Real Time Labor Market Estimates

During the 2020 Coronavirus Outbreak*

Alexander Bick  Adam Blandin
Arizona State University Virginia Commonwealth University

April 15, 2020

Abstract

Labor market statistics for the United States are collected once a month and published with a three week delay. In normal times, this procedure results in timely and useful statistics. But these are not normal times. Currently, the most recent statistics refer to the week of March 8-14; new statistics will not be available until May 8. In the meantime, the Coronavirus outbreak has shut down a substantial portion of the U.S. economy. More timely and frequent data on the impact on the labor force would surely be useful for both policy makers and the broader public.

This project aims to provide data on labor market conditions every other week, and to publish results the same week, thereby reducing the information lag. We do so via an online labor market survey of a sample representative of the US working age population. Our core survey closely follows the CPS, which allows us to construct estimates consistent with theirs.

The first wave of our survey covers the week of March 29-April 4. Our findings reveal unprecedented changes in the US labor market since the most recent CPS data were collected:

1. The employment rate decreased from 72.7% to 60.7%, implying 24 million jobs lost.
2. The unemployment rate increased from 4.5% to 20.2%.
3. Hours worked per working age adult declined 25% from the second week of March. Half of this decline is due to lower hours per employed as opposed to lower employment.
4. Over 60% of work hours were from home, compared with roughly 10% in 2017-2018.
5. Those who still have their jobs are working fewer hours; 21% report a decline in earnings.
6. Declines were most pronounced for workers who were female, older, and less educated.

*This is a preliminary version of research in progress. Feedback is very much appreciated. We thank the Center for the Advanced Study in Economic Efficiency at ASU for generous financial support. We thank Carola Grebitus, Richard Laborin, and Raphael Schoenle for crucial help starting this project, and Bart Hobijn and Todd Schoellman for feedback on this draft. We also thank Minju Jeong and Juan Odriozola for outstanding research assistance. Contact the authors at alexander.bick@asu.edu and ajblandin@vcu.edu.
1 Introduction

The 2019-2020 Coronavirus outbreak has prompted a sharp economic downturn in the US and around the world. Designing and implementing an effective policy response to the crisis is now a major priority for policymakers and researchers.

Effective policies require timely and accurate data on the scale of the downturn, yet traditional data sources are only made available at a significant lag. For example, the March 2020 Employment Situation report by the Bureau of Labor Statistics (BLS) only reflected labor market outcomes from the week ending Friday March 13, which precedes most major developments related to the outbreak.¹ The April 2020 Employment Situation report will reflect labor market outcomes from the third week of April, but is not scheduled for release until May 8. The gap between the data needs of policymakers and the time lag of traditional data sources has left policymakers “flying blind” to a significant degree.

The goal of this project is to help fill that void. To do so we will collect online survey data every other week from a sample representative of the US working age population (age 18-64). The major reference period for the first wave of the survey is the week of March 29–April 4, though we also ask questions about work experience prior to March 2020. The survey questions closely follow the structure of the Basic Labor Market module in the Consumer Population Survey (CPS), which allows us to compute labor market estimates consistent with their measures. We also include a suite of questions specifically tailored to the present economic situation which are not asked by the CPS.

Our major findings for the last week of March are as follows.

1. Dramatic reductions in employment.
   (a) We find an employment rate of 60.7% during the first week of April, compared with 72.7% in the second week of March, implying 24 million fewer workers.
   (b) We find an unemployment rate of 20.2% during the first week of April, compared with 4.5% in the second week of March. One positive note is that over half of the unemployed reported being temporarily laid off, suggesting that many could return to work quickly if conditions improve.

2. Even larger declines in aggregate labor supply than implied by employment alone.
   (a) Hours worked per working age adult declined 25% from March. In the first week of April, individuals worked 20.4 hours on average, compared with 27.5 weekly hours in the second week of March.
   (b) Hours worked per employed declined 12% from March. Even those who are still employed are working 4.5 fewer hours per week, a reduction of over half a day of work. This implies that just under half of the decline in hours per working age adult were due to reductions in hours worked per employed, and are therefore not reflected in changes to the employment rate.

¹For example, in the week ending on March 13, weekly initial claims of unemployment insurance were 281,000, compared with 3.3 million the following week.
3. Unprecedented increase of the share of hours worked from home.

(a) We find that 63.8% of work hours were from home during the first week of April, compared with roughly 10% in the Spring of 2017 and 2018.

4. Lower earnings even for individuals still working the same job as in February.

(a) We find that 21.9% of workers still working the same job as in February experienced a reduction in their earnings last week compared to February. About half of these reported that their reduction in earnings was 50% or larger.

