

# Real-Time Labor Market Estimates During the 2020 Coronavirus Outbreak\*

Alexander Bick

Adam Blandin

Arizona State University

Virginia Commonwealth University

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## 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 April 12-18; new statistics will not be available until June 5. In the meantime, the Coronavirus outbreak is rapidly reshaping the US economy.

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, which we refer to as the Real-Time Population Survey (RPS). The core labor market questions in the RPS closely follow the government survey (the CPS), which allows us to construct estimates consistent with theirs. We also ask a suite of additional questions which are not asked by the CPS. The first three surveys cover the weeks of March 29-April 4, April 12-18, and April 26-May 2.

We first compare labor market outcomes in the RPS and the CPS up through April 12-18:

1. Retrospective questions about employment, hours worked, and earnings in February generate distributions strikingly similar to the February CPS.
2. Relative to the change in the CPS from February to April, the RPS exhibits larger changes in employment, unemployment, and labor force participation.
3. Taking into account misclassification issues raised by the BLS substantially narrows the difference between the CPS and RPS estimates for employment and unemployment. This is because misclassification appears to be more prevalent in the CPS than in the RPS.

Our most recent estimates suggest that declines in employment have slowed since mid April:

4. In the week of April 26-May 2, we estimate that the employment rate was 51.4% among working age adults. While employment fell in our most recent wave, the decline has slowed noticeably.
5. We estimate the unemployment rate rose since mid April to 23.6% while the labor force participation rate remained fairly flat (though well below its level in March).
6. Most of those who have recently lost their job believe they could return to their old job if the economy were to reopen soon and in a safe manner.
7. Among those who were employed in February, 44% have experienced a loss in earnings.

# 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 April Employment Situation Report by the Bureau of Labor Statistics (BLS) was released Friday May 8. However, this report reflects labor market conditions from the week of April 12-18, and so is already three weeks out of date. The next BLS report will not be released until June 5. 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 collect online survey data every other week from a sample representative of US adults (ages 18 and over). The survey questions closely follow the structure of the Basic Labor Market module in the Current 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. We refer to our survey as the **Real-Time Population Survey (RPS)**.

The first wave of the RPS references the week of March 29–April 4; the second wave references the week of April 12–18; the third wave references the week of April 26–May 2.

We first compare labor market outcomes in the RPS and the CPS up through April 12-18:

1. Retrospective questions about employment, hours worked, and earnings in February generate distributions strikingly similar to the February CPS (see Tables 1 and 2).
2. Relative to the change in the CPS from February to April, the RPS exhibits larger changes in employment ( $-18.9$  percentage points (pp) in the RPS vs.  $-11.1$  pp in the CPS), unemployment ( $+13.8$  pp vs.  $+10.4$  pp), and labor force participation ( $-10.2$  pp vs.  $-3.8$  pp).
3. However, the BLS identified over 7 million individuals who were classified as employed and absent, but should have been classified as not employed. Adjusting the CPS figures by relabeling most of these as unemployed (as suggested by the BLS) substantially narrows the difference between the RPS and CPS estimates for the change in employment ( $-18.9$  pp in the RPS vs.  $-14.8$  pp in the CPS) and unemployment ( $+13.8$  pp vs.  $+15.3$  pp). By construction this exercise does not affect labor force participation since it involves moving individuals from employed to unemployed. We emphasize that the BLS’s suggestion to relabel all the misclassified as unemployed could overstate the labor force participation rate, since misclassified individuals are not asked questions necessary to assign them in/out of the labor force.
4. An alternative exercise is to compare the “employed and at work” rate, which treats absent workers as if they were not working, and therefore should avoid the misclassification issue

discussed in the previous item. For this measure the RPS and CPS estimates are closer as well: the share employed and at work fell 19.0 pp in the RPS vs. 14.8 pp in the CPS. This is because the misclassification issue described above appears to be more prevalent in the CPS than in the RPS.

Our most recent estimates suggest slowing declines in employment since mid April:

5. In the week of April 26-May 2, we estimate that the employment rate was 51.4% among working age adults. While employment fell since mid April, the decline slowed noticeably.
6. We estimate the unemployment rate rose since mid April to 23.6% while the labor force participation rate remained fairly flat (though well below its level in March).
7. Most (55%) of those who have recently lost their job believe they could return to their old job if the economy were to reopen soon and in a safe manner, while 16% were unsure and 29% believed that their job loss was permanent.
8. Among those who were working in February, 44.1% report lower earnings. This includes 29.0% who were not employed, and 15.6% who are still employed but earning less. At the same time, 11% of those working in February report higher weekly earnings last week compared with February.
9. We estimate that hours worked per working age adult fell 32% since February. Initially the reduction in hours was roughly equally due to reductions in employment and reductions in hours per employed. Recently, however, reductions in employment have continued, while hours per employed have increased slightly. This may be due to a composition effect, to the extent that workers whose hours initially declined in late March and early April might have been more likely to transition to non-employment.
10. Declines in employment were initially concentrated among women, but this difference has recently diminished. Reductions in employment are somewhat more pronounced among older and less educated workers. Overall, however, the most striking pattern in our estimates is that the reduction in employment is pervasive across broad demographic groups.

In the next section we provide a brief overview of our online survey and compare it to some other labor market surveys. Section 3 summarizes the results of validation exercises comparing labor market outcomes in our survey to outcomes in the February and April CPS. Section 4 documents the key estimates for labor market aggregates derived from our survey. Section 5 documents how earnings have changed among individuals who were employed in February. Section 6 documents heterogeneity in labor market changes across several demographic and economic groups. Finally, Section 7 concludes and discusses next steps for this project.

## 2 Our Real-Time Population Survey (RPS)

The survey was designed by the authors and administered online to respondents of the Qualtrics panel. The first three survey waves were administered on April 8-9, April 22-23, and May 4-6, 2020, with sample sizes of 1,118, 1,986, and 2,037 respondents, respectively.<sup>1</sup> Our sample of respondents was selected to be representative of the US population (ages 18-64 in wave 1, ages 18+ from wave 2-on) 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 crucial 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, and hours of work. To learn about earnings, we adapt the extra questions asked of 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. In the second wave, we also asked respondents exactly the same questions about their spouses or unmarried partners if they live in the same household. As in the CPS, where information about other household members is regularly provided by a single respondent, we use these observations to expand our survey. The only weighting procedure we use is to assign a weight of 0.5 to respondents with spouses, and the spouses; respondents not living with a spouse/partner receive a weight of 1.

Appendix B contains additional details on the survey design and construction of key variables. Appendix C compares summary statistics for our sample and with the CPS. Appendix D provides a broad comparison of our dataset with the CPS and other relevant data sets.

We contribute to a burgeoning literature using real-time data to document US labor market patterns during the crisis, e.g., Adams-Prassl et al. (2020), Coibion et al. (2020), Kahn et al. (2020a), Kahn et al. (2020b), Kurmann et al. (2020), Bartik et al. (2020a), Bartik et al. (2020b), Cajner et al. (2020), Hanspal et al. (2020), Parker et al. (2020), Andersen et al. (2020), and Bell and Blanchflower (2020). The distinctive feature of our study is that we follow as closely as possible the questionnaire used by the BLS.<sup>2</sup>

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<sup>1</sup>For reference, the Survey of Consumer Expectations, administered by the Federal Reserve Bank of New York, has a sample size of roughly 1,300 respondents.

<sup>2</sup>von Gaudecker et al. (2020), Afridi et al. (2020), Bamieh and Ziegler (2020a), Bamieh and Ziegler (2020b), Lopes

### 3 Comparisons to Results from the CPS

While our sample lines up well with US population for targeted observable characteristics (see Appendix C), selection into the Qualtrics Panel based on unobservables is an important concern. In this section we compare untargeted labor market outcomes in our survey to results from the February and April CPS.

#### 3.1 Comparisons to February (Pre-Coronavirus)

Table 1: Employment Rate and Hours Worked in February, Age 18-64

Estimate of	CPS	RPS	
		Wave 2	Wave 3
Employment Rate (in %)	73.8 [73.5,74.2]	73.8 [72.1,75.5]	71.9 [70.2,73.6]
Usual Hours Worked per Employed	39.2 [39.1,39.3]	40.4 [39.7,41.0]	40.8 [40.2,41.5]

Note: 95% Confidence Interval in brackets.

