

COVID-19: Economic Impact Analysis on Pepin 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

Pepin 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 Pepin county population was 7,318², with a total regional employment of 2,613. The average earnings per job in 2020 was \$54,946, which is \$19,207 below the national average earnings per job.³

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

MRRPC tracks Pepin'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 Pepin's efforts seeking to adapt to the post-pandemic economy.

Labor Force in Pepin
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>

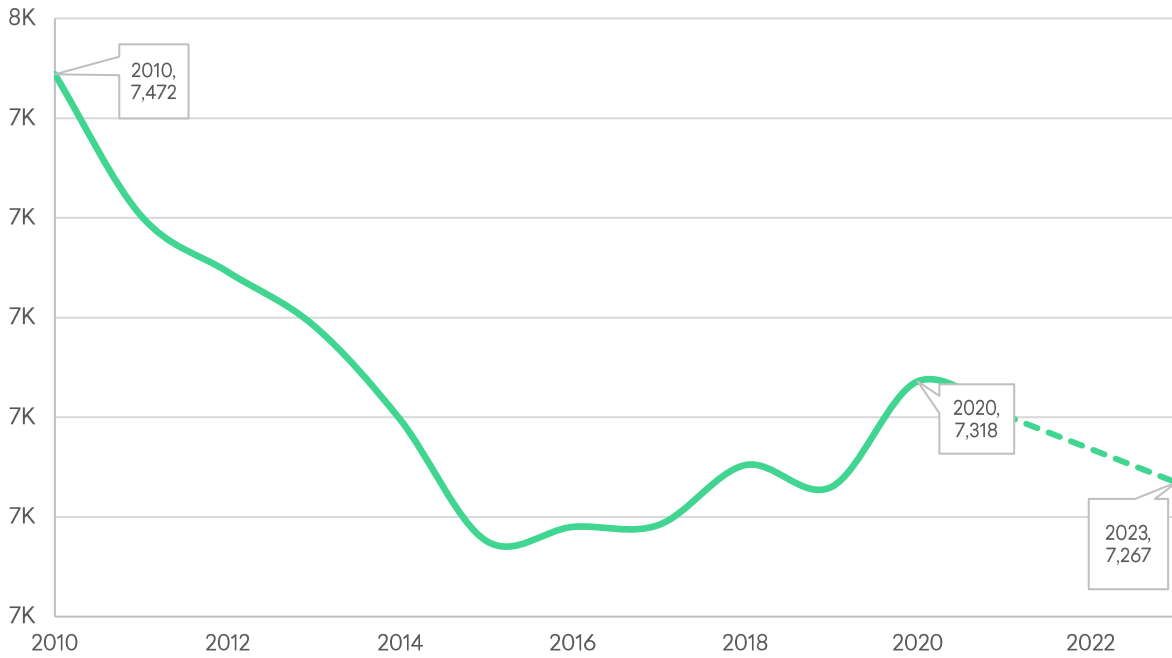
³ Emsi Burning Glass proprietary data, collected on August 23, 2021.



ECONOMIC OVERVIEW

In 2010, 7,472 people resided in Pepin. The county's population is projected to be 7,267 people by 2023 (Figure 01).