(b) At the same time, 11% of workers with the same job as in February report higher weekly earnings last week compared with February.

5. Disparities in labor market outcomes by sex, age, education, race, and hourly status.

(a) Although negative effects are widespread, they are more pronounced among workers who are female, older, and less educated.

In the next section we provide a brief overview of our online survey and compare it to other prominent labor market surveys. Section 3 documents the key estimates for labor market aggregates derived from our survey. Section 5 documents heterogeneity in labor market changes across several demographic and economic groups. Finally, Section 6 concludes and discusses next steps for this project.
2 Our Labor Market Survey

The survey was designed by the authors and administered online to a sample of 1,118 respondents on April 8-9, 2020. Our sample of respondents were selected to be representative of the US working age population (ages 18-64) along several characteristics (age, gender, race/ethnicity, education, marital status, presence of children, geographic region, and household income in 2019).

Our questionnaire follows as closely as possible the labor market portion of the basic module of the Current Population Survey (CPS), which is the primary source of labor market data for the US. This allows us to assign individuals to one of four basic labor force categories: employed and at work, employed and absent from work, unemployed, and not in the labor force. The distinctions between the latter three categories can be subtle, but are crucially important for the construction of aggregate labor market statistics. This is particularly true in the current economic situation where many workers have been dismissed from work with the hope of returning to work when conditions improve, which can blur the lines between labor force categories.

In addition to employment status, we ask several more questions of employed workers, including type of employer, industry, hours of work, hours worked from home, and time spent commuting (for hours worked, hours worked from home, and commuting time we ask about actual last week and usual prior to March 2020). To learn about earnings, we adopt the extra questions asked to respondents of the Outgoing Rotation Group of the CPS. Since the CPS asks workers about “usual weekly earnings”, which may be difficult to interpret for workers whose earnings have recently changed, we slightly modified this question. Specifically, we ask about usual earnings prior to March 2020, and then ask workers to estimate how their earnings last week compared with their usual earnings prior to March.

Appendix A contains additional details on the survey design and construction of key labor market variables. Appendix B compares summary statistics for our sample and with the CPS. Our sample lines up well with the CPS along the key targeted dimensions, and even for many finer subgroups. Appendix C provide a broad comparison of our dataset with the CPS and other relevant data sets.

We are aware of two other studies analyzing the US labor market since the March CPS, both using online surveys. Adams-Prassl et al. (2020) asked employed and self-employed individuals a set of qualitative questions, e.g. whether hours worked decreased over the past two weeks. Coibion et al. (2020) surveyed individuals from the Nielsen Homescan Panel during April 2-8, and compare it to the same survey administered between January 6-27, 2020. An important difference is that our survey closely follows the CPS protocol, whereas their survey uses a small set of yes/no questions to determine labor market status. They find a smaller decrease in employment and smaller increase in unemployment, but a larger drop in labor force participation than we do. They do not have any information on hours worked per employed, which according to our survey contribute to about half of the decrease in aggregate hours.

2For reference, the Survey of Consumer Expectations, administered by the Federal Reserve Bank of New York, has a sample size of roughly 1,300 respondents.
3 Aggregate Employment, Unemployment, and Hours Worked

In this section we document our core findings regarding the employment rate, the unemployment rate, and hours worked during the survey reference week. See Appendix A for additional details on how we construct these variables from our survey data to align with CPS definitions.

3.1 The Employment Rate

Figure 1: Employment Rate, Age 18–64

<table>
<thead>
<tr>
<th>Month</th>
<th>Employment Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>73.5</td>
</tr>
<tr>
<td>Feb</td>
<td>73.8</td>
</tr>
<tr>
<td>Mar</td>
<td>72.7</td>
</tr>
<tr>
<td>Apr(BB)</td>
<td>60.7</td>
</tr>
</tbody>
</table>

Notes: Data from January-March (gray) are derived from CPS surveys. Data from April (blue) are derived from responses to our online survey. The standard error for our April estimate is 1.48%, implying a 95% confidence interval of (57.8%, 63.6%).

Figure 1 plots the employment rate from January-April, 2020. The employment rate represents the share of all individuals in our sample who were classified as employed (often also referred to as the employment to population ratio), which includes workers who were present at their job last week, as well as workers who were absent from their job for reasons such as a personal illness, vacation, or childcare emergency. The employed category excludes workers who were laid off or furloughed, even if respondents said this was temporary; these workers are categorized as unemployed, following the CPS methods.

