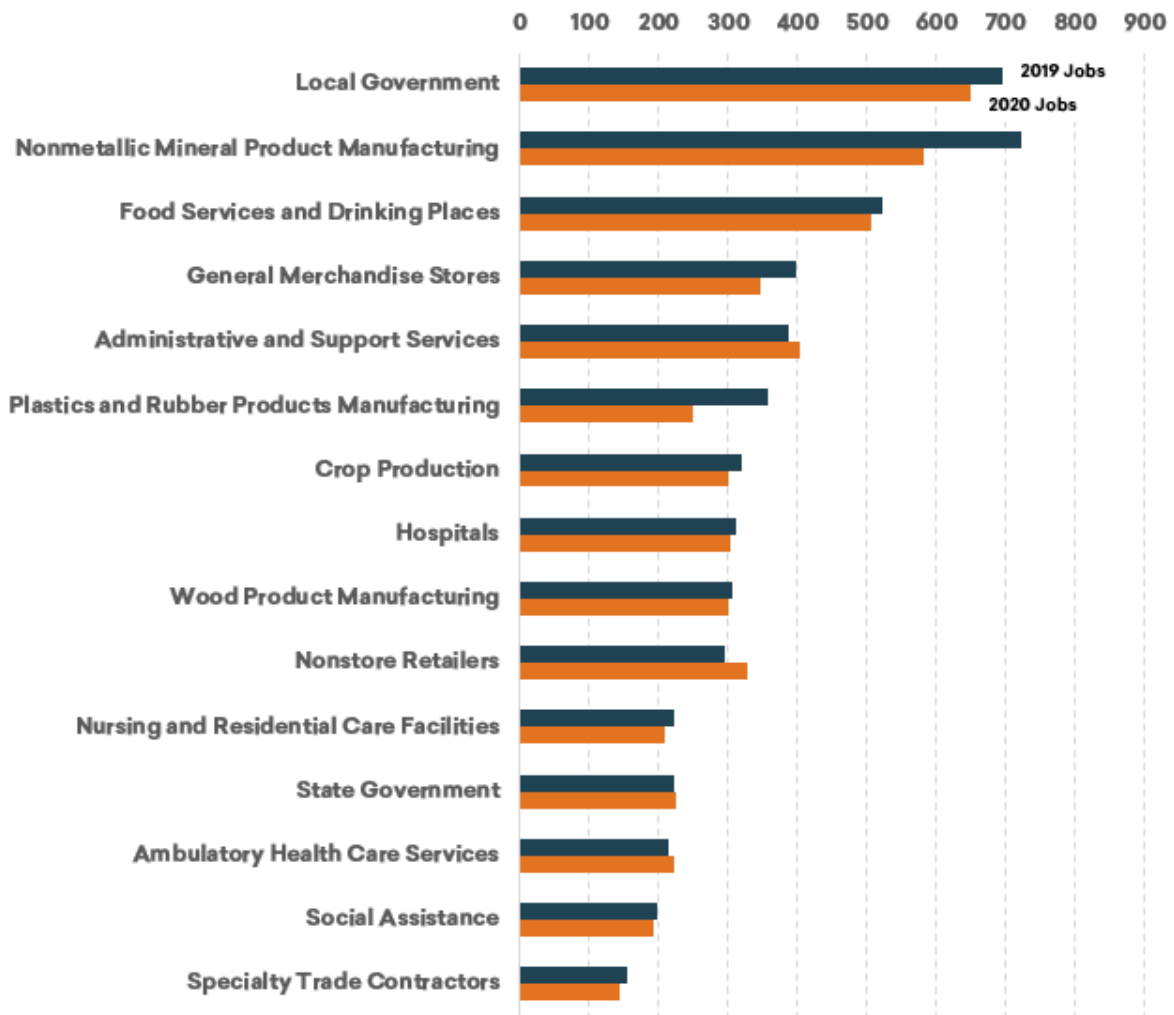
Figure 02: Historical and Projected Jobs in Crawford, 2010 to 2030



Source: Emsi Burning Glass 2021.3.

Figure 03 displays the top industry subsectors in terms of employment in Crawford. Local Government and Nonmetallic Mineral Product Manufacturing industries were the industries with highest number of jobs in 2019 and 2020.

