Back-of-the-Envelope Estimates of Next Quarter's Unemployment Rate

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As state and local governments implement social-distancing measures to suppress and contain the spread of COVID-19, many businesses are faced with a large decrease in sales and revenue. This slowdown of economic activity could inevitably lead to solvency and liquidity problems that result in workers being laid off.

This negative shock does not equally affect all businesses, sectors or occupations. Many workers in professional services, for example, are able to work from home and continue their activities with minimal disruption. Others—who work in occupations that involve direct physical contact with customers, such as restaurant waiters—are likely to see their jobs affected by social-distancing measures.

In this blog post, we combine different types of statistics on industry and occupation composition to try to arrive at a back-of-the-envelope estimate for what the unemployment rate may be at the end of the second quarter of 2020.

Current Labor Statistics

Our starting point is the state of the U.S. economy as of February 2020. According to the Bureau of Labor Statistics (via FRED), the civilian labor force consisted of 164.5 million people, and the unemployment rate was 3.5%.[1] This means that there were around 5.76 million unemployed people in the U.S. in February. In our calculation, we assumed that the labor force remains constant and that none of those 5.76 million people would be able to find a job in the second quarter of 2020.

The important question is: How many people, on net, will be laid off during Q2? To estimate this number, we combined data from two recent blog posts that tried to compute how many jobs are exposed to layoff risk due to social distancing.

High-Risk Occupations

In a recent blog post, Charles Gascon used 2018 occupational data from the BLS to estimate how many employees are at high risk of layoff due to social-distancing measures.[2] Gascon classified 808 occupations according to three criteria:

- Whether those occupations are essential to public health or safety
- Whether they involve work that can be completed off-site
- Whether they are salaried

He estimated that 66.8 million people are employed in occupations that are at high risk of layoff. These include occupations in sales, production, and food preparation and services, among others.

Occupations and Contact Intensity

In another recent blog post, Matthew Famiglietti, Fernando Leibovici and Ana Maria Santacreu combined individual-level data from the 2017 American Community Survey with information on occupational contact intensity from O*NET to determine how many people work in occupations that require the worker to perform tasks in close physical proximity to other people.[3] They found that 27.3 million workers have occupations with a high contact intensity. These include barbers, hairstylists, food and beverage serving workers, and flight attendants, among others.

Calculating Second-Quarter Unemployment Rate

These two numbers were obtained by applying different methodologies and classifications to two different datasets. This means that while there may be significant overlap, each measure will also be capturing some aspects that the other ignores.

For this reason, we simply took the average of those two numbers as a point estimate for the total number of workers who will be laid off during the second quarter. This resulted in 47.05 million people being laid off during this period.

Summing to the initial number of unemployed in February, this resulted in a total number of unemployed persons of 52.81 million. Given the assumption of a constant labor force, this resulted in an unemployment rate of 32.1%.

1. Civilian labor force in February 2020 = 164.5 million (BLS via FRED)
2. Unemployment rate in February 2020 = 3.5% (BLS via FRED)
3. Unemployed persons in February 2020 = 5.76 million (#1 * #2)
4. Workers in occupations with high risk of layoff = 66.8 million (Gascon blog post)

5. Workers in high contact-intensive occupations = 27.3 million (Famiglietti/Leibovici/Santacreu blog post)
6. Estimated layoffs in second quarter 2020 = 47.05 million (Average of #4 and #5)
7. Unemployed persons in second quarter 2020 = 52.81 million (#3 + #6)
8. Unemployment rate in second quarter 2020 = 32.1% (#7 / #1)

Summary of Calculations

It is worth emphasizing that this is a point estimate that makes several important assumptions. One way to think about how to bound this estimate is to take the Famiglietti-Leibovici-Santacreu number minus 10 million (workers in education and health care, who are less likely to be laid off) as an optimistic estimate for the number of layoffs during the second quarter and the Gascon number as a more pessimistic estimate. This results in unemployment rates between 10.5% and 40.6%.

There are other important caveats:

- First, these calculations assume that the labor force is constant and exclude the fact that some recently unemployed workers may be discouraged and not looking for employment (and thus would not count as unemployed).
- Second, many businesses may send workers home with pay instead of laying them off outright.
- Third, these calculations do not account for any potential effects of fiscal measures, such as payroll support measures for small businesses or changes in the generosity of unemployment insurance that may be implemented between now and the end of June.[4]

Moreover, one can argue that the expected duration of unemployment matters more than the unemployment rate itself, especially if the recovery is quick (and so duration is short). These are very large numbers by historical standards, but this is a rather unique shock that is unlike any other experienced by the U.S. economy in the last 100 years.

Notes and References

[1] These figures are available on the FRED pages for the Civilian Labor Force Level and the Unemployment Rate.

[2] COVID-19: Which Workers Face the Highest Unemployment Risk?

[3] Social Distancing and Contact-Intensive Occupations

[4] For examples of fiscal policies that can affect unemployment rates, see Dupor, Bill. "Possible Fiscal Policies for Rare, Unanticipated, and Severe Viral Outbreaks." *Economic Synopses*, March 17, 2020.

Additional Resources