Table 2: Usual Weekly Earnings in February

	CPS		RPS	
	Incl. Imputed	Excl. Imputed	Wave 2	Wave 3
Mean	953	945	935	928
<i>Percentile</i>				
10	300	294	250	280
25	500	500	440	475
50	800	800	750	760
75	1,270	1,267	1,292	1,250
90	1,850	1,846	2,000	1,825

Note: CPS values are from the February Outgoing Rotation Group. The CPS only asks employees and owners of incorporated businesses about earnings. Since we do not ask who owns the business in households with a business, or whether a business is incorporated, we restrict the comparison to individuals without a business in the household. We display two series for the CPS, one including all earnings values, and one excluding imputed earnings (close to 1/3 of earnings in the CPS are imputed). Interestingly, only 3% of observations have missing earnings in our survey.

Starting in our second wave we asked whether the respondent (and spouse/partner if present) was working in February, and if so, how many hours they usually worked per week.<sup>3</sup> This allows

(2020), Paklina and Parshakov (2020), Yalnizyan and Goldfarb (2020) study real-time labor data for other countries.

<sup>3</sup>Since the BLS's full sequence of questions for last week's labor market status can be time consuming, we simply ask about work for pay or profit, or unpaid work in a business owned by someone in the household in February.

us to compare February employment and hours worked in the RPS and CPS.

Table 1 shows that the retrospective February employment rate for the second and third wave of our survey is close to the employment rate in the February CPS. Similarly, the retrospective average of usual hours worked in February in our survey also closely aligns with average usual hours worked in the February CPS.

We also ask employed respondents about their usual earnings in February (see Appendix B for details). Table 2 shows that mean weekly earnings are similar, and that even the distribution of reported earnings match quite closely. While not shown here, we also find that the distribution of the earnings frequency that individuals choose to report is similar in our survey to that of the CPS.

### 3.2 Comparisons to April (Post-Coronavirus)

The most important comparison is how our advance estimates compare to the government reports covering the same week. The April Employment Situation report, referencing the week of April 12-18, offers the first opportunity for such a comparison: our second wave covered the same week, though we published results on April 24, two weeks earlier than the government report.

The employment rate age 18-64 reported in the April CPS is 62.7% compared to an estimate of 54.9% based on the second RPS wave. The April CPS employment rate is 7.8 percentage points higher than our point estimate and 5.9 percentage points higher than the upper bound of our 95% confidence interval (56.8%).

The unemployment rate age 18-64 reported in the April CPS is 14.2% compared to an estimate of 17.6% based on the second RPS wave, and a bit below the lower bound of our 95% confidence interval (15.6%).

The divergence between the April estimates in the CPS and RPS are somewhat surprising given the agreement between the two surveys for February outcomes documented in Section 3.1., However, several data collection issues raised by the BLS provide important context.

The BLS posted FAQs about the impact of the Coronavirus on the employment situation for [March](#) and [April](#). The April FAQ reports that the overall response rate dropped from 83% in April 2019 to 70% in April 2020, and the response rate for new sample entrants was 30 percentage points lower. While the BLS reports that the estimates met their standard for accuracy and reliability, this still raises important questions about unobserved selection into the CPS sample in recent months.

Even more importantly, the April FAQ explicitly discuss the issue of missclassifications. The number of “employed with a job but not at work” nearly tripled from about 4 million in April 2019 to 11.5 million in April 2020.<sup>4</sup> This increase is mostly driven by individuals reporting “other reasons” for why they were absent from work.<sup>5</sup> In April 2020 8.1 million were included in the

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<sup>4</sup>This was already present in the March report but quantitatively much smaller.

<sup>5</sup>In past years “vacation” was the most common reason stated for being absent from work accounting for about

“other reasons” category compared 0.6 million in April 2019. The FAQ states that “BLS analysis of the underlying data suggests that this group included workers affected by the pandemic response who should have been classified as unemployed on temporary layoff. Such a misclassification is an example of nonsampling error and can occur when respondents misunderstand questions or interviewers record answers incorrectly.”

In an attempt to quantify the impact of these misclassifications, we also report adjusted employment and unemployment rates following the suggestion in the April FAQ. Specifically, we subtract 7.5 million (8.1 million less the average of 0.6 million in past years) from the employed and add them to the unemployed.<sup>6</sup> We do not make similar adjustments to the RPS estimates: we argue in Section 4.1.1 that the misclassification issues present in the April CPS are not apparent in the April 12-18 RPS wave. The intuition is that the share of the population employed/absent in the RPS wave did not spike in April 12-18, but rather looked similar to the CPS shares in pre-Coronavirus months.

Finally, in Section 4.1.1 we report an additional statistic, the share employed and at work, which should minimize any classification errors between employed/absent and not-employed. Consistent with the notion that the April 12-18 RPS did not suffer from the same misclassification issues as the April CPS, we find less disagreement between the two surveys for the employet/at-work rate than the employment rate.

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40% of absentees.

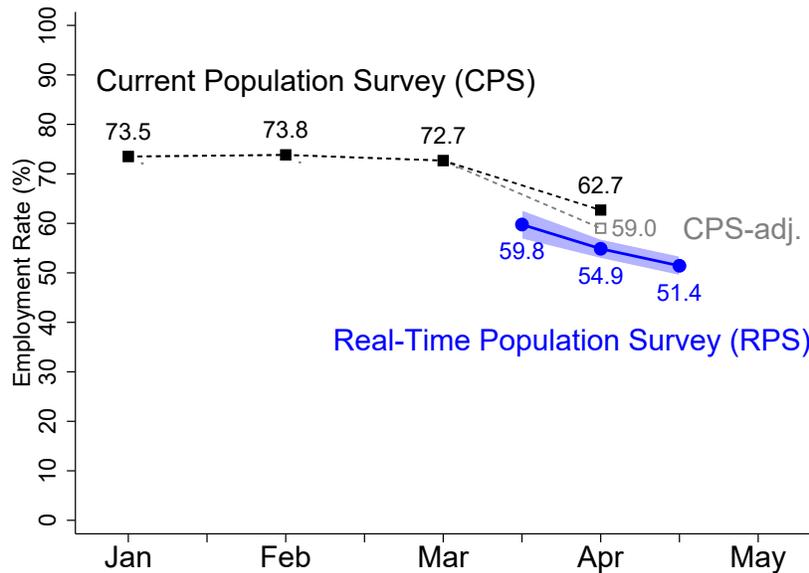
<sup>6</sup>For the figures in the main text, which reflect ages 18-64, we reduce the 7.5 million by 5% to reflect the fact that only 95% of the employed are younger than age 65.

## 4 Aggregate Employment, Unemployment, and Hours Worked

In this section we document our core findings regarding employment, unemployment, labor force participation, and hours worked. See Appendix A for the analogous figures for the full adult population (age 18+) and the “prime age” population (age 25-54).

### 4.1 The Employment Rate

Figure 1: Employment Rate, Age 18-64



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

Figure 1 plots the employment rate since January 2020 for working age adults age 18-64. 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.<sup>7</sup>

As discussed in Section 3.2, we compare our estimates from April 12-18 to two employment rates from the April CPS. The rate of 62.7% (in black) reflects the official estimate; the rate of 59.0% (in gray) reports the adjusted estimate when reallocating 7.1 million individuals from em-

<sup>7</sup>We note that the RPS employment estimates differ slightly from a previous draft. Since that draft we learned that individuals who report being absent from work due to slack business conditions are assigned to unemployed, laid off by the CPS. However, previous drafts classified these individuals as employed in the RPS. The current draft reflects the correct assignment rule.

ployed/absent to unemployment.<sup>8</sup> Our estimate of 54.9% lies below those two CPS estimates; the official CPS estimate reflects an 11.1 percentage point (pp) decline in employment since February, while the adjusted CPS estimate reflects a 14.8 pp decline, and the RPS estimate reflects a 18.9 pp decline. As we discuss in Section 4.1.1, we do not make a similar adjustment to the RPS employment estimate because the share employed and absent in the RPS is similar to the pre-Coronavirus share in the CPS.