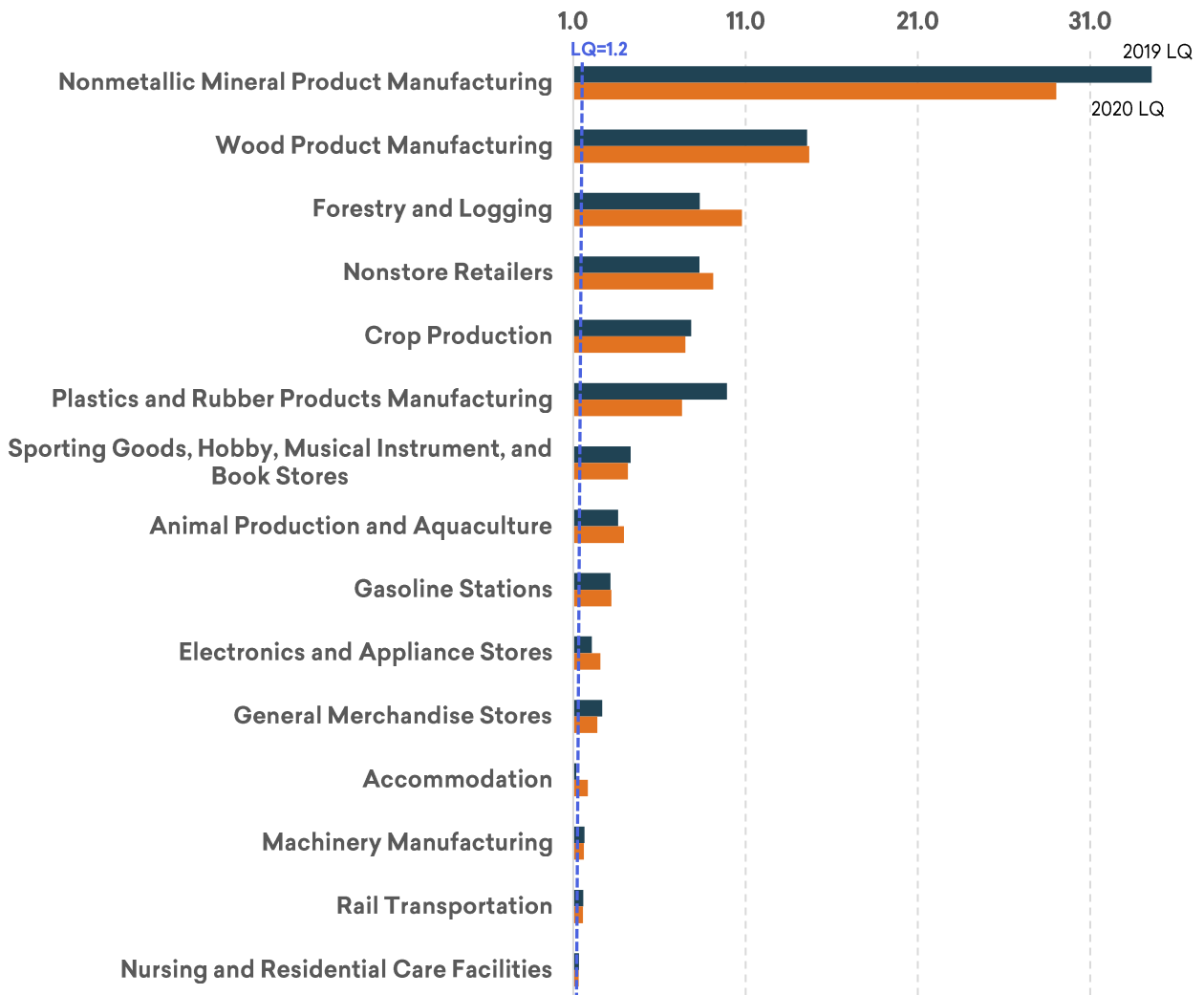
Figure 03: Top Industry Subsectors in Crawford by Jobs



Source: Emsi Burning Glass 2021.3.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients⁴ (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.

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



Source: Emsi Burning Glass 2021.3.

