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Pandemic Misery Index: Economic and Health Implications of COVID-19 in West Michigan

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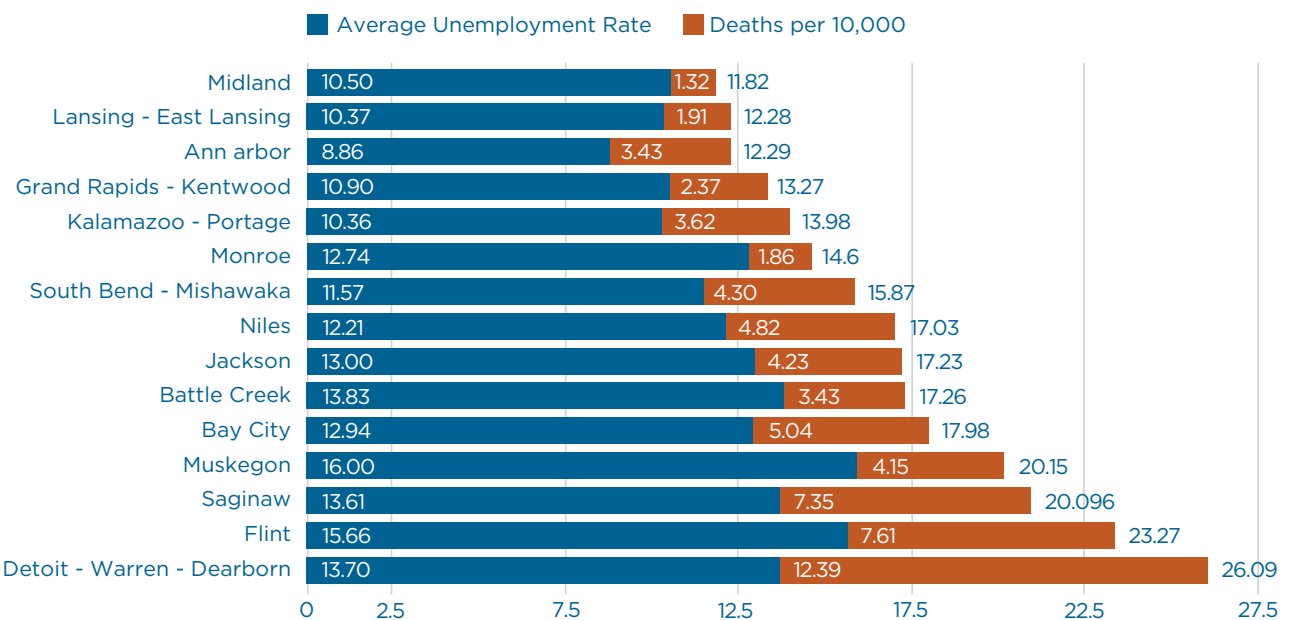
The pandemic caused by the coronavirus disease 2019 (COVID-19) has shocked the modern economy in an unprecedented manner. The pandemic has put millions of people out of work in a matter of weeks and has killed over 240,000 people in the US and over 1.3 million worldwide.¹ Governments around the world have tried to stem the spread and mortality of the virus by implementing social-distancing and shelter-in-place measures while trying to minimize the burden on their economies. These measures have had global and local consequences to economic activity and employment. Virtually every community in the United States has been negatively affected by the virus. However, depending on national, state, and local policies, some communities have fared better than others. Our focus in this study is to analyze the economic and public health implications of the pandemic in West Michigan.

Pandemic Misery Index

Jansen, Navarro, and Rettenmaier (2020) use a Pandemic Misery Index (PMI) to measure the effectiveness of state and local policies in dealing with the COVID-19 pandemic. Specifically, the PMI is calculated by adding the percent unemployment rate with the COVID-19 deaths per 10,000 people. This provides a relative measure of health and economic implications of the pandemic. We replicate the PMI calculation using up-to-date unemployment estimates from

the Bureau of Labor Statistics, COVID-19 data from The New York Times, and population estimates from the U.S. Census Bureau. As seen in **Figure 1** below, we have calculated the PMI at the Metropolitan Statistical Area (MSA²) level for Michigan MSAs.³ The average unemployment rate corresponds to the mean unemployment rate by MSA from March to September 2020. Deaths per 10,000 is the total deaths in the area, due to COVID-19, from March to September 2020.

Figure 1: Pandemic Misery Index, March - September 2020



Source: Authors' calculations using data from the Bureau of Labor Statistics, the New York Times, and the U.S. Census Bureau

¹ Johns Hopkins University; Coronavirus Resource Center; <https://coronavirus.jhu.edu/map.html>

² In 2018, the Office of Management and Budget changed the definition of the Grand Rapids-Wyoming MSA (from Barry, Kent, Montcalm, and Ottawa counties to Ionia, Kent, Montcalm, and Ottawa counties) and renamed it the Grand Rapids-Kentwood MSA.

