

DISCUSSION PAPER SERIES

IZA DP No. 14927

**Did Pandemic Unemployment Benefits
Reduce Employment? Evidence from
Early State-Level Expirations in June 2021**

Harry J. Holzer
Glenn Hubbard
Michael R. Strain

DECEMBER 2021

DISCUSSION PAPER SERIES

IZA DP No. 14927

Did Pandemic Unemployment Benefits Reduce Employment? Evidence from Early State-Level Expirations in June 2021

Harry J. Holzer

Georgetown University and IZA

Glenn Hubbard

Columbia University and NBER

Michael R. Strain

American Enterprise Institute and IZA

DECEMBER 2021

Any opinions expressed in this paper are those of the author(s) and not those of IZA. Research published in this series may include views on policy, but IZA takes no institutional policy positions. The IZA research network is committed to the IZA Guiding Principles of Research Integrity.

The IZA Institute of Labor Economics is an independent economic research institute that conducts research in labor economics and offers evidence-based policy advice on labor market issues. Supported by the Deutsche Post Foundation, IZA runs the world's largest network of economists, whose research aims to provide answers to the global labor market challenges of our time. Our key objective is to build bridges between academic research, policymakers and society.

IZA Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Did Pandemic Unemployment Benefits Reduce Employment? Evidence from Early State-Level Expirations in June 2021*

The generosity of Unemployment Insurance (UI) benefits was expanded during the pandemic (FPUC), along with the groups of workers eligible for benefits (PUA). These two programs were set to expire in September 2021, but 18 states opted out of both in June 2021. Using Current Population Survey data, we present difference-in-difference and event study estimates that the flow of unemployed workers into employment increased by around two-thirds following early termination. We construct a counterfactual scenario that implies the national unemployment rate in each of July and August would have been around 0.3 percentage point lower than they were, and the employment-population ratio would have been around 0.1-0.2 percentage point higher than it was, had all states ended FPUC and PUA in June. Expanded eligibility and generosity of UI may have both slowed transitions from unemployment to employment. We also present some suggestive evidence that households with relatively high confidence in their ability to meet expenses may have been less sensitive to the termination of expanded benefits. Finally, we present evidence that early termination reduced the share of households that had no difficulty meeting expenses by five percent. The welfare implications of the early termination of FPUC and PUA are therefore ambiguous.

JEL Classification: J08, J65

Keywords: unemployment insurance, FPUC, PUA, unemployment rate

Corresponding author:

Michael R. Strain
American Enterprise Institute
1789 Massachusetts Avenue, NW
Washington, DC 20036
USA

E-mail: michael.strain@aei.org

* We thank Duncan Hobbs for outstanding research assistance and Diane Schanzenbach for helpful comments.

1. Introduction

This paper studies whether special pandemic-era unemployment benefits reduced employment. The American Rescue Plan, enacted in March 2021, extended previous pandemic-era measures that expanded eligibility for Unemployment Insurance (UI) benefits to workers who are typically ineligible for state UI programs (Pandemic Unemployment Assistance; PUA) and that expanded the generosity of standard benefits. The latter program, Federal Pandemic Unemployment Compensation (FPUC), added a \$300 weekly supplement to standard state UI benefits from the law’s passage in March 2021 until September 6, 2021.

Concerns about the labor-market effects of PUA and FPUC led 26 states to opt out of at least one of these programs before it was set to expire in September 2021. Of those 26 states, 18 stopped participating in both programs in June 2021.¹ These 18 states constitute the main focus of our analysis. Twenty-four states and the District of Columbia continued participating until the federal programs expired.

Using difference-and-difference and event-study estimators on Current Population Survey data, we estimate the effect of early termination of pandemic-era UI benefits on flows from unemployment to employment. Among unemployed workers ages 25 to 54, we find that early termination is associated with a 14 percentage point increase in the unemployment-to-employment flow. This effect is over two-thirds the size of the unemployed-to-employed (U-to-E) flow among control states during the February-June 2021 “pre period” (21 percent).