In our survey the employment rate was 60.7% in the first week of April, with a 95% confidence interval of (57.8%, 63.6%). This represents a 16% (12.0 percentage point) decline from March of this year. For context, this marks the lowest employment rate for the US working age population (18-64) since 1963.3

3We use the CPS ASEC, also known as the March Supplement, to calculate the annual employment rate for the working age population from 1962 onwards. FRED provides this statistic for ages 15-64 monthly starting in 1977 (LREM64TTUSM156S) and since then employment rate has always been higher than our report for the first week of April 2020.
A further worrying finding is that the fraction of workers counted as “employed” who were temporarily absent from work (on vacation, out sick, etc.) has risen from 2.5% in February to 4.0% in March and 7.6% in April. This could portend further decreases in employment in the near future if many workers who are currently absent from work end up transitioning to unemployment (for example, after they have used up all their sick days and vacation days).
3.2 The Unemployment Rate

Figure 2: Unemployment Rate, Age 18–64

Notes: Data from January-March (gray) are derived from CPS surveys. Data from April (blue) are derived from responses to our online survey. The standard error for our April estimate is 1.46%, implying a 95% confidence interval of (17.5%, 22.9%).

Figure 2 plots the unemployment rate from January-April 2020. The unemployment rate represents the share of the labor force who were classified as unemployed. The unemployed include workers who were laid off or furloughed. The labor force does not include individuals who were not working and were not looking for work (for example, full time students, homemakers, or retirees).

In our survey the unemployment rate was 20.2% in the first week of April, with a 95% confidence interval of (17.5%, 22.9%). This is a 15.7 percentage point increase from March of this year. For context, this marks the highest unemployment rate for the age group 15-64 since 1962. The reduction in employment has been nearly exactly offset by the increase in unemployment such that the labor force participation rate for the working age population has been virtually unchanged.

The striking increase in the unemployment rate is broadly consistent with recent data on initial claims for unemployment insurance (UI). From March 16 (the first Monday following the March CPS reference week) through April 4 (the Saturday ending our survey’s reference week), there were 16.5 million new UI claims. Given a labor force of 153 million aged 18-64, this suggests an increase in the unemployment rate of 10.8 percentage points. Adding this to the 4.5% unemployment rate for individuals age 18-64 in the March CPS yields an unemployment rate of 15.3%.

---

4We use the CPS ASEC, also known as the March Supplement, to calculate the annual unemployment rate for the working age population from 1962 onwards. FRED provides this statistic for ages 15-64 quarterly starting in 1970 (LRUN64TUSQ156S). Since then unemployment rate has always been lower than our report for the first week of April 2020.
which is only 2.2 percentage points below our lower confidence threshold. Further, as mentioned in Appendix C.5, there are several reasons why UI claims likely understate recent increases in the unemployment rate.\textsuperscript{5}

A potential silver lining is that more than half of the unemployed in our sample are temporarily laid off. Somewhat less than 3/4 of the laid off have been either given a concrete date of return or the indication to be called back within 6 months. This suggests that large share of the unemployed might be quickly recalled to their previous jobs once the economy is opened up.

\textsuperscript{5}Note that this back-of-the-envelope calculation assumes that all UI claims were filed by individuals age 18-64. It also assumes that all individuals who were unemployed in the March CPS remained unemployed through our survey’s reference week.
3.3 Hours Worked per Working Age Adult

Figure 3: Actual Hours Worked Last Week

(a) Hours Worked per Working Age Adult

(b) Hours Worked per Employed

Notes: Data from January-March (gray) are derived from CPS surveys. Data from April (blue) are derived from responses to our online survey. The standard error for our April estimate of weekly hours worked per working age adult is 0.66, implying a 95% confidence interval of (19.1, 21.7). The standard error for our April estimate of weekly hours worked per employed person is 0.73, implying a 95% confidence interval of (32.4, 35.2).

Figure 3a plots hours worked per working age adult, which represents average hours worked last week by the entire sample population. Individuals who were unemployed or not in the labor force contribute a “zero” to this average, as do employed individuals who were absent from work last week. Alternatively, Figure 3b plots hours worked per employed person, which excludes individuals who were unemployed or not in the labor force.

The decline in hours worked per working age adult suggested by our survey is staggering: from the second week of March to the first week of April, hours worked per working age adult last week declined 25%, from 27.5 hours to 20.4 hours. For context, this marks the lowest hours worked per person and per worker for the age group 18-64 since at least 1962.  

In percentage terms, the decline in hours worked per working age adult is twice as large as the decline in employment documented in Section 3.1. Average hours declined more than employment because the former also captures changes in hours worked per employed. Figure 3b shows that on average employed workers are working 4.5 fewer hours per week than in March, a reduction of more than half a working day. A striking implication is that just under half of the decline in the aggregate labor supply has come from the reduction in hours worked per employed, which is not reflected in measures of the employment rate or new UI claims.