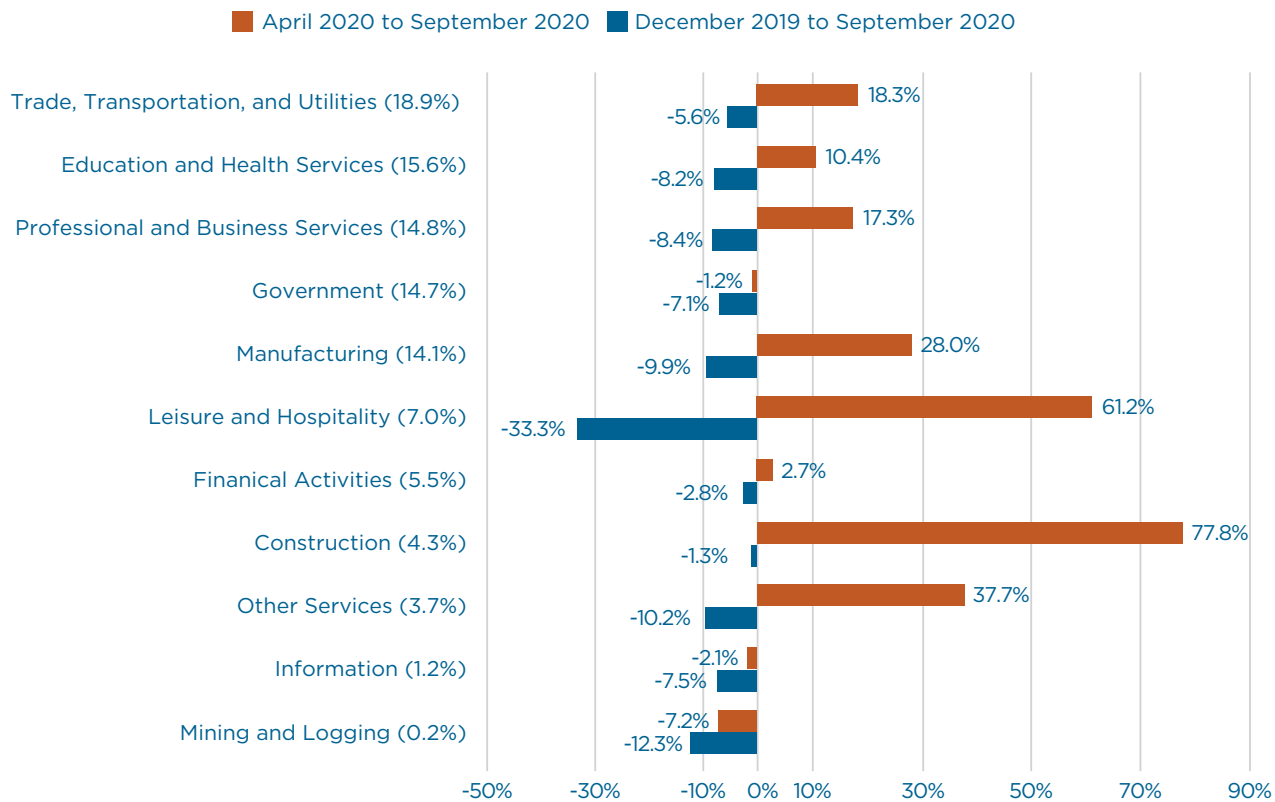
³ To compare Michigan's ranking among other states, see the Private Enterprise Research Center's state-level study at <http://perc.tamu.edu/PERC-Blog/PERC-Blog/2020-Pandemic-Misery-Index-How-the-States-Stack-Up>

Figure 1 depicts, in ascending order, the PMI of Michigan MSAs. With the lowest amount of deaths per 10,000, Midland has the lowest PMI in the state at 11.82. Grand Rapids-Kentwood landed in fourth place with an average unemployment rate of 10.9% and a death rate of 2.37, ending up with a PMI of 13.27. Largely due to having the lowest average unemployment rate in the state, Ann Arbor yielded a PMI of 12.29, the third lowest in the state. The highest index value of 26.09 existed in the Detroit-Warren-Dearborn MSA, with the highest death rate in the state (roughly 12 people per 10,000) and the fourth highest average unemployment rate. Muskegon exhibited the highest average unemployment rate and had a PMI of 20.15. Among Michigan MSAs, the average PMI was 16.94 from March to September 2020.

Employment Estimates in Michigan and Grand Rapids

Figure 2 displays the change in employment by industry in the state of Michigan. On the vertical axis we have sorted every industry by the share of employment in the state. The percentage in parenthesis next to each industry shows the share of total nonfarm employment in that industry for Michigan (Figure 2) and in Figure 3 for the Grand Rapids-Wyoming MSA (percentages may not add up to 100% due to rounding). These data are seasonally adjusted. The total nonfarm employment in Michigan was 4.013 million workers as of September 2020. Trade, Transportation, and Utilities (TTU) is the largest industry, by employment in Michigan, with 18.9% of nonfarm workers. Since December 2019, employment decreased by 5.6%. However, with 759,000 workers as of September 2020, TTU employment has increased since April 2020 by 18.3%. Further, we observe the largest employment increases in the construction industry since April 2020.