¹ Tennessee and Louisiana opted out of both FPUC and PUA in July 2021. Alaska, Arizona, Florida, and Ohio stopped participating in FPUC prior to September 2021, but continued participating in PUA. Maryland and Indiana opted out, but were ordered by a court to resume participating. We drop all these states from our main analysis. See Table 1 for details. AZ opted out of FPUC in July. We use the experience of AK, FL, and OH to study whether ending expanded benefit generosity affected transitions from unemployment to employment in states that continued expanded eligibility. See Table A5 for our estimates.

The magnitude of the effect is slightly smaller when we estimate our models on samples of unemployed workers ages 25-54 with less than a college degree (12 percentage points) and of workers ages 16-64 (13 percentage points). Among these samples, the coefficient of interest is statistically significant. Among workers ages 25-54 who last worked in the leisure and hospitality and retail industries, the coefficient magnitude is also smaller (11 percentage points) and the coefficient is statistically insignificant.

The possibility that unemployment-to-employment flows were on separate trajectories among states that did and did not withdraw early from pandemic-era UI benefit programs is a potential threat to the validity of our estimates. To explore this possibility, in Figure 1 we present event study evidence for each of these four sample groups. For each, the monthly coefficients from February through May are centered around or close to zero, and are imprecisely estimated. This pattern mitigates concerns about divergent “pre-period” trends and supports a causal interpretation of our estimates. It is also reassuring that the magnitude of the September coefficient falls closer to zero and that the coefficient is statistically insignificant. Since both the “treatment” and “control” states had ended pandemic-era UI programs in September, this finding strengthens confidence in our results for July and August.

For July and August, the estimated coefficients are positive and for our main sample — workers ages 25 to 54 — and are precisely estimated. The magnitude is slightly larger in July than in August (14 and 13 percentage points, respectively). Among prime-wage workers without a college degree, the coefficient is statistically significant in July (12 percentage points) but not in August. Among prime-age leisure and hospitality and retail workers, the coefficient is statistically insignificant for both months. Among workers ages 16 to 64, both coefficients are

precisely estimated, with magnitudes in July and August of 14 and 15 percentage points, respectively.

We use these estimates in a simple counterfactual exercise to examine what the unemployment rate and employment-population ratio might have been if the 24 states and the District of Columbia that participated in FPUC and PUA through September had instead opted out in June. In those states, workers ages 25-54 would have had an unemployment rate 0.8 percentage point lower in July and 0.7 percentage point lower in August. Employment rates would have been 0.7 percentage point and 0.6 percentage point higher in July and August, respectively. The differences between the actual and the counterfactual unemployment rates are larger for workers ages 16-64, while counterfactual employment rates are roughly the same.

We extend this exercise to determine what the national unemployment rate and employment-population ratios would have been if all states opted out of pandemic-era UI programs in June. We estimate that the national unemployment rate in July would have been around 0.3 percentage point lower and the aggregate employment rate in July would have been 0.2 percentage point higher. In August, the unemployment rate would have been around 0.3 percentage point lower and the employment rate about 0.1 percentage point higher. The differences between the actual and counterfactual unemployment and employment rates using estimates from workers ages 16-64 are larger.

Characterizing the magnitude of these effects is challenging because of the unusual circumstances of the pandemic and various policy responses to support household, businesses, and the economy in the face of it, and because of the unusually heated debate over these programs.

Our counterfactual estimates that FPUC and PUA added 0.3 percentage point to the national unemployment rate in each of July and August are quite modest when compared to the likely effect of Covid-19 itself. Data from the September 15-27 Household Pulse Survey (HPS), administered by the U.S. Census Bureau, report that 4 million people were home sick with Covid symptoms or caring for someone in the same situation and 3 million weren't working because they were worried about Covid. Our estimates may also be modest when compared with the labor market effect of unstable school and day cares. The HPS reported 5 million people were at home looking after kids not in school or day care.

But our estimates also suggest a role for FPUC and PUA in increasing unemployment and reducing employment. This role runs counter to the conventional wisdom that these programs had a very small or even negligible effect on unemployment and employment (*e.g.*, *New York Times*, Oct. 2021 and *Wall Street Journal*, Sept. 2021). Consider that it took five months for the unemployment rate to increase 0.4 percentage point after the Great Recession began in 2007 following the onset of the global financial crisis. While the economy was in recession in 2001, the unemployment rate increased by 1.2 percentage points in total.