⁴ 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 7 industries are within both the top 15 in terms of total jobs and in terms of 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:

- Nonmetallic Mineral Product Manufacturing
- General Merchandise Stores
- Plastics and Rubber Products Manufacturing
- Crop Production
- Wood Product Manufacturing
- Nonstore Retailers
- Nursing and Residential Care

The data in Table 01 shows several of the region’s socioeconomic indicators as they compare to Wisconsin 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. The median household income of Crawford falls below both Wisconsin and the United States. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. In contrast, Crawford shows low unemployment and poverty rate when compared against the nation.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY ALL PEOPLE
Crawford County	\$59,587	4.88%	\$29,242	7.50%
MRRPC Service Region	\$57,495	3.87%	\$29,488	6.90%
Wisconsin State	\$61,747	4.05%	\$33,375	7.20%
United States	\$62,843	6.50%	\$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 attainments in Crawford, the MRRPC Service Region, Wisconsin, and U.S. adults. Educational attainment⁵ data is useful for targeting specific population groups with less than or greater than average education levels. Here, Crawford shows the highest percentage of High School degree holders when compared against the different regions.

Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Crawford County	8.3%	38.7%	21.6%	12.4%	13.6%	5.5%
MRRPC	7.0%	32.7%	20.8%	12.6%	17.6%	9.2%
Wisconsin State	7.6%	30.2%	20.5%	11.1%	20.1%	10.6%
United States	11.8%	26.7%	20.3%	8.6%	20.0%	12.6%

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

⁵ Educational Attainment of the Population 25 Years and Over



ECONOMIC IMPACT ANALYSIS

Crawford's labor force promotes economic growth inside the region as well as in the state of Wisconsin 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 in the following section. Each of them will be presented via Type I and Type II Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, unemployment, and retirement previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region.

INPUT-OUTPUT MODEL: TYPE I & TYPE II ECONOMIC EFFECTS DESCRIPTION

An Input-Output model is a way of representing the flow of money in an economy, primarily among industries, while also accounting for government, households, and regional imports and exports. An industry is a group of business establishments that share similar end-products (or services) and processes for creating those products/services. Once the flow is represented in the model; we can introduce events that change the flow (such as loss or gain of jobs in one industry) and simulate its effects on each industry in the region, as well as the region as a whole. *The Input-Output model therefore indicates how a change in one part of the economy will ultimately affect other parts based on their economic relationships.*

When we talk about the Input-Output model, we sometimes hear the term “multiplier” used in discussions of economic policy and modeling, usually in the context of job creation or loss. Basically, a multiplier represents how much some aspect of a model will change in response to changes coming from “outside” the model. In other words, *the multipliers capture the changes and will describe the effects of those changes in terms of the original change (final effect = original change times the multiplier).*

In our particular case, we will talk about Type I and Type II multipliers.

Type I multiplier shows the industry-to-industry transactions. It is composed of Initial, Direct and Indirect Effects.

- *Initial Effect*: represents the first shock in the economy; in our case, it's the number of jobs that were lost during the pandemic in 2020, and therefore does not include ripple effects.
- *Direct Effect*: effects caused by the initially changed sectors; also describes the effects on those sectors' immediate supply chain.
- *Indirect Effect*: extends the concept of the direct multipliers to the supply chain's supply chain.

Type II multiplier adds to the Type I by introducing the effects by households (Induced Effect).

- *Induced Effect*: is due to the impact of the new earnings created by the Initial, Direct, and Indirect changes. These earnings enter the economy as employees spend their paychecks within the region on food, clothing, and other goods and services. In other words, this figure represents the income effects on inter-industry trade.