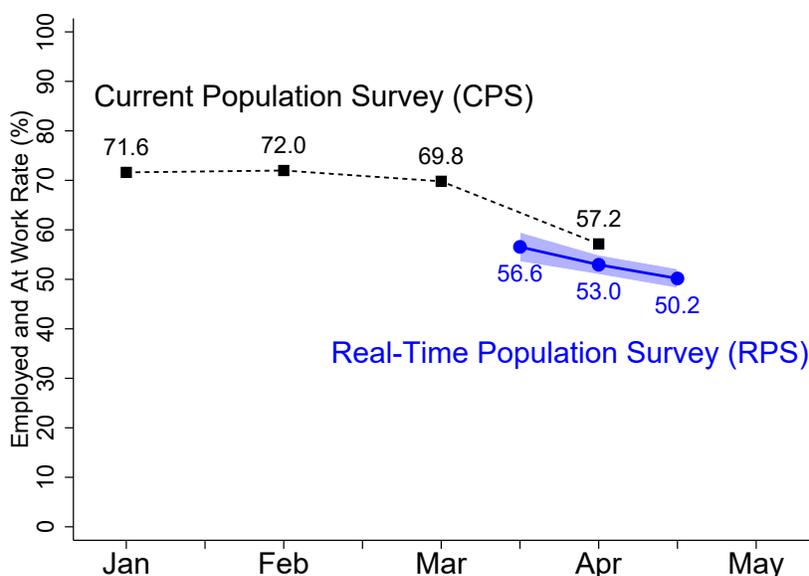
Our most recent employment rate estimate, for the week April 26-May, is 51.4%. While this is lower than our estimate from April 12-18, the decline in employment has slowed noticeably.

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<sup>8</sup>The BLS reports that 7.5 million individuals were misclassified. We reduce this number by 5% to reflect the fact that only 95% of the employed are younger than age 65.

### 4.1.1 The Employed and At Work Rate

Figure 2: Employed and at Work Rate, Age 18-64



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

One exercise that should reduce the impact of the misclassification between employed/absent and not employed (as in Section 3.2) is to look at the share of the population that is employed and at work. The share employed and at work represents the share of all individuals in our sample who were classified as employed and who actually worked for their job last week. This measure excludes workers who were absent due to vacation, childcare emergency, or any other reason.<sup>9</sup>

Figure 2 plots the “employed and at work” rate since January 2020 for working age adults age 18-64. The RPS estimate for April 12-18 is 53.0%, versus 57.2% in the CPS. The RPS estimate represents a 19.0 pp decline since February, compared to a 14.8 pp decline for the CPS estimate.

These results imply that there is less disagreement between the RPS and CPS for the employed/at-work rate than for the employment rate. To understand this, note that the difference between Figure 1 and Figure 2 is the share of the population that is employed/absent. The absent share implied by the official January-April CPS reports is 1.9%, 1.8%, 2.9%, and 5.5%, respectively. Meanwhile, the implied share in the April 12-18 RPS is 1.9%. That is, the April 12-18 RPS estimates a similar employed/absent share to the pre-Coronavirus US economy. This suggests that the misclassification issues present in the April CPS did not affect the April 12-18 RPS to a similar extent.<sup>10</sup>

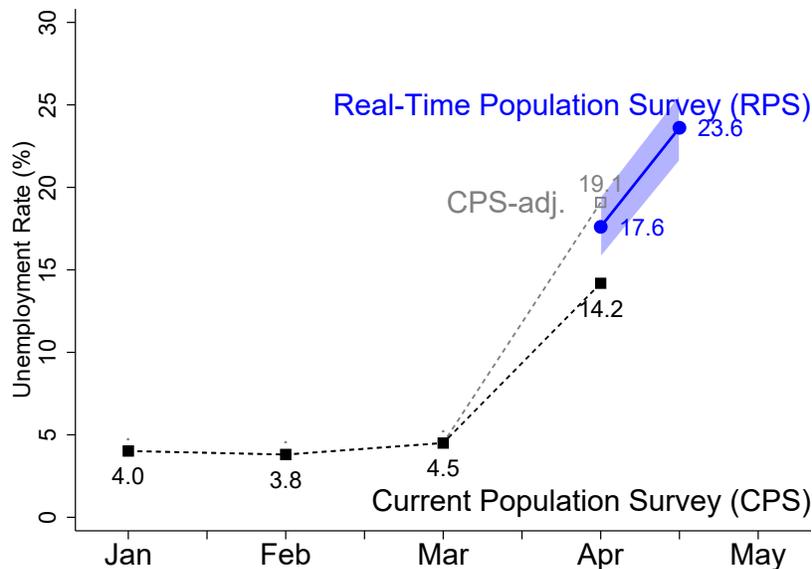
<sup>9</sup>One result from our RPS survey illustrates the challenge of assigning individuals to employed/absent vs. non-employed: among individuals who were absent from work last week, and who reported vacation/sick/personal days as the main reason for their absence, about one third reported that their employer requested they use these days due to slow business conditions.

<sup>10</sup>The share employed/absent was 3.1% and 1.2% in the first and third waves of the RPS, respectively.

From mid April to our most recent estimate, we estimate a further 2.8 percentage point decline in the employed and at work rate. This reflects a decline since mid April, but at a much lower pace than previous weeks, similar to our estimated trend in employment.

## 4.2 The Unemployment Rate

Figure 3: Unemployment Rate, Age 18-64



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

Figure 3 plots the unemployment rate since January 2020 for working age adults age 18-64. The unemployment rate represents the share of the labor force who were classified as unemployed. Individuals who were not working are labeled unemployed if they were actively looking for work over the past four weeks and would be available to work if they would receive a job offer (see Appendix B for details). The unemployed also include workers who were temporarily laid off or furloughed and would have been available to return to their employer if they had been recalled.<sup>11</sup>

As discussed in Section 3.2, we compare our estimates to two unemployment rates from the April CPS. The rate of 14.2% (in black) reflects the official estimate; the rate of 19.1% (in gray) reports the adjusted estimate when reallocating 7.1 million individuals from employed/absent to unemployment. Our estimate of 17.6% lies between those two CPS estimates.

Our most recent unemployment rate estimate, for the week April 26-May, is 23.6%. This is a 19.8 pp increase from February.

We note that we no longer report our unemployment rate estimate from wave 1 because we have made two key changes to our categorization method to more accurately reflect the CPS methodology. First, in wave 1 we did not distinguish between active and passive job search, while now

<sup>11</sup>A worker is classified as temporarily laid off if they have been either given a concrete date when to be recalled by the employer or an indication to be recalled within the next six months. An exception to this is that temporarily laid off workers are labeled as unemployed if they are available for work—they do not need to actively search for work to be classified as unemployed.

we do; this is important because, in the CPS protocol, non-employed individuals must actively search for work to be labeled as unemployed. Second, in wave 1 we labeled all laid-off workers as unemployed; now, following CPS protocol, we distinguish between temporary and permanent layoffs, and to label them as unemployed we require that both types of layoffs must be able to return to work if recalled or offered a job. In an earlier draft, we estimated that these deviations in categorization method relative to the CPS probably led to an upward bias of the order of 2 to 3 percentage points.

## 4.2.1 Unemployment Insurance and Labor Market Status

Table 3: Unemployment Insurance and the Non-Employed

Unemployment Insurance	Share of Non-Employed (%)	
	Wave 2	Wave 3
Not receiving/Won't Apply	64.1	62.9
Receiving/Approved	18.2	21.3
Applied, Awaiting Decision	6.0	6.1
Will Apply	11.7	9.7

An important source of high frequency labor market data are the weekly unemployment insurance (UI) claims reported by state unemployment agencies (see Appendix D). Since the reference week in the March CPS, states have reported 31 million new initial UI claims, and as of the week ending April 25 22 million individuals were claiming UI.<sup>12</sup> A key question facing policy makers concerns how many more claims will be initiated in the near future.

While the answer to this question depends on many unknowns, our survey can shed light on one factor. Specifically, starting in wave 2 of our survey we ask respondents who were not employed last week a series of questions about whether they are currently receiving UI, whether they have applied for UI, and if they have not applied whether they plan to apply in the near future.

Table 3 shows that in April 26-May 2 the share of the non-employed who currently receive UI or have been approved for UI was 21.3%, an increase of 3.1% from mid April. Given a working age population for the US of 202 million, this implies 20.4 million individuals who have been approved for UI, which is close to the 22 million figure reported above. The share of non-employed reporting that they have either already applied for UI and are awaiting a decision, or plan to apply in the near future is substantial (15.8%), though somewhat lower than in mid April (17.7%). To the extent that individuals in this group actually apply and are approved for UI, this suggests that we could continue to see elevated UI claims in the near future, even absent any additional declines in employment. Finally, when comparing the results between the two waves one has to keep in mind that the pool of non-employed has increased by about 3 percentage points.