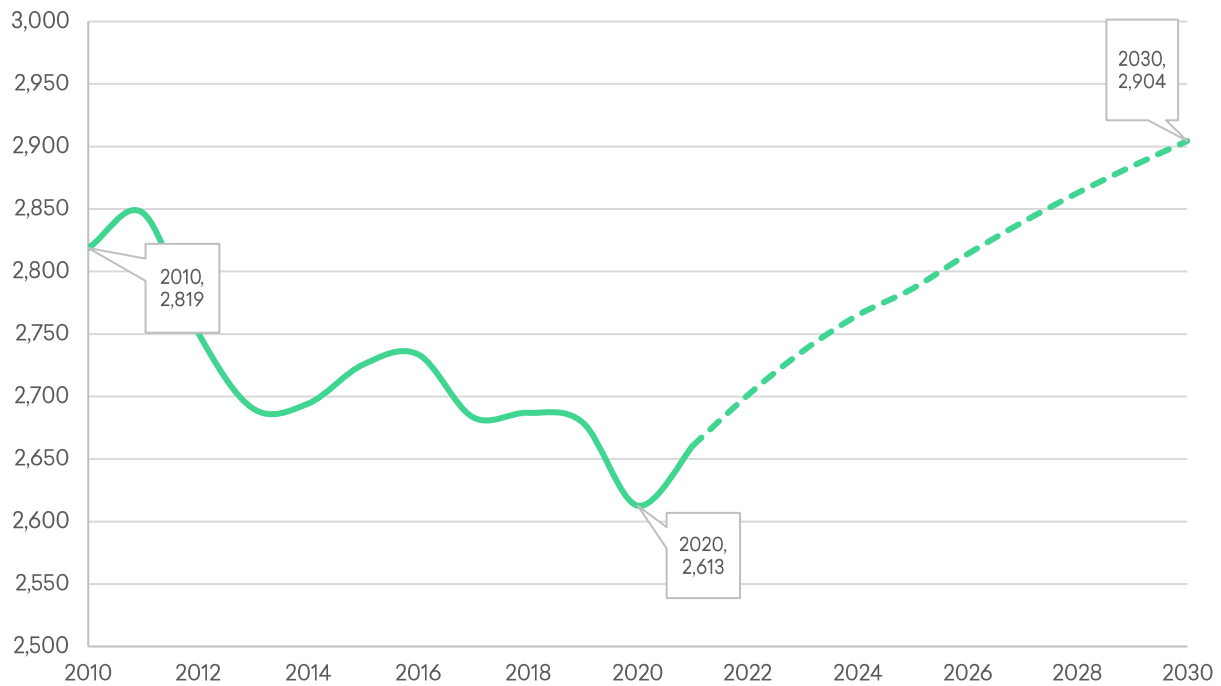
Figure 01: Historical and Projected Population in Pepin, 2010 to 2023



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

As shown in Figure 02, Pepin supported 2,819 jobs in 2010 and by 2020, the region had just 2,613 jobs. In 2020 alone, the region lost 67 jobs. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

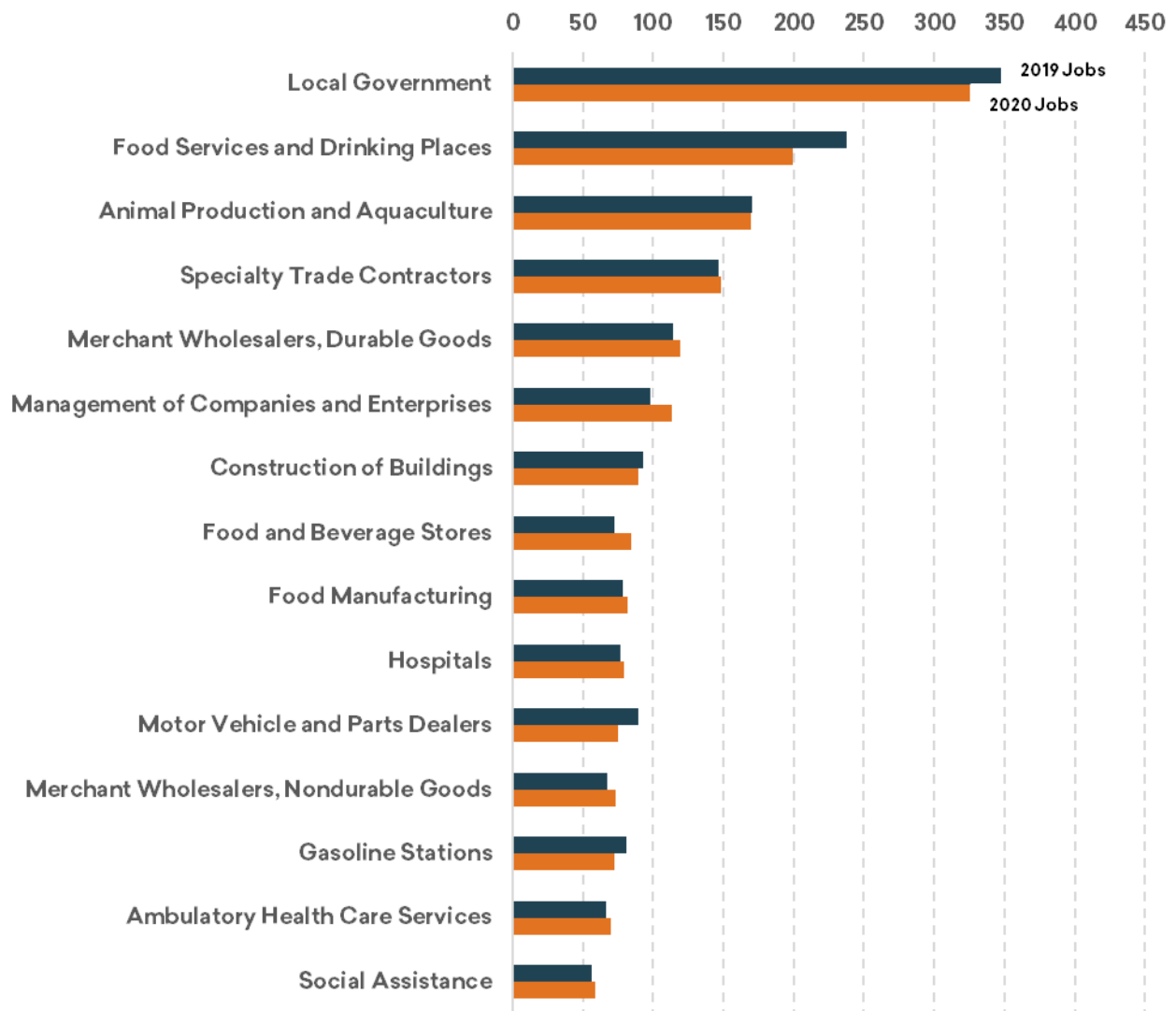
Figure 02: Historical and Projected Jobs in Pepin, 2010 to 2030