We use the CPS ASEC, also known as the March Supplement, to calculate the average annual hours worked per person and per worker aged 18-64 from 1962 onwards. FRED does not provide a comparable statistic.
3.4 Hours Worked from Home

Figure 4: Share of Work Hours from Home Last Week

Notes: Data in the gray bars are derived from January-March of the 2017-2018 ATUS, which are the most recent years with available micro data (we pool two years to increase sample size). Data from April (blue) are derived from responses to our online survey.

Figure 4 plots the share of work hours from home for the months January-April in the American Time Use Survey (ATUS) and in our survey. For the months January-March we use data from the 2017-2018 ATUS, which are the most recent years with available micro data.

In our survey nearly 2/3 of work hours were from home, which is six times larger than share in the comparison months from 2017-2018. Combining this information with the results in Figure 3a implies that, in our reference week, employed workers in our sample averaged roughly 21 hours of work from home compared to only 12 hours of work away from home. By contrast, in the reference week from February of this year employed individuals likely averaged roughly 4 hours of work from home compared to 34 hours of work away from home, assuming a similar 10% share of work from home hours as in the 2017-2018 ATUS.
4 Changes in Worker Earnings

Figure 5: Earnings Last Week Relative to February, Among Those Working Same Job as February

Notes: Results are derived from responses to our online survey from workers who report that (i) they were employed and present at a job last week, and (ii) that they had worked at that job since February 2020 or earlier. 5.2% of respondents reported that they were unsure of how their earnings last week compared to their usual weekly earnings prior to February 2020.

Figure 5 plots the distribution of earnings changes among workers who report working the same job last week that they worked in February 2020. To derive this figure, our survey first asked these workers to report their usual earnings at that job, where usual was specified to mean prior to March 2020. We then asked workers to report how their earnings last week compared to their usual earnings. Rather than requiring respondents to enter a specific percentage, which might be difficult (especially for those not being paid weekly or hourly), we provided six different options for respondents to choose from: Compared to their usual weekly earnings prior to March 2020, last week they earned (i) about a quarter (25%) of their usual earnings, (ii) about half (50%) of usual, (iii) about three quarters (75%) of usual, (iv) about the same as usual, (v) more than usual, or (vi) unsure.

We find that 21.9% of respondents earned less last week than they usually did prior to March 2020, 62.1% earned about the same, 10.8% earned more than usual, and 5.2% were unsure how their earnings last week compared. Among the respondents who reported earning less than usual last week, about half reported reductions of roughly 50% or larger.

We emphasize that these questions differ from the questions asked in the CPS ORG, which asks about usual earnings at the respondent’s main job without specifying a precise time period. The CPS interviewer’s manual (Section 4.F.2) specifies that, for non-hourly workers, if earnings fluctuate, respondents should report “what the earnings are 50 percent of the time or more. If the
respondent is unable to answer, ask for the most frequent earnings amount during the past 4 or 5 months.” For non-hourly workers who have received a pay cut since March that may or may not turn out to be temporary, it is not at all obvious that their CPS respondents’ reports of “usual earnings” will reflect these changes. By contrast, our survey attempts to elicit these short run earnings changes.\footnote{We note that the 2021 CPS ASEC will ask about annual earnings during the 2020 calendar year, which should capture even temporary earnings reductions. However, this data will not be available until April 2021.}
5 For Whom Did Employment and Hours Fall Most?

5.1 Labor Market Outcomes by Sex

Figure 6: Labor Market Outcomes by Sex

(a) Employment Rate

(b) Hours Worked per Employed

Notes: Data from January-March are derived from CPS surveys. Data from April are derived from responses to our online survey.

Figure 6 displays the employment rate and hours worked per employed by sex from January-April, 2020. In late March, employment declined more severely for females (15.2 percentage points) than for males (11.1 percentage points). Hours worked per employed declined similarly for females (4.3 hours per week) and males (4.9 hours per week). The difference in employment outcomes by sex is consistent with the notion that females are disproportionally employed in industries hit hardest by the Coronavirus outbreak (such as services and especially face to face services).
5.2 Labor Market Outcomes by Age

Figure 7: Labor Market Outcomes by Age

(a) Employment Rate

(b) Hours Worked per Employed

Notes: Data from January-March are derived from CPS surveys. Data from April are derived from responses to our online survey.

Figure 7 displays the employment rate and hours worked per employed by broad age groups from January-April, 2020. Perhaps surprisingly, employment declined less for young workers under 30 (6.4 percentage points) than for middle aged workers (13.2 percentage points) and older workers (12.5 percentage points). Hours worked per employed declined less for young workers under 30 (3.2 hours per week) and more for middle age workers (4.3 hours per week) and older workers (6.3 hours per week).