The labor market effects of UI have been extensively studied. Research documents that the duration of unemployment increases with the generosity of unemployment benefits, even during periods of (historically familiar) labor market weakness.² Findings from studies of the pandemic-era effects of UI diverged from this consensus in the early stages of the pandemic and associated social distancing policies, through the fall and winter of 2020 (*e.g.*, Ganong *et al.*, 2021a, and Dube, 2021) and the spring of 2021 (Ganong *et al.*, 2021b).³

² Krueger and Meyer (2002) and Schmieder and von Wachter (2016) provide reviews of this research.

³ To the best of our knowledge, Coombs *et al.* (2021) is the only other paper to study the effect of early withdrawal of FPUC and PUA. Using anonymous bank transaction data from the financial services company Earnin, they find that employment increased through August 6 by 4.4 percentage points among unemployed workers who were

While there are many potential explanations for this divergence, the unusual circumstances of the pandemic likely play a role. For example, individuals' labor market behavior may be less sensitive to the generosity of UI benefits when they are concerned about contracting a novel and serious illness. Particularly during the early months of the pandemic, labor demand had collapsed, which also likely attenuated the relationship between UI benefit generosity and unemployment duration.

In addition, direct cash payments from various government programs, along with less opportunity to spend money due to social distancing measures, lead to substantially increased household savings. Savings balances may affect the elasticity of unemployment duration with respect to UI benefit generosity. We present some weakly suggestive evidence that states with a relatively high share of households that are confident they can pay their mortgage or rent in the following month may have been less responsive to the early termination of pandemic-era UI benefits.

Our analysis suggests that the summer of 2021 could be interpreted as a period of healing and of returning normalcy for the labor market. As mentioned earlier, the pandemic still had substantial effects of labor supply. But the familiar relationship between unemployment duration and UI benefit generosity may have been reasserting itself relative to its apparent relationship in 2020.

receiving benefits at the end of April 2021. They also found that income and spending fell. Our paper makes several advances. We use CPS data that captures the labor market through August in our difference-and-difference models and through September in our event studies. Earinin is an app used predominantly by low-income workers with low access to credit, and Earinin data for California, Maryland, Nevada, Arizona, Oklahoma, and Mississippi have less coverage of UI receipt because those states' UI programs do not use direct deposit. The CPS data we use are nationally representative. In a supplemental blog post, Arindrajit Dube, a coauthor of Coombs *et al.*, uses regression adjusted CPS data on the same set of states as Coombs *et al.* Through July, he finds job finding increased by roughly 25 percent.

Finally, we note that the welfare implications of the early termination of FPUC and PUA are ambiguous. Decreases in unemployment and increases in employment may be welfare enhancing in many cases. But we also present evidence that early termination increased financial stress. Using HPS data, we find that the share of respondents who report that they had no difficulty meeting expenses in the past seven days dropped by slightly more than two percentage points, or about five percent of the average share from February-June 2021.

2. Background on FPUC and PUA

The Coronavirus Aid, Relief, and Economic Security (CARES) Act of March 2020 substantially increased the generosity and expanded the eligibility of UI benefits.⁴ It created two new federally-funded benefit programs for unemployed workers. Pandemic Unemployment Assistance (PUA) extended eligibility for unemployment benefits to workers who are typically ineligible for standard, state benefits, such as self-employed workers, “gig economy” workers, workers whose work history was insufficiently lengthy, and workers seeing part-time work, among others.

In addition, the Federal Pandemic Unemployment Compensation (FPUC) program added a \$600 weekly, federally funded supplement on top of existing, standard UI benefits. In addition to regular UI recipients, participants in PUA were also eligible.⁵ Between April and July 2020, 76 percent of eligible workers were eligible for benefits that exceeded their lost wages, with a median statutory replacement rate of 145 percent (Ganong, Noel, and Vavra, 2020).

⁴ Other provisions included providing full federal funding to the permanent Extended Benefits (EB) and providing extra weeks of emergency federal benefits through the Pandemic Emergency Unemployment Compensation (PEUC) program.

⁵ PEUC and EB participants were eligible for FPUC, as well.