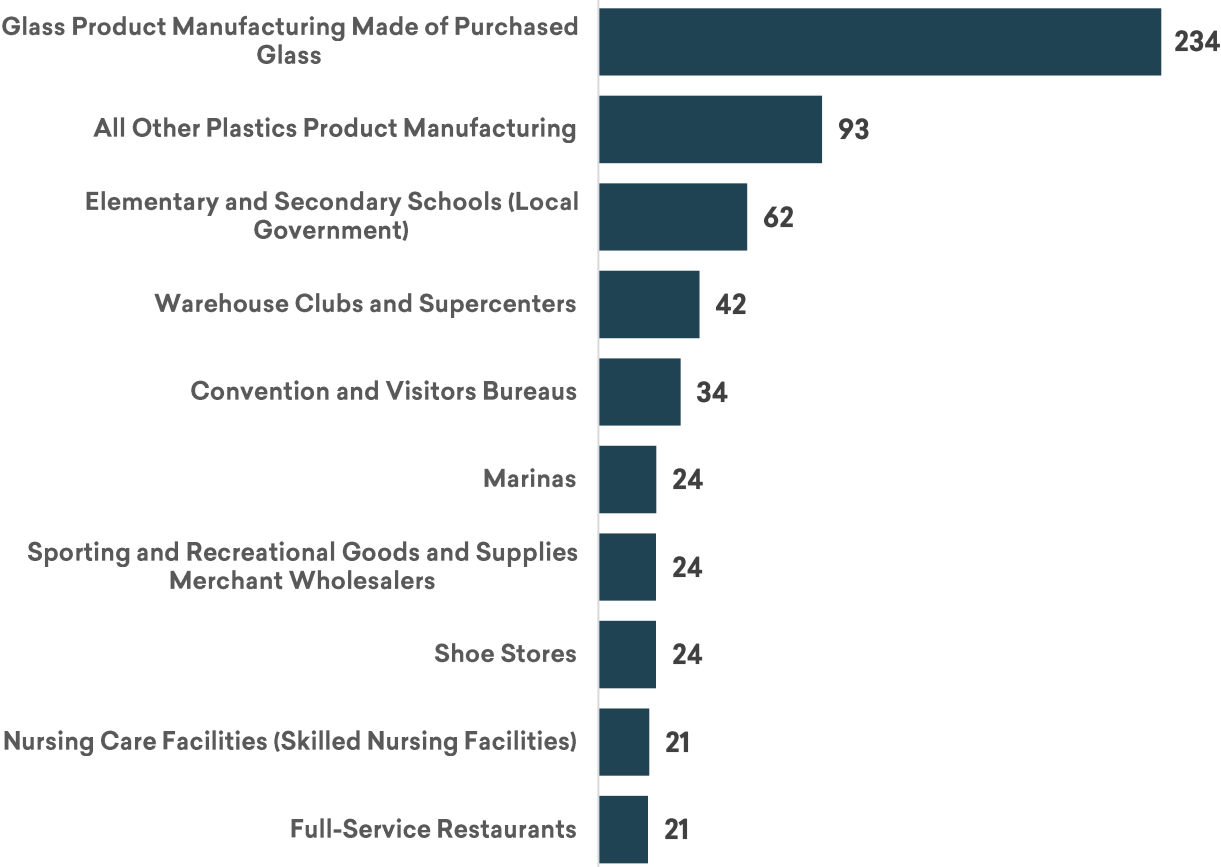
Another description for Type II: business/industry growth or decline that is going to affect the income of individuals and if the individuals spend it or not back in the economy, thus affecting the economy as a whole.

First Scenario:

The first scenario included all industries in which the number of jobs by industries in 2019 were larger than the number of jobs in 2020.

The total number of industries in this scenario were 101. Figure 06 displays the top 10 industries with the highest number of job losses.

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



Source: Emsi Burning Glass 2021.3

In this scenario, the total number of lost jobs caused by the pandemic sum up to 838 jobs. Job losses shown by Figure 06 represent 69.2% 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 942 for Type I and 1,016 for Type II economic effect. In other words, because of the initial 838 lost jobs, there are 103 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 74 jobs that were lost because they were no longer supported by the 942 jobs already lost in the region (Type II effect).

The top 10 industries in Figure 06 showed a total effect of job loss by 21.3% compared to their initial effect with a total difference of -70 jobs for Type I and -123 Type II. (Table 02).

**Table 02: Top 10 Industries All Industries Scenario
Change in Jobs**

Industries Name	Initial Effect	Type I	Type II
Glass Product Manufacturing Made of Purchased Glass	234	261	281
All Other Plastics Product Manufacturing	93	110	122
Elementary and Secondary Schools (Local Government)	62	63	71
Warehouse Clubs and Supercenters	42	45	47
Convention and Visitors Bureaus	34	45	49
Marinas	24	27	29
Sporting and Recreational Goods and Supplies Merchant Wholesalers	24	27	29
Shoe Stores	24	28	28
Nursing Care Facilities (Skilled Nursing Facilities)	21	23	25
Full-Service Restaurants	21	22	23
Other Industries	258	291	312
All Industries	838	942	1,016

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

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



* Total Type II Loss

In terms of Earnings loss, the total initial loss of earnings was \$31,657,899 where the total effect of Type I is 24.3% higher and Type II 32.7% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of \$22,169,477 and an economic impact of \$24,915,718 loss on Type I and \$26,664,299 on Type II effects, for the top 10 industries, which represents 20.3% of the total effects on Type I and Type II.