This pattern stands in contrast with typical recessions in the US, which tend to observe larger declines in employment and work for young workers who are less firmly attached to the labor market. One possibility is that young workers might be disproportionately likely to work in jobs that can be done from home, or to work for industries whose demand has remained firm during the downturn (such as delivery services). Another possibility is that older workers are taking additional health precautions relative to younger workers, which involves reducing their own labor supply.
5.3 Labor Market Outcomes by Education

Figure 8: Labor Market Outcomes by Education Group

(a) Employment Rate

(b) Hours Worked per Employed

Notes: Data from January-March are derived from CPS surveys. Data from April are derived from responses to our online survey. No college degree includes individuals with some college but no college degree. College degree includes individuals with associates degrees and higher.

Figure 8 displays the employment rate and hours worked per employed by broad education groups from January-April, 2020. In late March, employment declined more severely for individuals with no college degree (13.2 percentage points) than for individuals with a college degree (9.3 percentage points). Hours worked per employed also declined more for non-college workers (6.6 hours per week) than for workers with a college degree (3.4 hours per week). This difference in outcomes by education is consistent with the notion that more educated workers are more likely to be able to work from home, and historically have been less likely to become unemployed during recessions.
6 Next Steps

The goal of this project is to provide real time estimates of the rapidly changing state of the US economy, focusing in particular on the labor market. Our hope is that these estimates will be of use to both policymakers and researchers, who we encourage to reach out to us with questions.

The next wave of our survey will be conducted on April 22, with a reference week of April 12-18. This is the same reference week as the April CPS. However, our plan is to release updates results on Friday April 24, two weeks ahead of the release of the April Employment Situation report on May 8. We intend to continue conducting a new survey every other week for as long as funding permits.
References


Appendices

A  Details on Data Collection and Variable Construction

All data labeled “BB” in this paper were collected by an online survey designed by the authors. The survey was constructed using Qualtrics software and administered by Qualtrics on April 8-9, 2020. The average time to complete the survey was 6 minutes. Survey respondents received modest compensation from Qualtrics.

A.1  Sample Selection

To be eligible to participate in the study, participants had to reside in the US and be between the ages of 18-64 and speak English. The sample was selected to be consistent with the US population based on sex (male, female), education (high school or less, some college or more), race and origin (white, black, hispanic), marital status (currently married, not currently married), residing with children (currently residing with children, not currently residing with children), geographic region (Northwest, Northeast, Southeast, Southwest), and household income in 2019. Our full sample was 1,118 respondents. Appendix B discusses summary statistics.

A.2  Survey Design

The survey has three basic modules: background, work history, and childcare.

The background module asked respondents’ zip code, sex, age, race and origin, education, and marital status, as well as cohabitation status for non-married respondents. If the respondent lived with a spouse or partner, we asked the same information of the spouse/partner. We then asked whether any other adults lived in the home, the age and number of children in the home, and the total household income during 2019.

The work history module was closely modeled after the basic CPS labor market module. We first attempt to elicit respondents’ labor market status last week. If the respondent was employed and present at work last week, we ask about employer type, industry, hours worked, hours worked from home, time spent commuting, whether they worked multiple jobs, whether they are paid
hourly, and earnings. We distinguish between respondents whose main job is at a household business versus respondents whose main job is not at their household business. We also ask whether they were working at the same job prior to March of this year (2020), and we ask a similar set of questions about their usual work experience prior to March. Finally, we ask a subset of these questions about the work experience of their spouse/partner (if present).

The third module asks about the childcare practices of households with children under age 14. We ask whether they usually used a set of types of childcare in February of this year and if they used these types of childcare last week. If the use of childcare changed between February and last week, we ask why that was. We also ask how many hours the respondent (and their spouse/partner if present) spent as the sole care giver for a household child under age 14 during February of this year and last week.

A.3 Variable Construction

This section details how we use responses to our survey to construct a set of key variables: employment status, layoff status, actual hours worked last week, and usual weekly hours worked prior to March. Our procedure for variable construction closely follows the instructions in the CPS Interviewing Manual, which is available on the BLS’s website.

Employment Status. Employment status has four possible values, all referring to last week: (1) employed and present, (2) employed and absent, (3) unemployed, (4) not in the labor force.

1. Employed and present:

   - For respondents who did not work at a household business last week, we classify them as employed and present if they reported that last week they (i) had a job (excluding unpaid work), and (ii) worked positive hours for pay at that job.
   - For respondents whose main job was at a household business, we classify them as employed and present if last week they either (i) worked positive hours for pay, or (ii) worked at least 15 unpaid hours.
   - Finally, for respondents who worked at a household business last week, but whose main job was not at that household business, we classify them as employed and present if they worked positive hours at that job last week.