Source: Emsi Burning Glass 2021.3.

Figure 03 displays the top industry subsectors in terms of employment in Pepin. Local Government and Food Services and Drinking Places industries were the industries with highest number of jobs in 2019 and 2020.

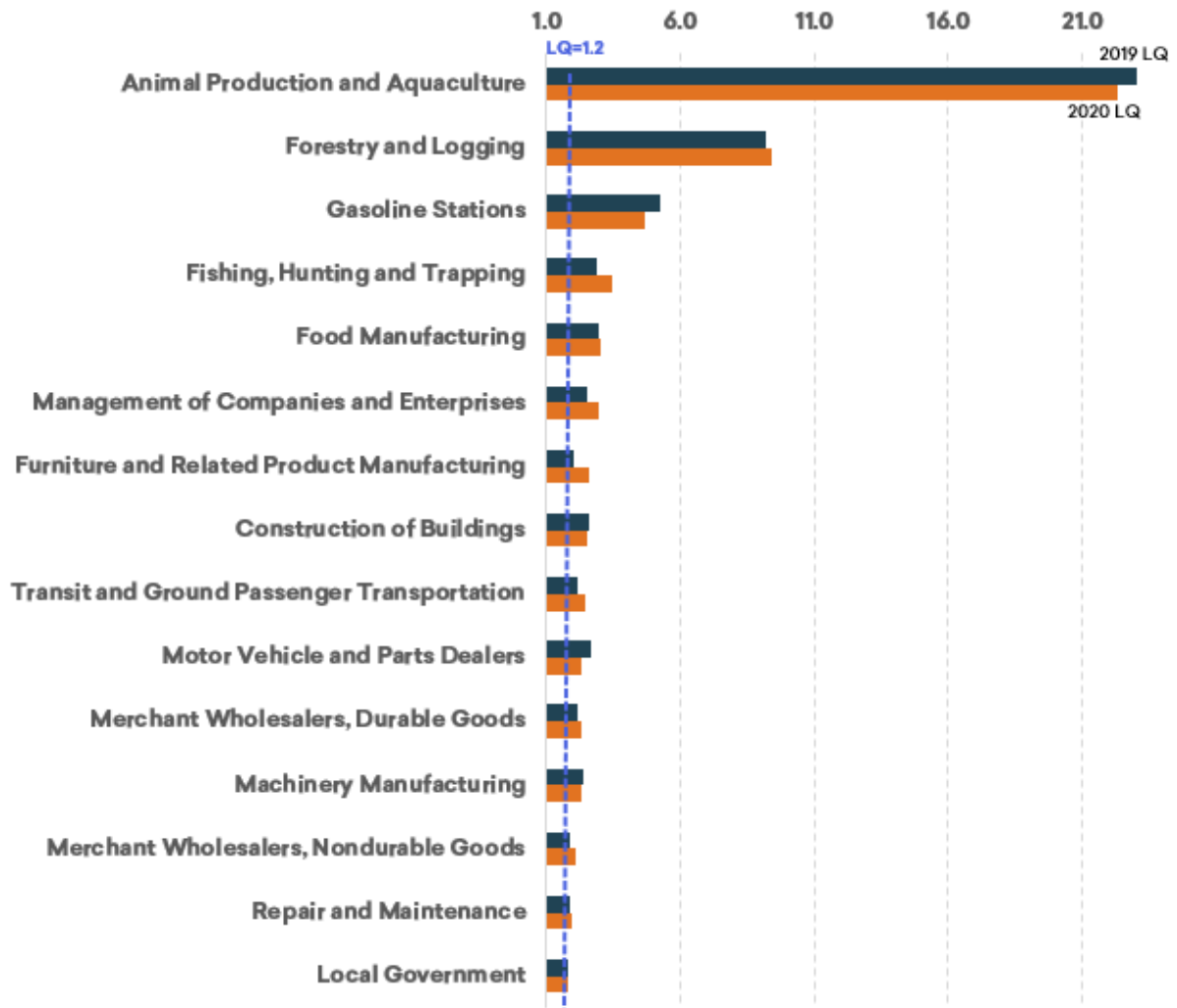
Figure 03: Top Industry Subsectors in Pepin by Jobs