Table 03: Top 10 Industries All Industries Scenario Loss Earnings

Industries Name	Initial Effect	Type I	Type II
Glass Product Manufacturing Made of Purchased Glass	\$7,927,795	\$9,056,584	\$9,797,365
All Other Plastics Product Manufacturing	\$6,122,469	\$6,740,286	\$7,194,401
Convention and Visitors Bureaus	\$1,978,859	\$2,276,027	\$2,423,684
Warehouse Clubs and Supercenters	\$1,337,183	\$1,459,805	\$1,518,788
Sporting and Recreational Goods and Supplies Merchant Wholesalers	\$862,756	\$962,982	\$1,016,822
Marinas	\$852,900	\$942,876	\$1,019,401
Nursing Care Facilities (Skilled Nursing Facilities)	\$837,554	\$904,341	\$955,327
Cut Stock, Resawing Lumber, and Planing	\$792,964	\$951,830	\$1,011,600
Other Nonhazardous Waste Treatment and Disposal	\$736,401	\$795,214	\$848,341
Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	\$720,596	\$825,774	\$878,570
Other Industries	\$9,488,422	\$14,448,179	\$15,366,125
All Industries	\$31,657,899	\$39,363,896	\$42,030,424

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, 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. Crawford county lost \$5,185,563 on TPI where 17.6% corresponds to Federal, 38.2% to State and 44.2% to Local Government taxes. The top 10 industries represent 66.2% of the total loss on TPI (Table 04).

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

Industries Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Glass Product Manufacturing Made of Purchased Glass	\$861,843	\$247,826	\$300,869	\$313,147
Warehouse Clubs and Supercenters	\$663,151	\$72,326	\$266,111	\$324,715
All Other Plastics Product Manufacturing	\$508,016	\$126,317	\$183,127	\$198,573
Shoe Stores	\$308,191	\$34,496	\$123,413	\$150,282
Electric Power Distribution	\$230,194	\$34,163	\$89,725	\$106,307
Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	\$218,213	\$39,295	\$83,035	\$95,883
Sporting and Recreational Goods and Supplies Merchant Wholesalers	\$201,809	\$30,158	\$78,600	\$93,051
Marinas	\$174,348	\$19,983	\$69,680	\$84,685
Farm Supplies Merchant Wholesalers	\$136,005	\$16,806	\$54,000	\$65,199
Natural Gas Distribution	\$130,619	\$20,807	\$50,497	\$59,315
Other Industries	\$1,753,172	\$269,392	\$680,659	\$803,121
All Industries	\$5,185,563	\$911,568	\$1,979,717	\$2,294,277

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

Second Scenario:

The second scenario groups industries which performed worse in terms of job loss, unemployment, and job postings, after having been compared at the national level. We selected the industries from two-digit NAICS code to six-digit NAICS code.

We called this set of industries the “Most Affected,” relative to national levels. Crawford’s economic characteristics outperforms the nation on the metrics mentioned above, with the number of “most affected” industries equal to naught.