2. Employed and absent:

   - For respondents who did not work at a household business last week, we classify them as employed and absent if they reported that last week they (i) had a job (excluding unpaid work), (ii) did not work positive hours for pay at that job for any reason, and (iii) were not on temporary or indefinite layoff from a job.

3. Unemployed:
• Respondents who did not work at a household business last week can be classified as unemployed in two ways. The first way is if they reported that last week they reported that they (i) had a job (excluding unpaid work), (ii) did not work positive hours for pay at that job, and (iii) were on temporary or indefinite layoff from a job.

• The second way is if they reported that (i) last week they did not have a job, and (ii) when asked what best describes their situation last week, they responded that (i) they were not working but would like to work, (ii) had actively looked for work in the last four weeks, and (iii) would be available to work if they had been offered a job last week.

4. Not in the labor force

• Respondents who did not work at a household business last week were classified as not in the labor force if they reported that (i) last week they did not have a job, and (ii) when asked what best describes their situation last week, they responded that they were a homemaker, retired, permanently disabled or unable to work, a full-time student, or other. Individuals were also classified as not in the labor force if they reported that (i) last week they did not have a job, (ii) when asked what best describes their situation last week, they responded that they were not working but wanted a job, but (iii) also reported either that they had not actively looked for work in the previous four weeks, or that they would not be available to work if they had been offered a job last week.

Layoff Status. Layoff status has two values: on layoff or not on layoff. Respondents who were on layoff are a subset of the unemployed. Specifically, we classify respondents as on layoff if they reported that last week they (i) had a job (excluding unpaid work but including temporary layoffs), (ii) did not work positive hours for pay at that job for any reason, and (iii) were on temporary or indefinite layoff from a job.

Actual hours worked last week. All respondents who were classified as employed and present last week were asked “last week, how many hours did you actually work at your job?” Respondents who reported working multiple jobs last week were asked both “last week, how many hours did you actually work at your main job?” and “last week, how many hours did you actually work at your all other jobs?”, where main job was defined as the job in which they usually worked the most hours.

Usual weekly hours worked prior to March. All respondents were asked about their labor market status and hours worked prior to March of this year (2020). This was done in two slightly different ways depending on whether the respondent worked at a job last week that they had started prior to March.

• For respondents who had a job last week, and who reported that they worked at that job in February, we asked “before March, how many hours per week did you usually work at this job?”

• For respondents who either did not have a job last week, or who reported that they were not working at this job in February, we first asked them “In February, which of the following best
describes your work experience? (i) work for pay or profit, (ii) unpaid work at a business owned by someone in my household, or (iii) not working.” If they selected either (i) or (ii), we asked them “Before March, how many hours per week did you usually work at your job from February?”

Earnings For workers who had a job last week, and who began that job prior to March 2020, we asked them to report their usual earnings at that job, where usual was specified to mean prior to March 2020. We followed the CPS in by first asking (i) which period was easiest for respondents to report their usual earnings before taxes or deductions (hourly, daily, weekly, every other week, monthly, or yearly), then asking (ii) how much they usually earned per period. We then asked workers to report how their earnings last week compared to their usual earnings. Rather than requiring respondents to enter a specific percentage, which might be difficult (especially for those not being paid weekly or hourly), we provided six different options for respondents to choose from: Compared to their usual weekly earnings prior to March 2020, last week they earned (i) more than usual, (ii) about the same as usual, (iii) about three quarters (75%) of their usual earnings, (iv) about half (50%) of usual, (v) about a quarter (25%) of usual, or (vi) unsure.

B Summary Statistics for Survey Data

The Qualtrics panel does not represent a random subsample of the US population, but Qualtrics selects the sample such that is in line with key demographics. In particular, the sample was targeted such that it consists of 50% men and 50% women, matches the composition by three age bins, race and ethnicity, education (some college or less vs. associates and above), married or not, number of children in the household, three household income bins (<$50k, $50k-100k, >$100k) and by region. The relative proportions were taken from US Census data.

Table B1 compares the sample composition in the Basic CPS from January through March 2020 with our survey. For Household Income Last Year we use the March 2020 Release of the CPS ASEC, which reports total household income for the year 2019. For age, education, marital status, and household income we report finer groups than were targeted by Qualtrics. Overall, our survey looks very similar to the CPS. The most notable difference is that the age group 45-54 is underrepresented, which is offset by a higher share in the age group 55-64. Respondents indicating white as their only race are underrepresented too, which is mostly offset by “Other & Mixed” races. Hispanic respondents are underrepresented as well. The sample is somewhat higher educated than the general population and has a higher share of respondents with children. Regarding household income, only household with less income last year exceeding $150,000 are underrepresented. Moreover, there are somewhat more respondents from the Northeast and less from the West.