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 Pepin 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 9 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:

- Local Government
- Animal Production and Aquaculture
- Merchant Wholesalers, Durable Goods
- Management of Companies and Enterprises
- Construction of Buildings
- Food Manufacturing
- Motor Vehicle and Parts Dealers
- Merchant Wholesalers, Nondurable Goods
- Gasoline Stations

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 Pepin 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, Pepin shows low unemployment and poverty rates 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
Pepin County	\$54,583	4.06%	\$30,827	7.70%
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 Pepin, 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, Pepin shows the highest percentage of higher education degree holders and some college education when compared against the different regions.

Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Pepin County	9.3%	36.6%	21.0%	12.0%	15.0%	6.3%
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

Pepin'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.

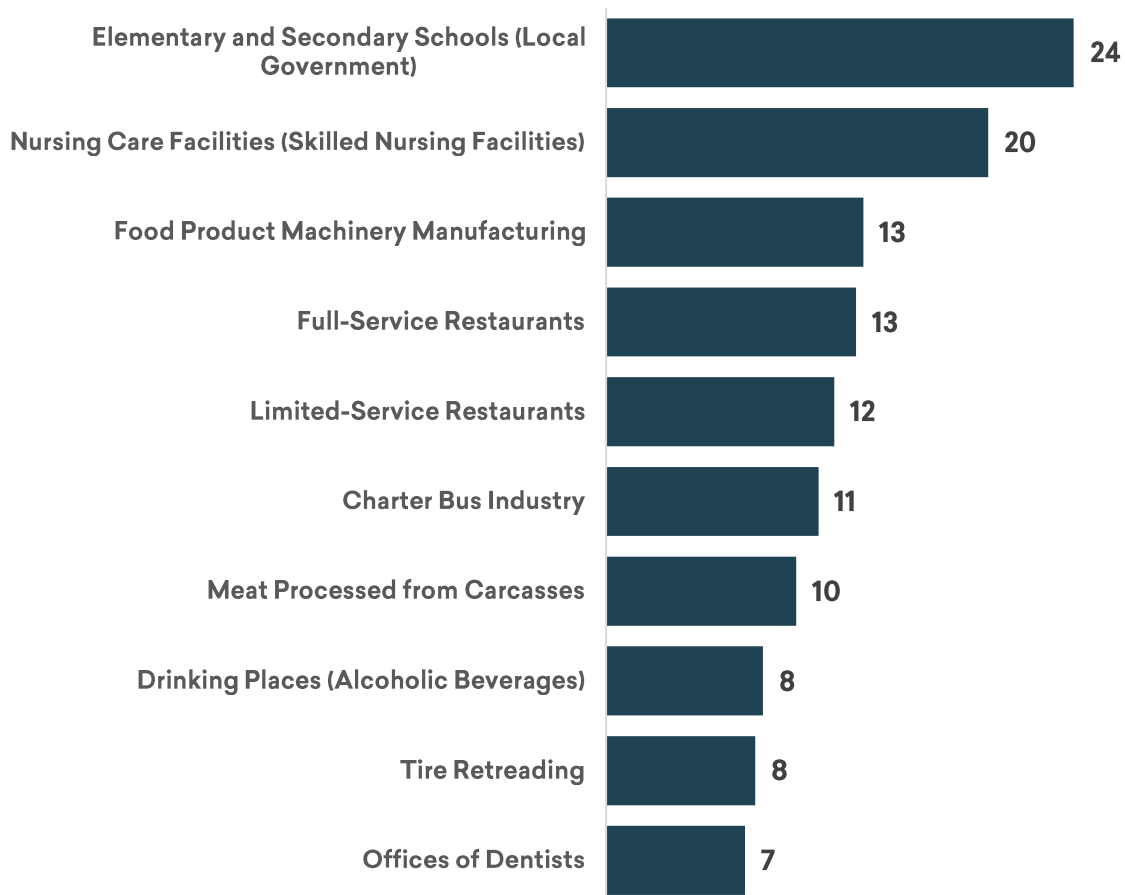
Another description for Type II: business/industry growth or decline that is going to affect the income of individuals and if the individuals spend it or not back in the economy, thus affecting the economy as a whole.