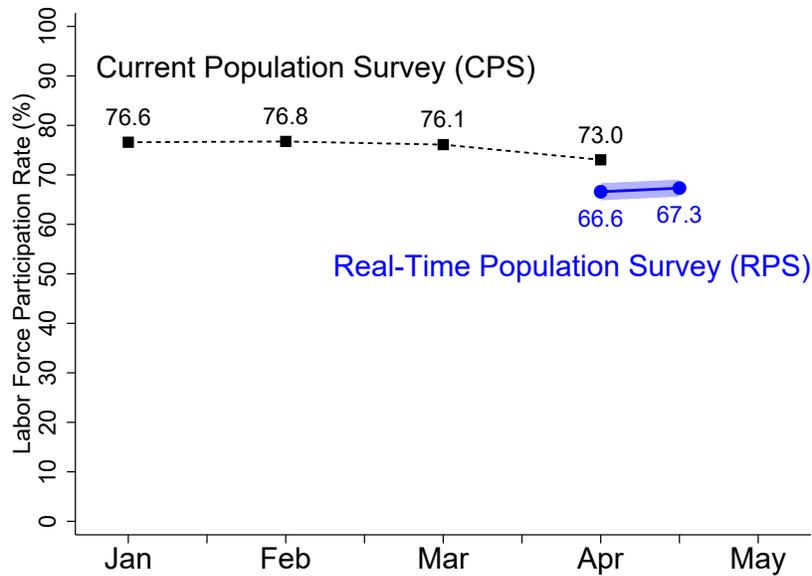
We conclude this section by highlighting the disconnect between being *labeled unemployed* according to the CPS criteria, and the *receipt of UI*. Among the unemployed in our most recent sample, about 1/3 are not receiving UI and report that they do not plan to apply for UI.<sup>13</sup> Alternatively, among those receiving unemployment benefits only 2/3 are classified as unemployed. That is, in our sample many of the unemployed are not receiving UI, and many people receiving UI are not labeled as unemployed.

<sup>12</sup>Source: the non-seasonally-adjusted figures in <https://oui.doleta.gov/unemploy/archive.asp>.

<sup>13</sup>This is a smaller share than in Table 3, which includes both the unemployed and those not in the labor force.

### 4.3 The Labor Force Participation Rate

Figure 4: Labor Force Participation Rate, Age 18-64



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

Figure 4 plots the labor force participation rate since January 2020 for working age adults age 18-64. The labor force participation rate represents the share of the population who is either employed or unemployed. The labor force does not include individuals who were not working and were not looking for work (for example, full time students, homemakers, retirees, or discouraged workers who are either not available for work or who have not been actively searching for work).

The estimated labor force participation rate was 66.6% for the April 12-18 RPS, compared to 73.0% in the April CPS. The RPS estimate reflects a 10.2 pp decline from the February CPS, while the CPS estimate reflects a 3.8 pp decline. One potential source of disagreement between the RPS and CPS estimates relates to the CPS misclassification issue discussed in Section 3.2. Unlike Figures 1 and 3, the participation rate is unaffected by the BLS suggestion to reallocate some individuals from the employed/absent category to unemployment. However, because misclassified individuals are not asked whether they would have been available to return to work (since they were classified as employed), we cannot say how many should have been classified as unemployed vs. out of the labor force. To the extent that some individuals would have reported that they were not available to return to work during the reference week (which was the week that Coronavirus deaths had peaked in the US), this would have lowered the CPS participation rate. In the extreme case, if all the misclassified individuals had reported that they were not available to work, this would have lowered the CPS participation rate from 73% to 69.4%.

In our survey the labor force participation rate was 67.3% in April 26-May 2. This is a 9.5 pp decrease from the February CPS.

## 4.4 A Hypothetical, Best Case Scenario

Table 4: If Conditions Improved Rapidly, Would You Be Able to Return to Your Old Job?

	Shares (%)		
	Yes	Unsure	No
Total	55.0	16.2	28.7
Temporarily Laid Off	64.6	12.0	23.4
Permanently Laid Off	51.0	28.3	20.7
Non-Laid Off	40.1	13.4	46.5

Note: All types of job loss include people who did not actively search and/or were not available for work last week. People who lost their job in March or April constitute 40% of the non-employed.

A pressing question for both policymakers and the broader public is whether workers will be able to return to their old jobs as the economy opens up. To get some sense of workers' expectations about whether their job loss was permanent, we asked everyone who (i) was not currently working, but who (ii) had worked in either March or April, the following hypothetical scenario:

*We want to get an idea of whether your recent job loss was permanent. Imagine that tomorrow a vaccine was discovered for COVID-19/the Coronavirus, and that two weeks from now all work restrictions were lifted and all daycare/school facilities reopened. In this scenario, would your old employer still be in business? (ANSWERS: YES / NO / UNSURE)*

Anyone answering yes or unsure was then asked:

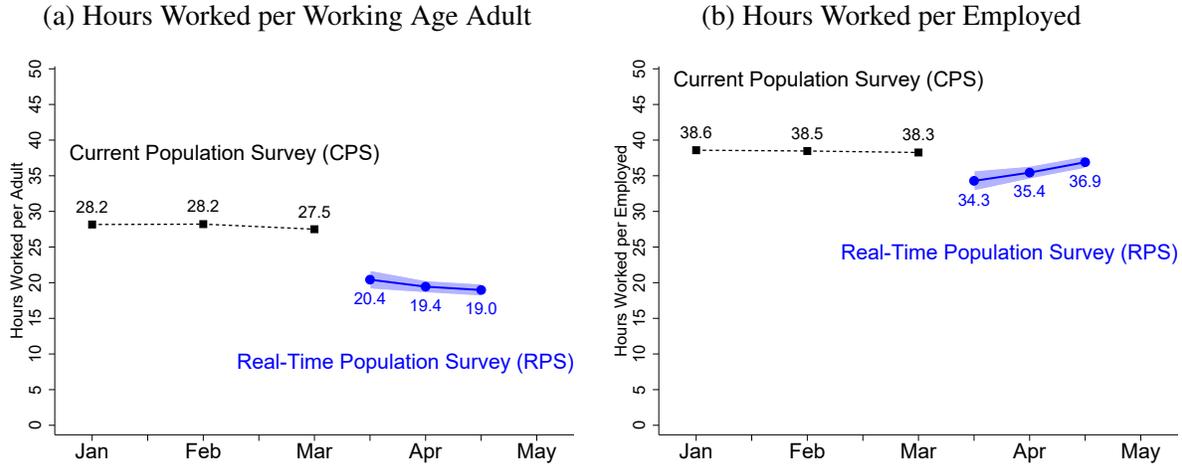
*In this scenario, would you be able to return to this job?(ANSWERS: YES / NO / UNSURE)*

Table 4 summarizes the answers to these questions for everyone who lost a job since March. While we are cautious about how to interpret these results, we emphasize two takeaways. First, a silver lining to the massive decline in employment is that many workers who have recently lost their job currently believe that they could return to their old jobs if economic conditions improved rapidly. The first row (“Total”) shows that more than half of those who had lost a job since March believe that in this hypothetical scenario both their old employer would still be in business and they would be able to return to their job. At the same time, more than a quarter of workers anticipate that they will not be able to return to their job.

Our second takeaway is that workers' expectations about returning to their old jobs are correlated with layoff status, but not perfectly so. We decompose the total numbers into those who were temporarily laid off, the permanently laid off, and those who had “simply” lost their job. Intuitively, temporary layoffs are more optimistic about returning to their old job. Roughly 65% of temporary layoffs believe they could return, while this is the case for only 51% of permanent layoffs and 40% of non-layoffs. However, we also find that nearly a quarter of temporary layoffs are confident that they could *not* return to their old jobs.

## 4.5 Hours Worked per Working Age Adult

Figure 5: Actual Hours Worked Last Week, Age 18-64



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

Figure 5a 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 5b plots hours worked per employed person, which excludes individuals who were unemployed or not in the labor force. We note that we will construct the April hours measure for the CPS once the micro data are publicly available.