FPUC originally lasted through July 31, 2020. The supplement then expired for one week. On August 8, the Trump administration created the Lost Wages Assistance program through an executive order that provided a federally funded \$300 weekly UI benefit supplement. The program was administered haphazardly by the states and lasted for several weeks. In December 2020, President Trump signed the Consolidated Appropriations Act of 2021 that revived FPUC and PUA through March 2021, with FPUC supplements of \$300.

In March 2021, President Biden signed the American Rescue Plan, which further extended FPUC (at \$300 per week) and PUA through September 6, 2021. Strengthening labor markets and concern by business about “worker shortages” led 18 states to opt out of both PUA and FPUC in June. Two states opted out of both programs in July. Four states opted out of FPUC in June but continued participating in PUA. Indiana and Maryland filed to terminate FPUC and PUA early, but were required by court order to continue paying benefits for both programs. Twenty four states and the District of Columbia participated in both programs until September (Congressional Research Service 2021).

3. Data Sources

In this section, we briefly describe our data on state policies pertaining to FPUC and PUA, our data on labor market flows, data from the Household Pulse Survey, and our pandemic-related control variables.

FPUC and PUA

Data on state policies pertaining to FPUC and PUA come from state government websites and the Congressional Research Service (2021). We include only states ending both PUA and FPUC in June or states ending neither PUA nor FPUC before September in our main

analysis. We do not include Alaska, Arizona, Florida, or Ohio, since these four states ended FPUC but not PUA before September. We also do not include Maryland or Indiana, since these states initially stopped providing FPUC and PUA, but were later required to resume paying these benefits during our sample period. Finally, we do not include Louisiana and Tennessee because these states withdrew from both FPUC and PUA in July of 2021. We present a list of states in our treatment and control groups in Table 1.

Current Population Survey

Our data on unemployment to employment transitions come from the Current Population Survey (CPS) provided by the Integrated Public Use Microdata Series. Respondents are included in the CPS for four consecutive months, then are not interviewed for the next eight months. Respondents are then included in the CPS again for the next four months. We exploit this 4-8-4 panel structure of the CPS to identify individual transitions from unemployment to employment in consecutive months.

A concern with the matched CPS is that mismeasurement of labor force status may lead to spurious transitions out of unemployment (Abowd and Zellner, 1985). To address this, we implement a recoding procedure used, for example, in Rothstein (2011), Farber, Rothstein, and Valletta (2015), and Petrosky-Nadau and Valletta (2021). For individuals who transition out of unemployment and into employment or nonparticipation in one month, but then return to unemployment in the following month (*i.e.*, U-E-U or U-N-U), we consider the transition spurious, and recode the respondent as having been unemployed for each of the three months. This requires us to observe respondents in three consecutive months of the four-month CPS rotation, reducing the size of the matched sample by approximately one-third.

Household Pulse Survey

Data on difficulty paying expenses come from the weekly Household Pulse Survey, administered by the U.S. Census Bureau. The survey is designed to provide real-time estimates of impacts of the Covid-19 pandemic and government response programs on households.

The HPS asks households, “In the last 7 days, how difficult has it been for your household to pay for usual household expenses, including but not limited to food, rent or mortgage, car payments, medical expenses, student loans, and so on?” Households are given a variety of responses. We create a variable, “not difficult to pay expenses,” that equals one if the respondent selects “not difficult at all” and equal to zero if they select “a little difficult,” “somewhat difficult,” or very difficult.”

We match survey periods in the HPS to survey months in the CPS depending on whether the survey period in the HPS overlaps the CPS reference week (containing the 12th day of each month) or extends into multiple months. If the survey period overlaps multiple months, but does not extend into the reference week for the following month, we assign it to the previous month. If the survey period overlaps multiple months and extends into the reference week for the following month, we assign it to the following month. We then calculate the share of people in each state-month assigned a value of one for our “not difficult to pay expenses” variable.