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 92. 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 263 jobs. Job losses shown by Figure 06 represent close to 47% 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 301 for Type I and 315 for Type II economic effect. In other words, because of the initial 263 lost jobs, there are 38 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 14 jobs that were lost because they were no longer supported by the 301 jobs already lost in the region (Type II effect).

The top 10 industries in Figure 06 showed a total effect of job loss by 19% compared to their initial effect with a total difference of -17 jobs for Type I and -25 Type II. (Table 02).

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

Industries Name	Initial Effect	Type I	Type II
Elementary and Secondary Schools (Local Government)	24	25	27
Nursing Care Facilities (Skilled Nursing Facilities)	20	23	25
Food Product Machinery Manufacturing	13	15	16
Full-Service Restaurants	13	13	14
Limited-Service Restaurants	12	13	13
Charter Bus Industry	11	12	12
Meat Processed from Carcasses	10	15	16
Drinking Places (Alcoholic Beverages)	8	8	8
Tire Retreading	8	9	10
Offices of Dentists	7	8	8
Other Industries	139	159	166
All Industries	263	301	315

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

92 Industries
Negatively Affected

263
Initial Job Loss

315
Total Loss in Jobs*

\$13.9 million
Earning Loss*

\$1.6 million
Loss on TPI*

* Total Type II Loss

In terms of Earnings loss, the total initial loss of earnings was \$11,937,956 where the total effect of Type I is 12% higher and Type II 16% increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of \$6,685,718 and an economic impact of \$7,462,803 loss on Type I and \$7,719,823 on Type II effects, for the top 10 industries, which represents 15% 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
Nursing Care Facilities (Skilled Nursing Facilities)	\$1,452,818	\$1,580,448	\$1,637,500
Elementary and Secondary Schools (Local Government)	\$1,439,870	\$1,499,682	\$1,562,690
Food Product Machinery Manufacturing	\$796,306	\$876,918	\$909,253
General Freight Trucking, Long-Distance, Truckload	\$619,717	\$695,199	\$708,232
Offices of Dentists	\$485,552	\$508,149	\$524,896
Meat Processed from Carcasses	\$443,613	\$668,061	\$695,597
Charter Bus Industry	\$381,097	\$429,744	\$440,711
Specialized Freight (except Used Goods) Trucking, Local	\$372,304	\$417,668	\$425,951
Recreational Vehicle Dealers	\$357,392	\$384,612	\$395,030
Tire Retreading	\$337,049	\$402,323	\$419,964
Other Industries	\$5,252,238	\$5,959,815	\$6,177,679
All Industries	\$11,937,956	\$13,422,618	\$13,897,502