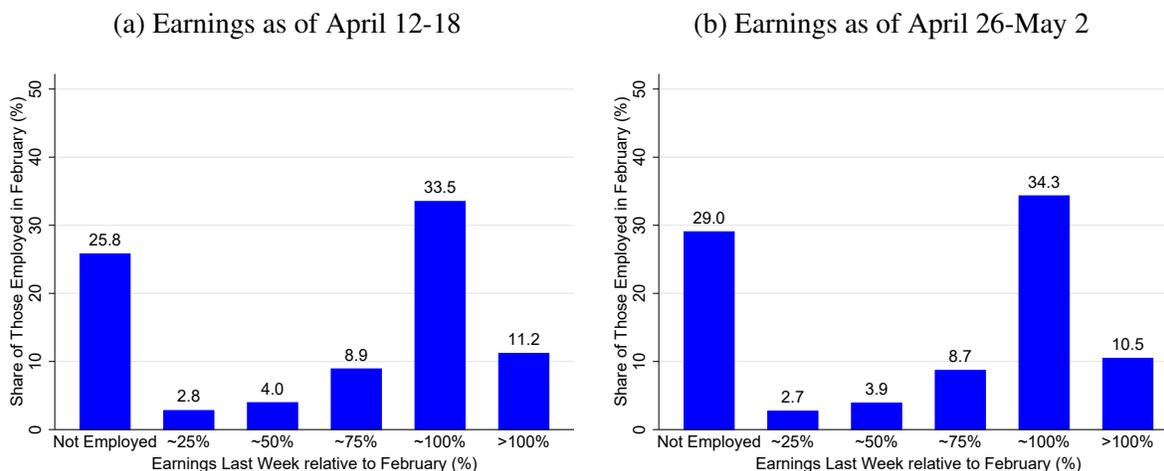
The decline in hours worked per working age adult suggested by our survey is staggering: from March 8-14 to April 26-May 2, hours worked per working age adult last week declined 30.9%, from 27.5 hours to 19.0 hours. For context, this marks the lowest hours worked per person for the age group 18-64 since at least 1962.<sup>14</sup>

In our first wave, the decline in hours worked per working age adult was roughly equally accounted for by (i) lower employment and (ii) fewer hours worked per employed. Since then, employment has continued to decline, while hours per employed have increased somewhat. We suspect that some of this recent increase in hours worked per employed could be the result of a composition effect, in the sense that workers whose hours were cut in late March and early April were more likely to transition to non-employment in our most recent survey.

<sup>14</sup>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.

## 5 Changes in Worker Earnings

Figure 6: Earnings Changes Among Those Working in February, Age 18-64



Notes: Results are derived from responses to the April 12-18 and April 26-May 2 waves of our online RPS survey from workers who report that they were employed in February 2020. Percentages sum to less than 100%: the remaining respondents reported that they were unsure of how their earnings last week compared to their usual weekly earnings prior to March 2020.

Figure 6 plots the distribution of earnings changes among workers who reported being employed 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.<sup>15</sup> Importantly, the April CPS is not able to speak to such short run earnings changes among individuals, since individuals in the ORG are only asked about usual earnings one year apart.

We find that 44.1% of the sample earned less last week than they usually did prior to March 2020, 34.3% earned about the same, 10.5% earned more than usual, and 11.1% were unsure how their earnings last week compared. The share earning less than in February was slightly larger in our third wave (44.1%) than in our second wave (41.5%). Overall, the distribution looks fairly similar to the distribution from our previous survey wave, with the exception that the share not employed has increased noticeably.<sup>16</sup>

<sup>15</sup>For workers who had started a new job since March, we asked them for their usual earnings at their new job, and converted this figure to a weekly rate.

<sup>16</sup>Goldfarb and Kuzan (2020) report a similar fraction of people who have lost half or more of their income due to COVID.

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.<sup>17</sup>

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<sup>17</sup>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.

## 6 For Whom Did Employment and Hours Fall Most?

We will construct the numbers for the April CPS in this section once the micro data become available.

### 6.1 Labor Market Outcomes by Sex

Figure 7: Labor Market Outcomes by Sex, Age 18-64



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue. We will incorporate the results from the April CPS once the micro data are available.

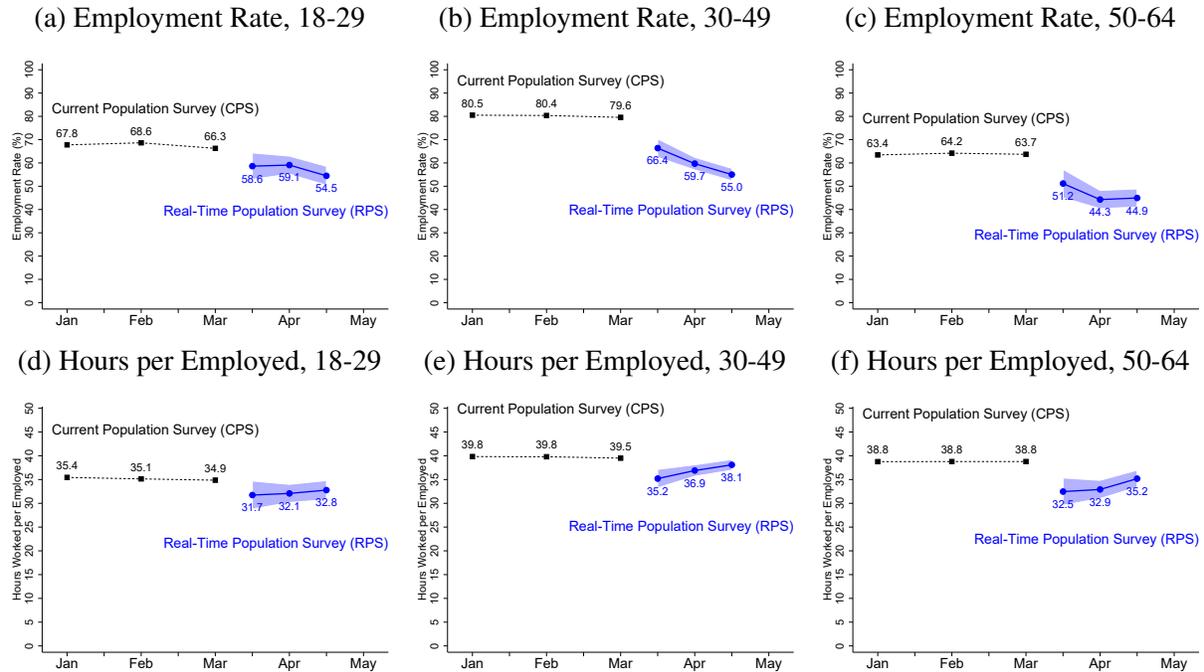
Figure 7 displays the employment rate and hours worked per employed by sex since January 2020. At the start of April, employment declined more severely for females, 21.3% (14.5 percentage points), than for males, 12.2% (9.5 percentage points). Hours worked per employed declined similarly for females (4.3 hours per week) and males (4.9 hours per week). This initial difference in employment outcomes by sex is consistent with the notion that females were disproportionately employed in industries hit hardest by the Coronavirus outbreak (such as services and especially

face to face services).

Since our first wave, declines in employment are more similar among women and men. In our most recent wave, employment relative to March was down 27.9% (18.9 percentage points) among women vs. 27.3% (21.2 percentage points) among men. This could be one indication that the economic downturn is spreading beyond the face to face service sector which saw the largest declines initially.

## 6.2 Labor Market Outcomes by Age

Figure 8: Labor Market Outcomes by Age



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue. We will incorporate the results from the April CPS once the micro data are available.

Figure 8 displays the employment rate and hours worked per employed by broad age groups since January 2020. Perhaps surprisingly, as of our most recent wave, employment has declined less for young workers under 30 (17.8%) than for middle aged workers (30.9%) and older workers (29.5%). Hours worked per employed declined slightly less for young workers under 30, though the differences in hours changes among the employed were smaller than the differences in employment changes.

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.

### 6.3 Labor Market Outcomes by Education

Figure 9: Labor Market Outcomes by Education, Age 18-64



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue. No college degree includes individuals with some college but no college degree. College degree includes individuals with associates degrees and higher. We will incorporate the results from the April CPS once the micro data are available.

Figure 9 displays the employment rate and hours worked per employed by broad education groups from January-April, 2020. As of April 12-18, employment has declined more severely for individuals with no college degree (31.4%) than for individuals with a college degree (25.0%). In our first wave, hours worked per employed also declined more for non-college workers than for workers with a college degree, though this gap has now essentially vanished. 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.

## **7 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 May 18-20, with a reference week of May 10-16. We plan to release results on Friday, May 22.

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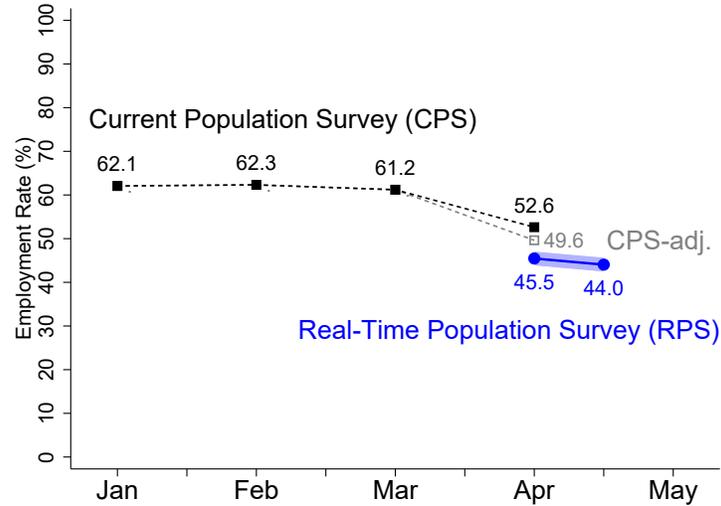
# Appendices

## **A Results for All Adults Age 18+ and Prime Age 25–54**

In this section we document our core findings regarding the employment rate, the unemployment rate, and hours worked during the survey reference week.