C Background: Our Labor Market Survey vs. Other Surveys

C.1 The Basic Consumer Population (CPS) Survey

The primary source of labor market statistics in the US is the CPS, which surveys roughly 60,000 households each month. The sample design is a rotating panel, where a given household is inter-
viewed for four months in a row, not interviewed for the next 8 months, and then is interviewed again for four more months (this design ensures that households are interviewed during the same four months in two consecutive calendar years). The CPS is composed of a basic module, which is asked about each household member age 15 and over in every interview month, and a set of supplemental modules that are asked less frequently.

The labor market portion of the basic module asks a host of demographic questions, as well as an intricate sequence of questions about household members’ labor market activity. The labor market questions allow the CPS to assign individuals to one of four basic labor force categories: employed and at work, employed and absent from work, unemployed, and not in the labor force. The distinctions between the latter three categories can be subtle, but are crucially important for the construction of aggregate labor market statistics. This is particularly true in the current economic situation where many workers have been dismissed from work with the hope of returning to work when conditions improve, which can blur the lines between labor force categories. The basic module also asks about hours of work, occupation, and industry for currently employed workers.

Our survey is designed to capture the key elements of the basic CPS module, but with the ability to collect, analyze, and publish results several weeks before the official CPS results are released. In particular, we collect demographic information on respondent’s sex, age, race and ethnicity, education, marital and cohabitation status, and number of children. We then ask a sequence of questions on individuals’ labor market status, hours of work, and industry.

C.2 The CPS Outgoing Rotation Group (ORG)

The labor market questions in the basic CPS module do not ask about workers’ earnings. However, in a household’s fourth and eighth interview month the ORG module of the CPS asks a small number of questions about workers’ “usual” earnings.

Our survey asks all working respondents about usual earnings. We intentionally introduce a slight deviation from the ORG questions by introducing additional language to clarify that by “usual” we mean prior to March 2020. We then ask how workers’ earnings in the first week of April changed relative to their usual earnings, in an attempt to capture high frequency earnings changes that might be missed by the ORG questions about usual earnings.

C.3 Other Supplemental Modules to the CPS

Among the large number of supplemental modules in the CPS, the two most important for labor force estimates are the Annual Social and Economic Supplement (ASEC), asked annually each March, and the Displaced Worker Supplement (DWS), asked annually each January. The ASEC collects extremely detailed information on labor compensation, other income sources, and government benefits during the previous calendar year. The DWS identifies individuals who were displaced from their job, and follows them for up to several years. Because the ASEC asks about the previous calendar year, the ASEC will not contain information about post-Coronavirus labor market outcomes until the 2021 wave. Because the DWS is only administered each January, it will not contain information about post-Coronavirus labor market outcomes until the 2021 wave.
C.4 The Current Employment Statistics (CES) Survey

The other major labor market survey conducted by the BLS is the CES, which interviews roughly 160,000 business establishments each month about the number, work hours, and earnings of employees. An important distinction between the CES and the CPS is survey coverage. Because the CES is administered to business establishments, it does not interview non-workers, the self-employed, businesses in the agricultural sector, private household workers (like nannies or housekeepers), unpaid family workers, or workers who are on extended unpaid leave. By contrast, the CPS is administered to households, and so in principle should include all these groups. Along this margin, our survey most closely resembles the CPS.

Another important distinction between the CES and the CPS is that the CES measures employment by counting “jobs” from the establishment perspective, while the CPS measures employment by counting individuals. One implication is that an individual who works multiple jobs will raise employment by two in the CES, but only by one in the CPS. Again, along this margin our survey most closely resembles the CPS.

C.5 Weekly Unemployment Claims

The Department of Labor publishes weekly data on the number of unemployment insurance (UI) claims filed. These are a highly valuable labor market indicator, and are available with minimal delay. However, there are several shortcomings of this data, which our survey aims to supplement.

First, there is not a one to one mapping between UI claims and unemployment, for several reasons. Eligible individuals who have not filed claims are not reflected in these statistics. There are at least two reasons why the share of eligible individuals who have not filed UI claims may be unusually high in the present moment. Many individuals who were ineligible for UI prior to the passage of the Coronavirus Aid, Relief, and Economic Security Act on March 27, 2020 may not know that they are now eligible (importantly, this includes many self-employed and many contract workers). And anecdotal reports of overwhelmed unemployment agencies suggest that many individuals may have tried to apply for UI but have not yet been successful. Additionally, the millions of undocumented workers in the US who have no Social Security number are ineligible for UI.