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. Pepin county lost \$1,629,793 on TPI where 17% corresponds to Federal, 38% to State and 45% to Local Government taxes. The top 10 industries represent 57% 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
Gasoline Stations with Convenience Stores	\$212,304	\$27,023	\$84,063	\$101,218
Recreational Vehicle Dealers	\$152,936	\$18,789	\$60,754	\$73,393
Nursing Care Facilities (Skilled Nursing Facilities)	\$107,210	\$15,035	\$42,044	\$50,131
Meat Processed from Carcasses	\$83,704	\$19,382	\$30,592	\$33,731
Other Electronic Parts and Equipment Merchant Wholesalers	\$83,095	\$18,404	\$30,614	\$34,078
Used Car Dealers	\$69,595	\$8,553	\$27,646	\$33,396
Limited-Service Restaurants	\$58,236	\$8,208	\$22,826	\$27,201
Automotive Parts and Accessories Stores	\$54,990	\$6,763	\$21,843	\$26,384
General Freight Trucking, Long-Distance, Truckload	\$52,080	\$8,495	\$20,076	\$23,509
Full-Service Restaurants	\$49,470	\$6,872	\$19,420	\$23,178
Other Industries	\$706,173	\$133,032	\$267,008	\$306,132
All Industries	\$1,629,793	\$270,556	\$626,885	\$732,352

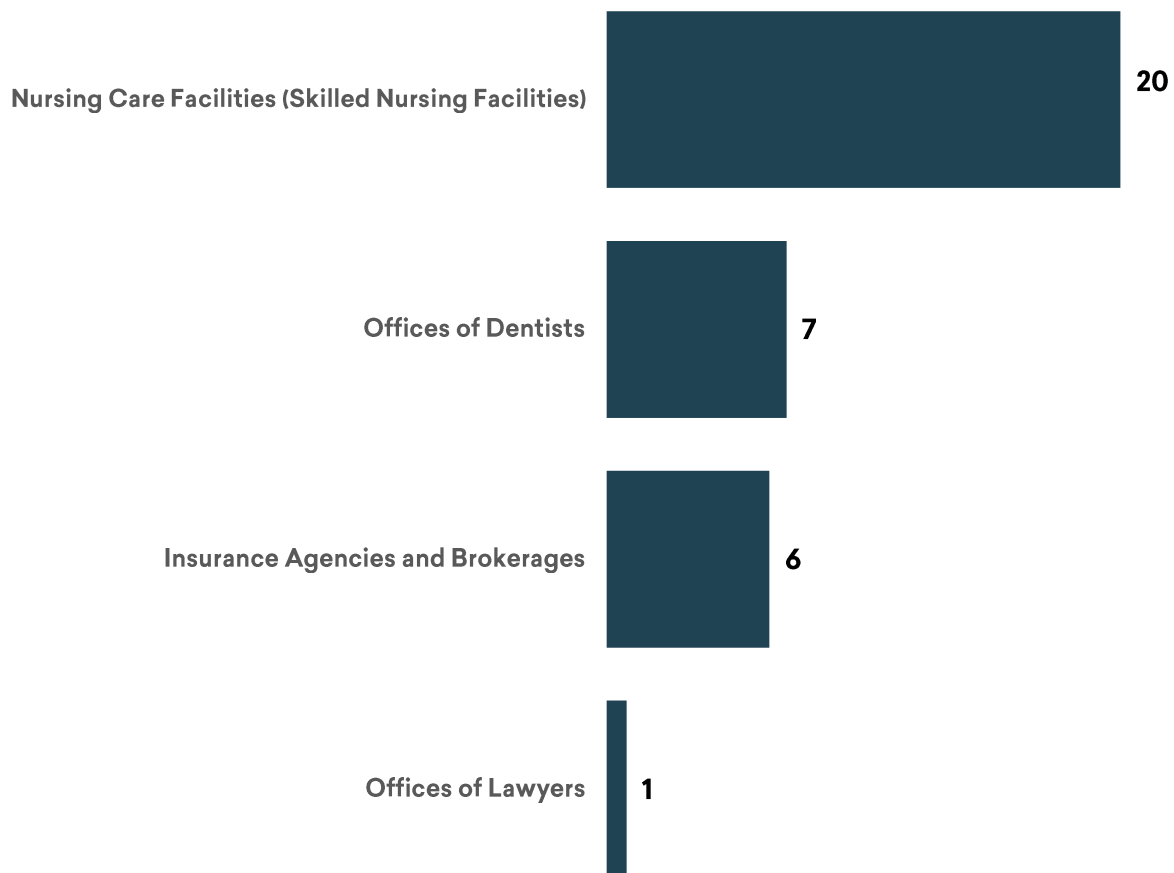
Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

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. There were four industries in the second scenario. Figure 07 displays the industries with number of job losses.