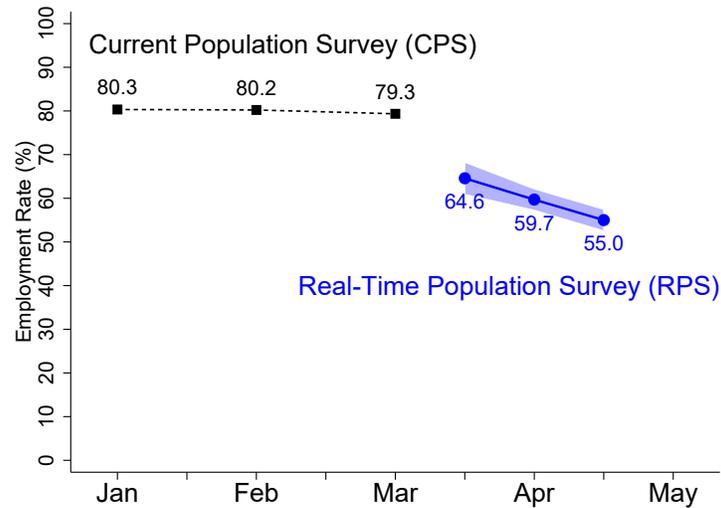
## A.1 The Employment Rate

Figure A1: Employment Rate, Age 18+



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

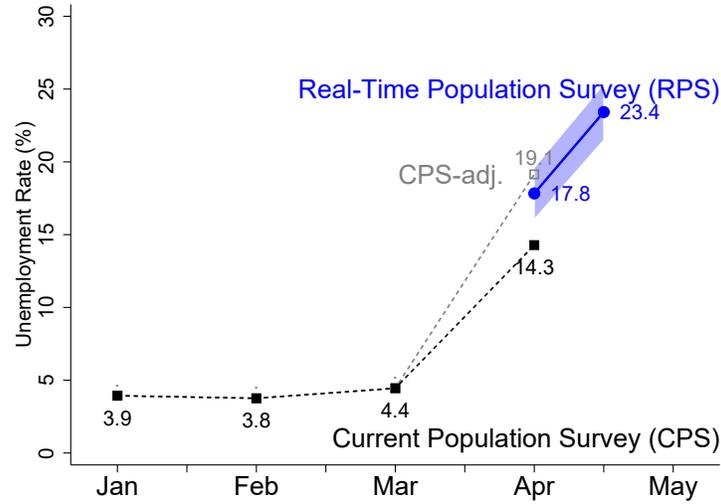
Figure A2: Employment Rate, Age 25-54



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

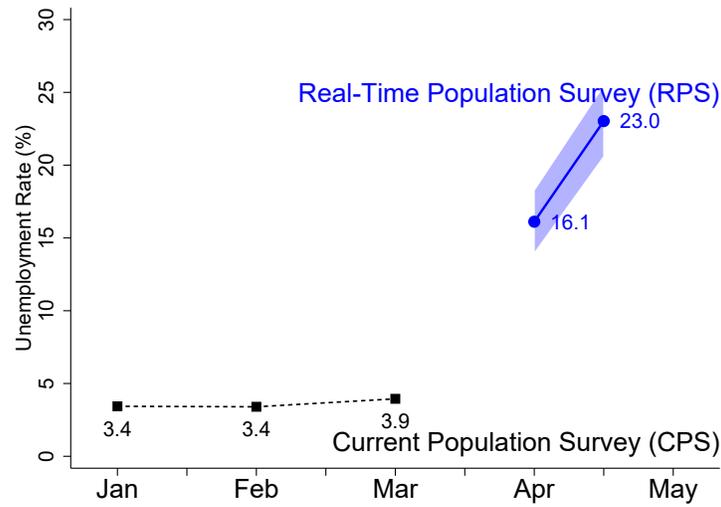
## A.2 The Unemployment Rate

Figure A3: Unemployment Rate, Age 18+



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

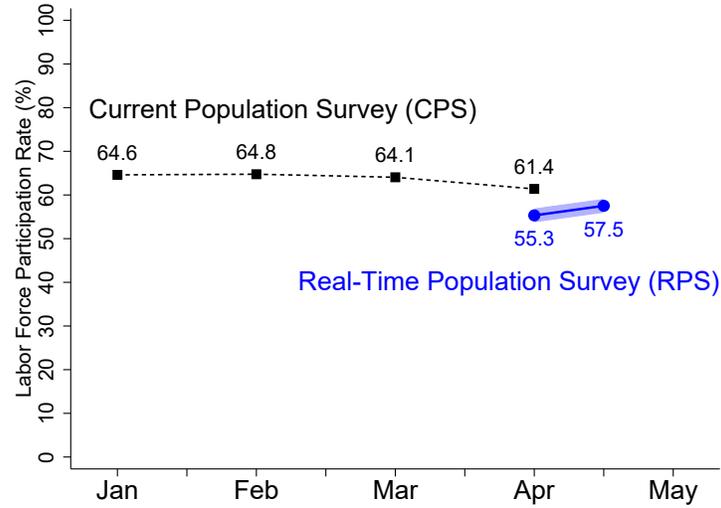
Figure A4: Unemployment Rate, Age 25-54



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

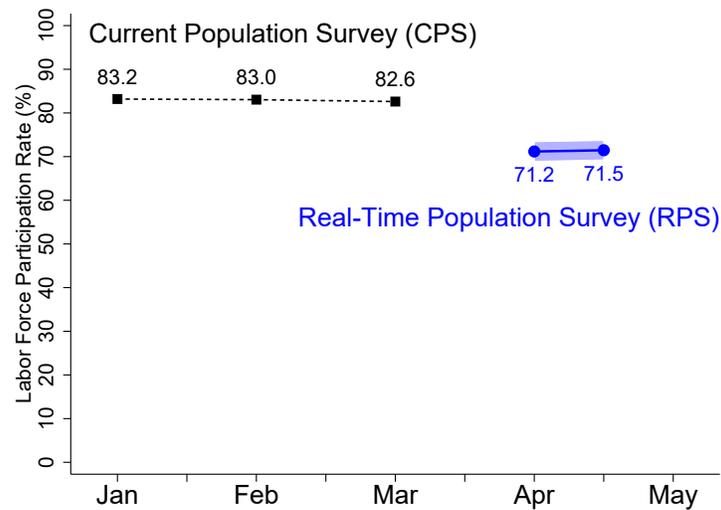
### A.3 The Labor Force Participation Rate

Figure A5: Labor Force Participation Rate, Age 18+



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

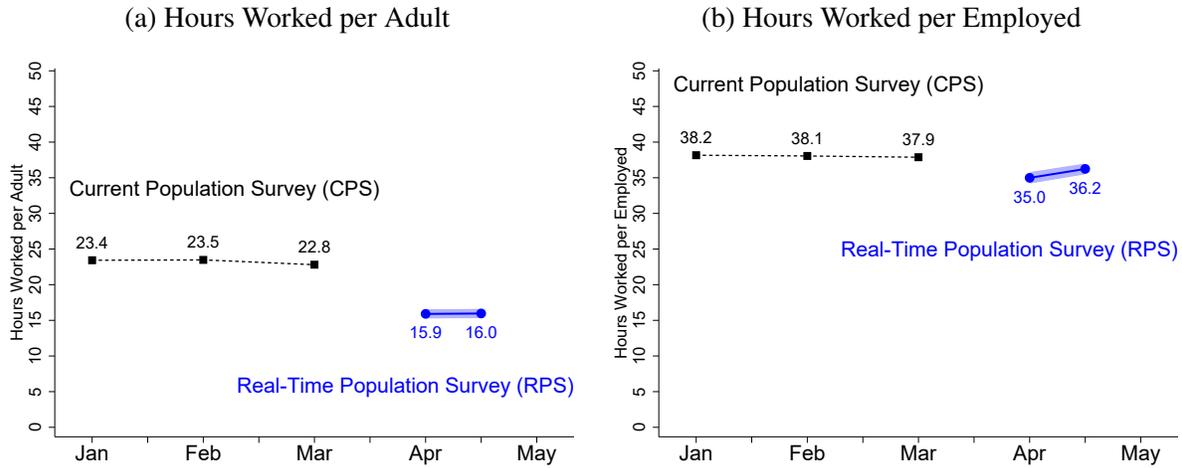
Figure A6: Labor Force Participation Rate, Age 25-54



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue.

