

Methods and Sources

The following is a broad summary of how we analyze the impact of COVID-19-related job losses on the region.

1. First, we developed estimated rates of job losses and work reductions for combinations of industries and occupations.
 - a. An industry category describes a business or organization’s main line of products or services. An occupation category describes the work and roles of specific jobs. Someone who cleans and/or maintains buildings (occupation) could work in different industries—construction, hospitality and food service, health care, or others.
 - b. We calculated these job loss and work reduction rates from the U.S. Census Bureau’s Current Population Survey (CPS) data for the entire United States in May 2020.¹ This dataset shows which workers have lost their jobs or experienced reductions in work hours over the past three months.
 - c. The specific industry groups we used can be viewed on the Census Bureau’s website (<https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2017>)
 - d. The specific occupation groups we used can be viewed in the table of contents of the *Standard Occupational Classification Manual* for 2018 (pages 3-6 of https://www.bls.gov/soc/2018/soc_2018_manual.pdf)
2. Second, we simulated COVID-related economic impacts by assigning a “COVID job loss” and “COVID work reduction” status to each worker in American Community Survey (ACS) microdata.² This status is based primarily on the job-loss and work-reduction rates for their industry and occupation, but also includes adjustments to align our estimates with unemployment insurance data from Minnesota Department of Employment and Economic Development (DEED).
 - a. We started by assigning “COVID job losses” randomly within industries and occupations. That is, if a certain industry-occupation combination had an estimated job-loss rate of 30%, and there were 100 workers in the ACS PUMS with that industry-occupation combination, then 30 of them, selected at random, would end up with a “COVID job loss.”
 - b. For some occupations, the resulting number of newly unemployed workers was lower than the number of unemployment insurance filings reported by Minnesota DEED.³ We increased the estimated job-loss rates for those occupations accordingly.

¹ The U.S. Census Bureau’s Current Population Survey (CPS) has information on job losses through the second week of May 2020. It does not have a large-enough sample to estimate the impacts of job losses in the Twin Cities region, however. For our analysis, we make an assumption that the pattern of job losses in the Twin Cities region generally resembles the national average pattern.

² The U.S. Census Bureau’s American Community Survey (ACS) Public Use Microdata Sample (PUMS) is a rich source of information on work, incomes, and housing costs, with a large-enough sample of workers in the Twin Cities region to estimate the impacts of job losses for many different groups. It is not current enough to provide any data on job losses, though. (The most recent data available is for 2018.)

³ These numbers, available at <https://apps.deed.state.mn.us/lmi/ui/Results.aspx>, reflect “regular continued claims” data—workers who were receiving unemployment insurance benefits for multiple weeks.

- c. We then examined the estimated number of newly unemployed workers by race and ethnicity, and we found that unemployment of workers of color was underestimated in our simulation, when compared against unemployment insurance data. (That is, workers of color are more likely to lose their job than White workers in the same general industry and occupation.) We therefore made one final adjustment to increase estimated job-loss rates for workers of color, so that the final group of newly unemployed workers in our simulation better aligned with DEED's unemployment insurance data.
 - d. The Current Population Survey also contains information on *when* workers lost their jobs. We used this to estimate the number of weeks for which each worker had been unemployed as of mid-May.
 - e. For workers who were *not* assigned a "COVID job loss," we assigned a "COVID work reduction" status, based entirely on the work-reduction rates for industries and occupations from #1 above. We assumed that the duration of these work reductions was similar to the duration of job losses for the worker's industry and occupation.
3. Third, we simulated the effect of these job losses and work reductions by subtracting the lost earnings from each newly unemployed worker's annual earned income, and then calculating new household and family incomes. We did this under 16 scenarios:
 - a. Eight different lengths of business closures (closures ending in mid-May 2020, mid-June 2020, and so on through mid-December 2020).
 - b. With and without the assistance provided by state unemployment insurance benefits and the federal stimulus, also known as the Coronavirus Aid, Relief, and Economic Security (CARES) Act:
 - i. Cash payments to individuals (\$1,200) and married couples (\$2,400), with an additional \$500 for each child. These benefits are reduced for people with incomes above \$75,000 (single people with no children), \$112,500 (single people with children), or \$150,000 (married couples).
 - ii. Federal Pandemic Unemployment Compensation (an extra \$600/week for all unemployed people through July 2020)
 - iii. Pandemic Unemployment Assistance (federally funded benefits for unemployed people ineligible for state benefits through December 2020)
 - iv. Pandemic Extended Unemployment Compensation (an extra 13 weeks of state unemployment benefits through December 2020)
 4. Finally, we calculated new measures of per capita income, poverty, and housing cost burden from these revised household and family incomes rates under each scenario, along with breakdowns by race/ethnicity, cultural groups, "pre-pandemic" household income ranks, tenure, industry, occupation, class of worker, and geography.
 5. To avoid the possibility that any one random assignment of economic impacts to our sample of workers would produce unrepresentative results, we repeated the above simulations 50 times and averaged the 50 different results.

We made several decisions that simplified our work while missing some nuances in how the pandemic is playing out.

- We are not examining the impact of federal emergency assistance to businesses themselves, which may affect job-loss rates. These include corporate tax cuts, payments to small businesses to keep workers on payrolls, and other efforts.
- We are examining the effects of the initial wave of business closures alone – through mid-May 2020 – and not any subsequent layoffs later this year resulting from lost consumer demand, business failures, etc.

- We are not assuming that some dislocated workers will find re-employment. Nor are we assuming any changes in pay for workers who have not lost their job or experienced work reductions. Data suggest that re-hiring was minimal through May 2020, such that mid-May may represent the “peak” of unemployment impacts.
- We are assuming that the income of self-employed people will not drop below \$0, even though they may have business-related rent payments and other bills that might make their net income negative.
- We are assuming that all economic impacts as of mid-May 2020 will end at a single end-point. In reality, there will not be a single moment at which the business closures end. It is difficult to predict how quickly different industries might reopen, and how much demand there will be for their services when they do.
- We are not estimating the economic impacts of medical emergencies, impaired health or premature deaths of households’ members. These impacts are difficult for us to project, as the impacts would be proportional to the numbers of infection cases, hospitalizations and deaths. Based on available evidence, it is likely that these impacts will disproportionately affect people of color.

We may address some of these issues in subsequent research.

The June update to this analysis reflects the following changes from [the first version](#), which was presented to the Metropolitan Council’s Committee of the Whole on May 20, 2020:

- To get a better picture of actual levels of unemployment as of mid-May 2020, we used data on *continued* unemployment insurance claims rather than *initial* claims. (Some people who had initially filed a claim in March may not be unemployed any longer.) This yields lower estimates of unemployment rates than the previous version.
- We incorporated data on reductions in work hours, capturing impacts on incomes for people who are still employed.
- We incorporated data on the timing of job losses, instead of assuming that all workers lost their jobs at a single point in time. This reduces somewhat the impact on workers’ incomes, but also reduces the support that workers get from expanded unemployment insurance benefits, which in some cases is more money than they would have received if still working.
- We corrected an error that understated the impact of direct cash payments from the CARES Act. These cash payments are now reflected in all estimates presented here.