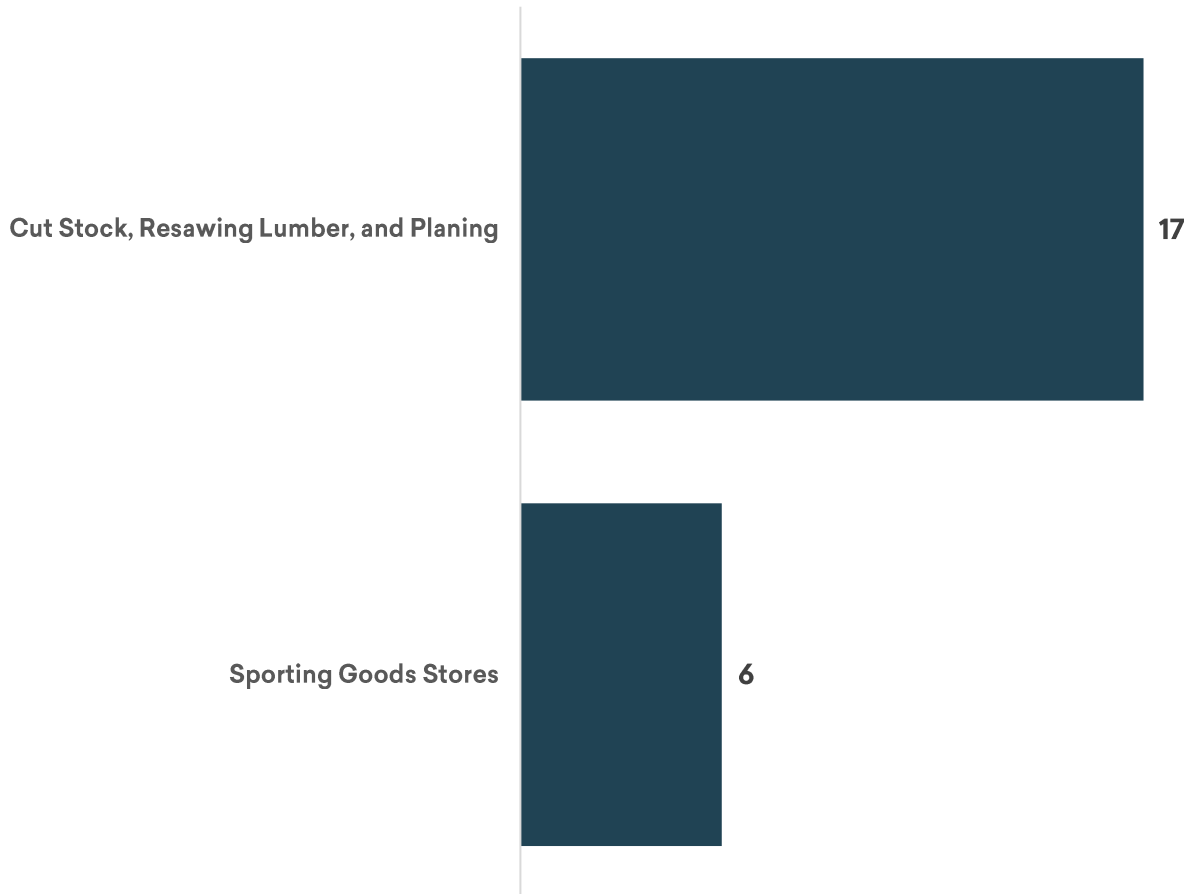
The result is an indicator of the region’s wellbeing when compared to the nation and to the other counties that form MRRPC Service Region.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region, that includes industries where the largest employers in the region are classified.

We called this set of industries the “Most Relevant.” The total number of industries on this scenario were 8. Figure 08 displays the industries with their number of jobs lost.

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



Source: Emsi Burning Glass 2021.3

In our third scenario, the total job loss for the 2 industries amount to 23 jobs during 2020.

The job losses increased to 27 for Type I and for 29 for Type II economic effects. In other words, because of the 23 losses on jobs there were 4 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. Additionally, there were 2 jobs lost because they were no longer supported by the 27 jobs already lost in the region (Type II effect).

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



**Table 08: Most Relevant Industries Scenario
Change in Jobs**

Industries Name	Initial Effect	Type I	Type II
Cut Stock, Resawing Lumber, and Planing	17	20	22
Sporting Goods Stores	6	7	7
All Industries	23	27	29

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

* Total Type II Loss

In terms of earnings loss, the initial loss was \$830,797 where the total effect of Type I was 17.2% higher and Type II increased 23.8% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industries Name	Initial Effect	Type I	Type II
Cut Stock, Resawing Lumber, and Planing	\$792,964	\$951,830	\$1,011,600
Sporting Goods Stores	\$261,754	\$286,104	\$296,529
All Industries	\$830,797	\$1,088,175	\$1,119,687

Source: Multi-regional social account matrix model (MR-SAM). 2021.3, 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 Crawford lost \$139,471 on TPI. 17.4% corresponded to federal government, 38.2% to state and 44.3% to local governments (Table 10).

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

Industries Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Sporting Goods Stores	\$76,479	\$8,385	\$30,677	\$37,417
Cut Stock, Resawing Lumber, and Planing	\$62,992	\$15,826	\$22,659	\$24,507
All Industries	\$139,471	\$24,211	\$53,336	\$61,924

Source: Multi-regional social account matrix model (MR-SAM). 2021.3, years 2019/2020.



CONCLUSION:

The results of this study demonstrate the pervasive economic effects COVID-19 had on Crawford 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 more than 69.2% is attributed to the 10 industries under the first scenario.

The job projections suggest a steady increase over time. Finally, the 838 initial lost jobs translated to close \$42 million in earnings lost and a \$5.1 million loss on TPI. This loss will affect the region deeply.

The results of this study demonstrate the profound effect of COVID-19 on Crawford 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, outputs of Emsi Burning Glass' 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.