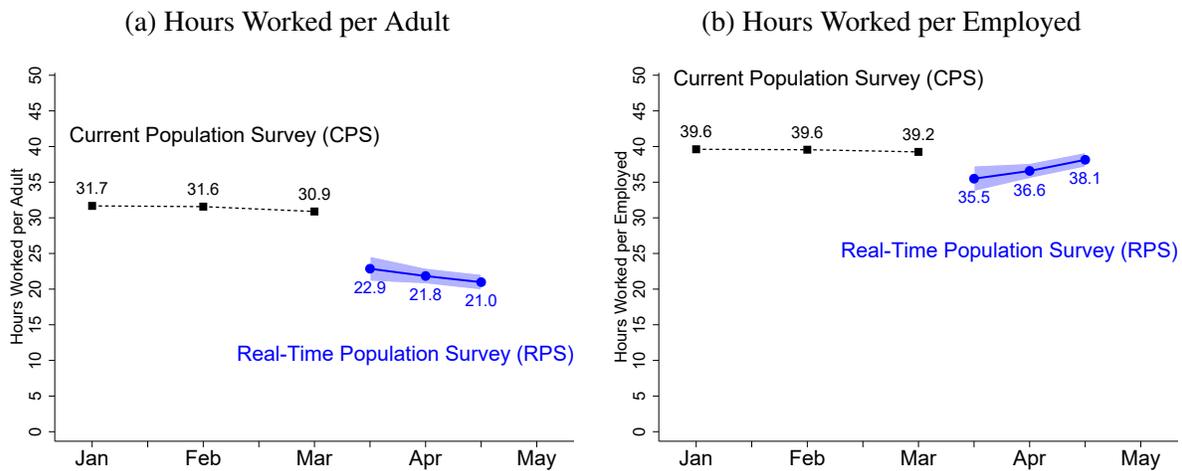
## A.4 Hours Worked

Figure A7: Actual Hours Worked Last Week, Age 18+



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue. The micro data needed to construct the April hours measure from the CPS has not yet been released; we will incorporate it once it is available.

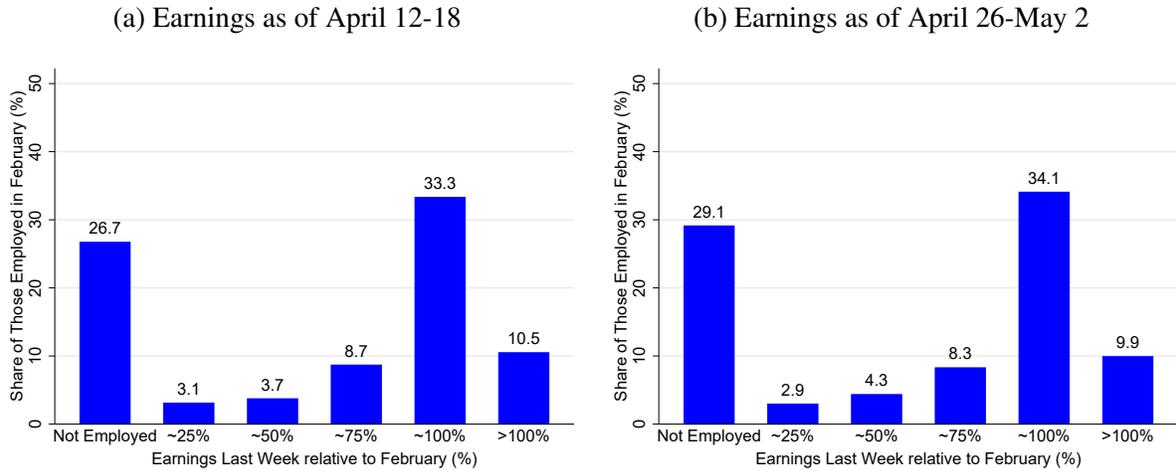
Figure A8: Actual Hours Worked Last Week, Age 25-54



Notes: Black/square data is from CPS surveys. Blue/circle data is from our online RPS survey. The 95% confidence interval for estimates from our RPS survey are shaded in blue. The micro data needed to construct the April hours measure from the CPS has not yet been released; we will incorporate it once it is available.

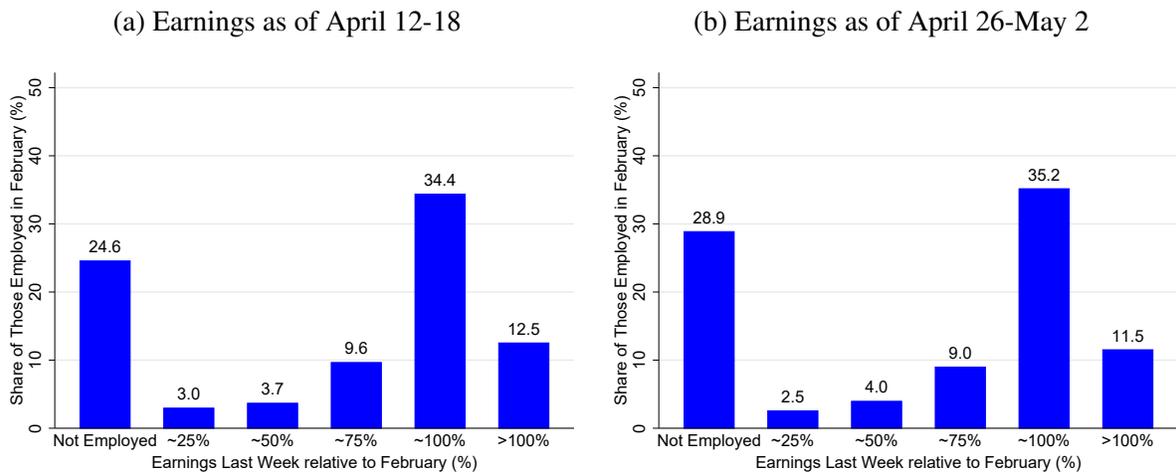
## A.5 Changes in Worker Earnings

Figure A9: Earnings Changes Among Those Working in February, Age 18+



Notes: Results are derived from responses to the April 12-18 and April 26-May 2 waves of our online RPS survey from workers who report that they were employed in February 2020. Percentages sum to less than 100%: the remaining respondents reported that they were unsure of how their earnings last week compared to their usual weekly earnings prior to March 2020.

Figure A10: Earnings Changes Among Those Working in February, Age 25-54



Notes: Results are derived from responses to the April 12-18 and April 26-May 2 waves of our online RPS survey from workers who report that they were employed in February 2020. Percentages sum to less than 100%: the remaining respondents reported that they were unsure of how their earnings last week compared to their usual weekly earnings prior to March 2020.

## **B Details on Data Collection and Variable Construction**

All data labeled “RPS” in this paper were collected by an online survey designed by the authors, which we refer to as the Real Time Population Survey (RPS). The survey was constructed using Qualtrics software and administered by Qualtrics. We collected the first wave of responses on April 8-9, 2020, the second wave on April 22-23, and the third wave on May 4-5. The average time to complete the survey was between 6-8 minutes, depending on the wave. Survey respondents received modest compensation from Qualtrics.

### **B.1 Sample Selection**

To be eligible to participate in the study, participants had to reside in the US, be age 18 or older (in wave 1, 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. Appendix C discusses summary statistics for our sample.

### **B.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.

### B.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 - at work:

- Respondents who reported that last week they (i) had a job (excluding unpaid work), and (ii) worked positive hours for pay at that job.
- Respondents who worked at a household business and reported that last week they either (i) worked positive hours for pay, or (ii) worked at least 15 unpaid hours.

2. Employed - absent:

- Respondents who 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 - on layoff:

- Respondents who reported that last week they (i) had a job (excluding unpaid work), (ii) did not work positive hours for pay at that job, and (iii) were on temporary layoff, furlough, or unpaid leave from a job and could have returned to work last week if they had been recalled. Individuals satisfying these criteria do not have to look actively for work in the last four weeks.
- Respondents who reported that last week they (i) did not have a job, and (iii) were on temporary layoff, furlough, or unpaid leave from a job and could have returned to work last week if they had been recalled. Individuals satisfying these criteria do not have to look actively for work in the last four weeks.