Figure 2: Employment Change (in %) by Industry in Michigan, December 2019 - September 2020 vs. April 2020 - September 2020

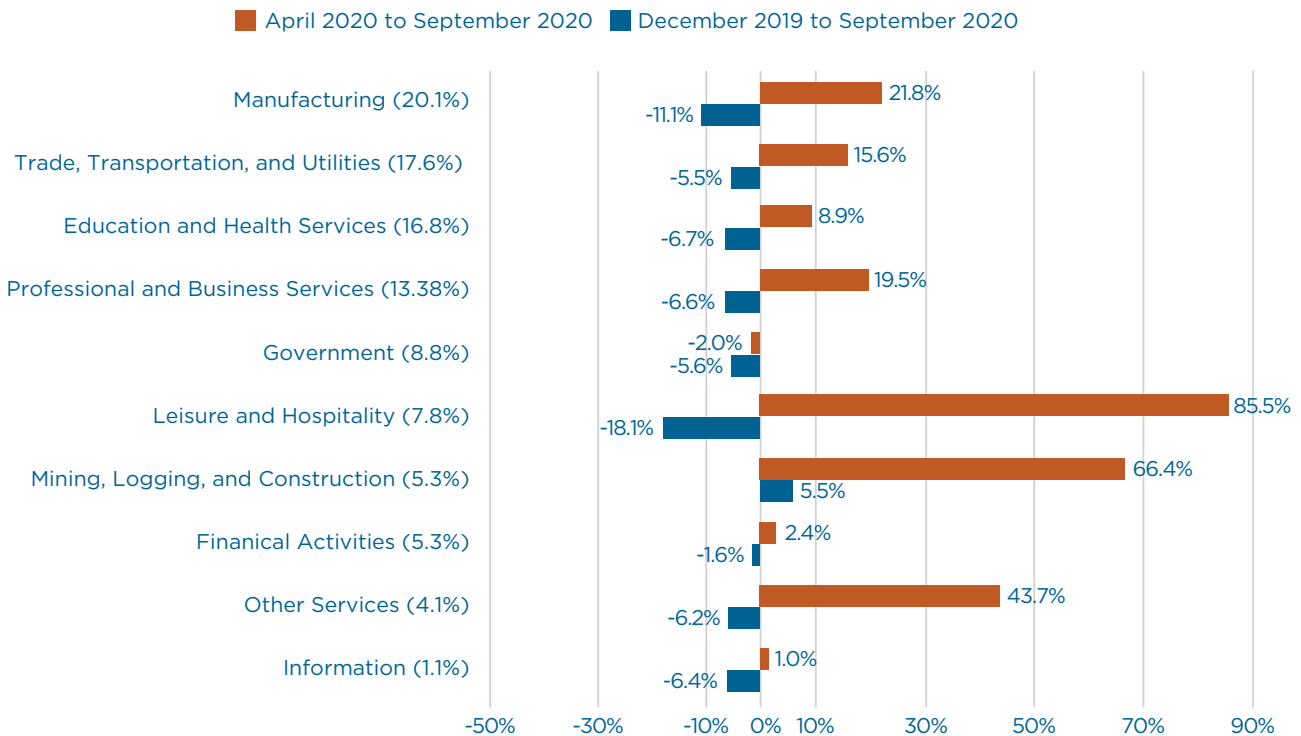


Source: Bureau of Labor Statistics

Figure 3, on the other hand, displays the change in employment by industry in the Grand Rapids-Wyoming MSA. The total nonfarm employment in the Grand Rapids area was 521,600 workers as of September 2020. Manufacturing is the largest employing industry in the MSA, with 1 in every 5 workers employed in this industry. From December 2019 to September 2020, 11.1% of manufacturing jobs in the MSA

have been lost. Since April 2020, manufacturing employment has grown 21.8%. The largest growth since April was captured by the leisure and hospitality industry, with an 85.5% increase in employment. However, as of September 2020, leisure and hospitality employment was down by 18.1% since December 2019.

Figure 3: Employment Change (in %) by Industry in Grand Rapids - Wyoming, MI, December 2019 - September 2020 vs. April 2020 - September 2020



Source: Bureau of Labor Statistics

Testing the effectiveness of existing policies, as well as the economic and public health responses to the crisis, has been at the forefront of research since the start of the pandemic. We use the PMI to measure how well communities are faring as they survive the COVID-19 hiatus. Of the two largest metropolitan areas in Michigan, Detroit and Grand Rapids, Grand Rapids has been relatively less affected economically and in terms of public health. It is important to point out that Detroit's population is almost four times that of Grand Rapids. Although population density as well as pre-existing health and economic conditions may play a role in individual access to health care and jobs, it is evident from this analysis that the policy efforts for recovery in Michigan should start from the Detroit-Warren-Dearborn metro area, with a specific focus on the leisure and hospitality industry. ■

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