Pandemic-related control variables

We incorporate data on the severity of restrictions designed to combat Covid-19 and the number of new cumulative Covid-19 cases that may be relevant as control variables. These data come from the Oxford Covid-19 Government Response Tracker (OxCGRT), which have been used in recent papers studying Covid-19 and the labor market (*e.g.*, Lee *et al.*, 2021, and Agrawal *et al.*, 2021). An index records the strictness of social distancing policies that primarily restrict

people’s behavior including restrictions on gatherings, canceling public events, closing workplaces, restrictions on public transport, and school closures.⁶ OxCGRT calculates this index for all 50 states and the District of Columbia daily. We average the daily values of the index for each state to create a monthly stringency index and calculate the total number of new Covid-19 cases each month from February – August 2021.

4. Empirical Strategy

In this section, we briefly discuss our summary statistics of unadjusted data, and briefly describe our difference-in-difference and event studies models, and our simple counterfactual exercise.

Unadjusted differences

To provide a transparent overview of the relationships we explore, we first present a table (Table 2) of unadjusted, raw means from our various data sources. We calculate mean values by “pre” and “post” period and “treatment” and “control” group. For example, we present the mean unemployment-to-employment flow for states that did and did not withdraw early from FPUC and PUA, both for February-June 2021 and for July-August 2021. From this table, one can calculate a simple, unadjusted difference-in-difference-style estimate of the effect of early withdrawal. (For unemployed workers ages 25-54, this effect is 14.2 percentage points; see Column 4.)

⁶ The construction of the stringency index is described in Hallas *et al.* (2021). The specific indicators in the stringency index include school, workplace, and public transportation closing, canceled public events, restrictions on gathering, shelter-in-place orders, restrictions on movement between cities or regions, restrictions on international travel, and public information campaigns. More details on how the index is calculated are [available here](#). The data are frequently revised, and the data used in our analysis were last updated November 24, 2021.

Difference-in-differences

We then estimate transparent difference-in-differences models:

$$\begin{aligned} y_{i,s,m} = & \alpha + \beta_1 * \text{early exit}_s + \beta_2 * \text{July or August}_m \\ & + \beta_3 * (\text{early exit}_s * \text{July or August}_m) + \delta_1 * \ln(\text{Covid cases}_{s,m}) \\ & + \delta_2 * \text{social distancing stringency}_{s,m} + X_{i,s,m}\gamma + \epsilon_{i,s,m}, \end{aligned} \quad (1)$$

where $y_{i,s,m}$ is an indicator variable for whether an unemployed individual, in month $m - 1$, living in state s enters into employment in month m . Early exit_s is an indicator variable for whether the state ended participation in both FPUC and PUA in June 2021; July or August_m is an indicator equal to zero from February – June 2021 and equal to one in July and August 2021. The vector X_i includes state, month, age, and education fixed effects. We describe $\text{Covid cases}_{s,m}$ and $\text{social distancing stringency}_{s,m}$ in Section 3. The state fixed effects control for time-invariant state-level factors. Given the short estimation window, these state effects probably go some distance toward controlling for attitudes about Covid and behavior in the face of Covid.

Event studies

We use event study models to capture the dynamic effect of the early withdrawal from FPUC and PUA, as well as to test whether the two groups of states were on similar trends prior to their divergent UI policies. In particular, we estimate the following equation:

$$y_{i,s,m} = \alpha + \sum_{m \neq June} \vartheta_m * (early\ exit_s * \varphi_m) + \delta_1 * \ln(Covid\ cases_{s,m}) + \delta_2 * social\ distancing\ stringency_{s,m} + X_{i,s,m} \gamma + \varepsilon_{i,s,m}, \quad (2)$$

where ϑ_m is a parameter that captures the dynamic effect of the policy, and φ_m is a indicator variable for each of the eight months in our estimation sample. We define other variables as in equation (1).

Counterfactual

We estimate the effect on U-to-E transitions of early withdrawal of FPUC and PUA for July and August, and we use those estimates in a simple counterfactual exercise to study what the unemployment rate and employment-population ratio might have been in the states that did not withdraw early had they instead done so, and for the economy as a whole.

To accomplish this exercise, we first estimate a counterfactual employment level according to the following formula:

$$e_m^c = e_m^a + \hat{\beta} * u_{m-1}^a. \quad (3)$$

In this formula, e_m^c is the counterfactual level of employment in month m , e_m^a is the actual level of employment in month m , u_{m-1}^a is the actual level of unemployment in the previous month, and $\hat{\beta}$ is the estimate of the effect on U-to-E transitions of early withdrawal from FPUC and PUA.