4. Unemployed - looking:

- Respondents reported that last week they (i) did not have a job, or were on temporary leave but could have not returned to work to this job last week if they had been recalled, or were on indefinite leave, and (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.

5. Not in the labor force

- Respondents who reported that last week they (i) did not have a job, and (ii) were either that not actively looking 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.

- Respondents who worked at a household business and reported that last week they (i) did not work positive hours for pay, and (ii) worked less than 15 unpaid hours.

**Layoff Status.** We describe the definition of “on layoff” in point (3) above. Among those on layoff, we distinguish between temporary layoffs (who either have a date to return to work, or who have been given an indication they will be recalled within the next six months) and permanent layoffs (who have not been given an indication they will be recalled within the next six months).

**Actively Looking for Work.** The CPS asks individuals to report all of their job search activities, and then categorizes them. These categories can be summarized as follows: (1) contacted employer(s), employment center(s), or friends/relatives about a job; (2) sent out resumes/filled out applications; (3) checked union/professional recommendations; (4) placed or answered ads; (5) looked at ads; (6) attended job training program/courses; (7) nothing. In our survey, we asked respondents to select all activities that apply to them from this list. Anyone who selected at least one of the options (1) through (5) is then classified as *actively* looking for work.

**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 individuals 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.

For individuals who had changed jobs since February, we ask about their usual earnings both in February (if working in February) and at their current job (if they were working last week).

## **B.4 Modifications Across Survey Waves**

In contrast to the steady declines in employment observed in Section A.1, our estimates of unemployment have fluctuated somewhat. One reason for this is that across waves we have modified our survey in an attempt to get as close as possible to the sequence of questions asked in the CPS. An important change between our first and second survey was that we changed our question about job search to distinguish between active and passive job search. In addition, we categorized all laid off workers, independent of whether they were temporary or permanently laid off, and independent of whether they could have returned to their job, as unemployed. Both approaches increased the number of unemployed. In our April 24 draft we discuss a simple exercise to quantify the effect of this change in our second wave. Specifically, we implemented the categorization procedure from our first wave using the data from our second wave. The alternative first-wave-procedure generates an unemployment rate of 18.6%, compared with our actual unemployment rate estimate of 16.2%. This suggests that our first wave's estimate of the unemployment rate of 20.2% may have been overstated by 2-3 percentage points. An important change between our second and third survey was that we asked workers whether they were temporarily laid off in two separate places throughout the survey, rather than just once. This resulted in a larger share of people reporting being temporarily laidoff. These are more likely to be classified as unemployed, rather than not in the labor force, because temporary layoffs are not required to search for a job to be labeled unemployed. It is sufficient that they could have returned to their job last week if being recalled. This in turn might lead to a higher unemployment rate in wave 2 compared to wave 1. In contrast to the Wave 1-2 comparison, the survey structure does not allow us to quantify the effect of this change.

## C 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. For the first wave, the targets were provided directly by Qualtrics and based on the US Census. From the second wave onwards, we provided the targets ourselves based on the January-March CPS

Table C1 compares the sample composition in the Basic CPS from January through March 2020 with our second and third wave and shows that our survey tracks the CPS closely. Note that this is the age group 18+ and only based on the respondent's characteristic. Since our main analysis focuses on the age group 18-64, and our sample starting with wave 2 also includes the respondents, Table C2 reports these corresponding summary statistics for finer age, education, relationship status and income groups.

Table C1: Sample Composition by Targeted Characteristics

	CPS	RPS W3
<i>Gender</i>		
Men	48.3	48.3
Women	51.7	51.4
<i>Age</i>		
18-24	11.5	11.6
25-34	17.9	16.8
35-54	30.7	30.6
55-64	18.5	19.6
64+	21.5	21.5
<i>Race/Ethnicity</i>		
Non-hispanic White	62.8	62.9
Non-hispanic Black	12.0	12.1
Hispanic	16.7	16.8
Other	8.6	8.2
<i>Education</i>		
Highschool or less	37.9	37.4
Some college/Associate's degree	27.7	27.9
Bachelor's or Graduate degree	34.3	34.7
<i>Marital Status</i>		
Married	52.8	52.9
Non-Married	47.2	47.1
<i>Number of children</i>		
0	74.8	72.9
1	10.6	11.3
2	9.5	10.5
3+	5.1	5.3
<i>Household Income Last Year*</i>		
\$0-\$50,000	37.9	39.2
\$50,000-\$100,000	29.4	32.4
\$100,000+	32.8	28.4
<i>Region</i>		
Midwest	21.0	20.5
Northeast	18.0	20.3
South	36.8	37.6
West	24.2	21.6

Note: The statistics from the CPS are for the Basic Interviews from January through March 2020.

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

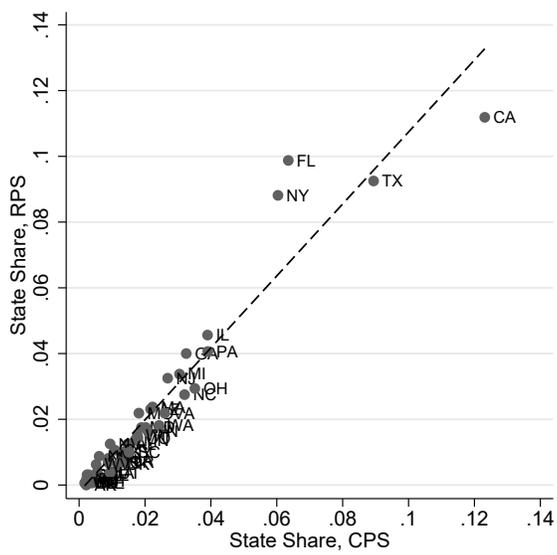
Table C2: Sample Composition Age 18-64

	CPS	RPS		
		Wave 1	Wave 2	Wave 3
<i>Gender</i>				
Men	49.3	49.0	47.5	47.9
Women	50.7	50.4	52.0	51.8
<i>Age</i>				
18-24	14.9	16.3	15.4	14.9
25-34	23.2	22.7	23.4	22.0
35-44	21.3	21.6	22.1	22.3
45-54	20.7	15.2	17.0	19.1
55-64	19.9	23.3	22.1	21.7
<i>Race/Ethnicity</i>				
Non-hispanic White	59.0	67.2	57.6	57.6
Non-hispanic Black	12.7	11.1	14.0	13.3
Hispanic	19.0	11.9	19.0	20.3
Other	9.3	9.8	9.4	8.7
<i>Education</i>				
No highschool degree	9.4	4.0	4.4	4.7
Highschool graduate or the equivalent	27.3	22.4	31.9	30.9
Some college but no degree	18.1	21.9	16.6	17.5
Associate's degree in college	10.3	11.2	11.4	12.0
Bachelor's degree	22.9	23.6	21.4	22.5
Graduate degree	12.0	16.9	14.2	12.5
<i>Marital Status</i>				
Married, spouse present	49.5	51.9	48.6	47.5
Married, spouse absent	1.5	1.4	1.7	2.2
Separated	1.9	1.8	2.4	2.3
Divorced	9.3	7.6	8.4	6.9
Widowed	1.6	2.3	1.4	2.3
Never Married	36.1	35.0	37.5	38.7
<i>Relationship Status</i>				
Spouse/Partner living in same household	58.4	70.3	64.2	60.0
No Spouse/Partner living in same household	41.6	29.7	35.8	40.0
<i>Number of children</i>				
0	67.7	60.4	66.0	65.8
1	13.6	17.0	14.1	14.1
2	12.2	15.7	13.3	13.4
3+	6.5	6.9	6.6	6.7
<i>Household Income Last Year*</i>				
\$0-\$25,000	16.3	15.4	16.6	15.6
\$25,000-\$50,000	18.8	20.4	19.9	21.9
\$50,000-\$75,000	16.0	17.4	18.7	18.5
\$75,000-\$100,000	13.1	13.5	10.5	14.1
\$100,000-\$125,000	9.9	8.9	12.6	11.0
\$125,000-\$150,000	6.9	7.6	8.7	6.5
\$150,000+	19.0	13.1	11.2	9.5
<i>Region</i>				
Midwest	20.9	19.4	19.0	19.6
Northeast	17.7	23.0	19.2	20.9
South	36.9	36.6	37.1	38.2
West	24.5	21.0	24.8	21.4

Note: The statistics from the CPS are for the Basic Interviews from January through March 2020.

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

Figure C1: Population Share by State



## **D Background: Our Labor Market Survey vs. Other Surveys**

### **D.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 interviewed 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.

### **D.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.

### **D.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.

#### **D.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.

#### **D.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 4.5, 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.

## **D.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.