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



Source: Emsi Burning Glass 2021.3

The number of total jobs lost for the 4 industries adds up to 34 jobs.

The number of job losses during the pandemic increased to 42 for Type I and to 45 Type II economic effects. In other words, because of the 34 losses in jobs, there were 8 full-time, part-time, and seasonal employee lost jobs in industries that are part of their supply chain (Type I effect). Additionally, there were an additional 3 jobs lost because they were no longer supported by 42 jobs already lost in the region (Type II effect).

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



Table 05: Most Affected Industries Scenario
Change in Jobs

Industries Name	Initial Effect	Type I	Type II
Nursing Care Facilities (Skilled Nursing Facilities)	20	23	25
Offices of Dentists	7	8	8
Insurance Agencies and Brokerages	6	10	10
Offices of Lawyers	1	1	1
All Industries	34	42	45

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

* Total Type II Loss

In terms of earnings loss, Table 06 shows an initial loss of earnings of \$2,234,484 where the total effect of Type I is 14% higher and Type II 19% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industries Name	Initial Effect	Type I	Type II
Nursing Care Facilities (Skilled Nursing Facilities)	\$1,452,818	\$1,580,448	\$1,637,500
Offices of Dentists	\$485,552	\$508,149	\$524,896
Insurance Agencies and Brokerages	\$225,998	\$399,410	\$411,768
Offices of Lawyers	\$70,116	\$74,389	\$77,478
All Industries	\$2,234,484	\$2,562,395	\$2,651,641

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, 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 \$150,499 on TPI where 19% corresponds to federal government, 38% to state and 43% to local governments (Table 07).

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

Industries Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Nursing Care Facilities (Skilled Nursing Facilities)	\$107,210	\$15,035	\$42,044	\$50,131
Insurance Agencies and Brokerages	\$17,580	\$7,040	\$5,557	\$4,983
Offices of Dentists	\$15,715	\$4,119	\$5,603	\$5,992
Offices of Lawyers	\$9,994	\$2,216	\$3,681	\$4,097
All Industries	\$150,499	\$28,410	\$56,885	\$65,203

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

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region. Some of the industries included are Meat Processed from Carcasses, Tire Dealers, as well 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 5. 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 5 industries amount to 17 jobs during 2020.

The job losses increased to 23 for Type I and for 24 for Type II economic effects. In other words, because of the 17 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. Additionally, there was 1 job lost because it was no longer supported by the 23 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
Meat Processed from Carcasses	10	15	16
Tire Dealers	2	3	3
Machine Shops	2	2	2
All Other Specialty Food Stores	2	2	2
Retail Bakeries	1	1	1
All Industries	17	23	24

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 \$659,551 where the total effect of Type I was 36% higher and Type II increased 42% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industries Name	Initial Effect	Type I	Type II
Meat Processed from Carcasses	\$443,613	\$668,061	\$695,597
Tire Dealers	\$115,961	\$124,756	\$127,808
Machine Shops	\$71,014	\$75,638	\$78,445
Retail Bakeries	\$18,747	\$21,297	\$22,077
Hardware Stores	\$10,216	\$11,191	\$11,460
All Industries	\$659,551	\$900,943	\$935,387

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 Pepin lost \$158,337 on TPI. 18% corresponded to federal government, 38% to state and 44% 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
Meat Processed from Carcasses	\$83,704	\$19,382	\$30,592	\$33,731
Tire Dealers	\$48,886	\$6,004	\$19,421	\$23,462
All Other Specialty Food Stores	\$16,862	\$1,815	\$6,778	\$8,268
Hardware Stores	\$5,312	\$654	\$2,109	\$2,548
Machine Shops	\$2,635	\$544	\$982	\$1,108
Retail Bakeries	\$938	\$228	\$340	\$370
All Industries	\$158,337	\$28,627	\$60,222	\$69,487

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 Pepin 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 47% is attributed to the 10 industries under the first scenario.

The job projections suggest an increase over time. Finally, the 263 initial lost jobs translated to close \$14 million in earnings lost and a \$1.6 million loss on TPI. This loss will affect the region deeply.

The results of this study demonstrate the profound effect of COVID-19 on Pepin 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.