A second limiting factor to UI claims is that they do not reflect changes in labor supply due to changes in hours worked per employed. Workers who are still employed, but who are working fewer hours or who have been told to use vacation/sick days are supplying less labor than previously, but this is not reflected in UI claims. As we show in Section 3.3, this appears to be a crucial margin in the present context.

Finally, the micro data associated with UI claims are not available to researchers, which prevents any additional analysis. For example, any questions about whose labor supply has declined are not answerable with UI data alone.
C.6 Additional Low Frequency Labor Market Surveys

Policymakers and researchers have available to them a large number of additional labor market surveys, which are administered at an annual frequency or lower. Important examples include the American Community Survey, the Survey of Income and Program Participation, the American Time Use Survey, the Panel Study of Income Dynamics, and the National Longitudinal Studies of Youth. While these surveys will undoubtedly yield rich information about the current economic situation, this information will most likely not be available for a year or more.
Table B1: Sample Composition: CPS (Jan-Mar 2020) vs. BB

<table>
<thead>
<tr>
<th></th>
<th>CPS</th>
<th>BB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>49.3</td>
<td>49.0</td>
</tr>
<tr>
<td>Women</td>
<td>50.7</td>
<td>50.4</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>14.9</td>
<td>16.3</td>
</tr>
<tr>
<td>25-34</td>
<td>23.2</td>
<td>22.7</td>
</tr>
<tr>
<td>35-44</td>
<td>21.3</td>
<td>21.6</td>
</tr>
<tr>
<td>45-54</td>
<td>20.7</td>
<td>15.2</td>
</tr>
<tr>
<td>55-64</td>
<td>19.9</td>
<td>24.2</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>75.8</td>
<td>68.6</td>
</tr>
<tr>
<td>Black</td>
<td>13.6</td>
<td>11.9</td>
</tr>
<tr>
<td>Asian</td>
<td>6.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Other &amp; Mixed</td>
<td>3.9</td>
<td>13.4</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>81.0</td>
<td>88.1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>19.0</td>
<td>11.9</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No high school degree</td>
<td>9.4</td>
<td>4.0</td>
</tr>
<tr>
<td>High school graduate or the equivalent</td>
<td>27.3</td>
<td>22.4</td>
</tr>
<tr>
<td>Some college but no degree</td>
<td>18.1</td>
<td>21.9</td>
</tr>
<tr>
<td>Associate’s degree in college</td>
<td>10.3</td>
<td>11.2</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>22.9</td>
<td>23.6</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>12.0</td>
<td>16.9</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married, spouse present</td>
<td>49.5</td>
<td>51.9</td>
</tr>
<tr>
<td>Married, spouse absent</td>
<td>1.5</td>
<td>1.4</td>
</tr>
<tr>
<td>Separated</td>
<td>1.9</td>
<td>1.8</td>
</tr>
<tr>
<td>Divorced</td>
<td>9.3</td>
<td>7.6</td>
</tr>
<tr>
<td>Widowed</td>
<td>1.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Never Married</td>
<td>36.1</td>
<td>35.0</td>
</tr>
<tr>
<td><strong>Number of children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>67.7</td>
<td>60.4</td>
</tr>
<tr>
<td>1</td>
<td>13.6</td>
<td>17.0</td>
</tr>
<tr>
<td>2</td>
<td>12.2</td>
<td>15.7</td>
</tr>
<tr>
<td>3+</td>
<td>6.5</td>
<td>6.9</td>
</tr>
<tr>
<td><strong>Household Income Last Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0-$25,000</td>
<td>16.3</td>
<td>15.4</td>
</tr>
<tr>
<td>$25,000-$50,000</td>
<td>18.8</td>
<td>20.4</td>
</tr>
<tr>
<td>$50,000-$75,000</td>
<td>16.0</td>
<td>17.4</td>
</tr>
<tr>
<td>$75,000-$100,000</td>
<td>13.1</td>
<td>13.5</td>
</tr>
<tr>
<td>$100,000-$125,000</td>
<td>9.9</td>
<td>8.9</td>
</tr>
<tr>
<td>$125,000-$150,000</td>
<td>6.9</td>
<td>7.6</td>
</tr>
<tr>
<td>$150,000+</td>
<td>19.0</td>
<td>13.1</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwest</td>
<td>20.9</td>
<td>19.4</td>
</tr>
<tr>
<td>Northeast</td>
<td>17.7</td>
<td>23.0</td>
</tr>
<tr>
<td>South</td>
<td>36.9</td>
<td>36.6</td>
</tr>
<tr>
<td>West</td>
<td>24.5</td>
<td>21.0</td>
</tr>
</tbody>
</table>

* Taken from the March 2020 Release of the CPS ASEC, which reports total household income for the year 2019