After having constructed a counterfactual employment level for July and for August, we then recalculate the unemployment and employment rates, assuming the levels of the labor force and the population are unaffected by the policy change. This simplifying assumption raises a potential concern: *a priori*, one might expect that this policy change affected other labor market flows. In Table A3, we present estimates of the effect of early withdrawal from FPUC and PUA on all six flows, using equation (1). Only two of the six models have precisely estimated coefficients, transitions from unemployment to employment and from unemployment to nonparticipation. We constructed counterfactual estimates using all six estimates, and the results are qualitatively similar.

A second simplifying assumption we employ is not to allow the effect to compound from July and into August. We make this assumption because allowing compounding would require using imprecisely estimated coefficients for all other flows, as we discussed earlier. The decision not to allow for compounding — *i.e.*, to treat July and August counterfactuals as independent events — biases our counterfactual estimates downward.

Finally, our estimates are biased downward because we implicitly assume there are no effects from ending only FPUC but not PUA as we drop the states with this policy mix from our analysis and use their actual employment and unemployment levels in the national counterfactual. In Table A5, we present evidence that suggests ending FPUC while continuing PUA led to a smaller increase in transitions from unemployment to employment than opting out of both programs.

5. Results

To begin, which states terminated FPUC and PUA early, and which did not? Table 1 lists the states in each category. A total of 18 states eliminated both programs fully beginning in June 2021 – mostly in the South and the Great Plains. In contrast, 24 states plus the District of Columbia eliminated neither program.

Table A1 presents summary data on the relevant characteristics of these two sets of states. This table shows means and standard deviations on the variables we use in the analysis for states that did and did not terminate FPUC and PUA, and during time periods of February-June and July-August 2021, both before and after the early terminations went into effect respectively.

These data indicate a sharp rise in transitions from unemployment to employment in the states ending extended benefits after the early withdrawal was implemented, while no such rise is observed in the states that maintained such benefits until September. We also note several other differences between the two sets of states that could likely affect these transition rates, including: higher stringency levels in the earlier period in states not ending benefits, but also declining stringency of restrictions in both sets of states (and especially those not ending benefits); increases in new Covid cases in July and August, especially in states ending extended benefits; and higher education levels in the states not ending FPUC and PUA.

We offer further evidence on transitions from unemployment to employment and their determinants, in these states and time periods, in Table 2. Here, we again present the mean transitions in these states and time periods among the unemployed, as well as the means of social-distancing stringency, new Covid cases, and the share of respondents in the HPS reporting having no difficulty meeting expenses in the previous week. We also present the changes over time in these measures (Column 3), the “unadjusted differences in differences” between these

states and time periods in such transitions (Column 4), and the percent changes relative to baseline in these differences (Column 5). The goal of Table 2 is to be as transparent as possible with the data.

The summary data indicate a fairly sharp increase of over 13 percentage points in transitions from unemployment to employment in the states ending extended benefits, but not in those allowing them to remain in place. Relative to baseline transitions, the increase is about 60 percent in the states ending benefits, and a four percent decrease those not ending them.

The other data in Table 2 also indicate the relatively greater declines in stringency of Covid rules in the states not ending benefits — which (all else equal) should have raised their transition rates — and the relatively worse increases in Covid cases in the states ending benefits, which should have dampened the increasing employment transitions observed there. In other words, both of these factors might have limited the observed relative increases in transition rates observed in states ending extended benefits.

Finally, we show a 2.4 percentage point “unadjusted difference in difference” decrease in the share of households reporting that they do not have difficulty meeting their expenses. This effect is unsurprising, since the expiration of FPUC and PUA reduced household income.

Difference-in-differences results

We present difference-in-difference estimates of the impacts of ending extending benefits on transitions from unemployment to employment in Tables 3. The top row of Table 3 presents the impact of ending extended UI benefits for four different groups of unemployed workers: (1) those ages 25-54; (2) those ages 25-54 who do not have college degrees; (3) those in this age group whose previous jobs were in leisure/hospitality or retail trade (4) those ages 16-64.

Focusing on workers ages 25-54 limits the confounding effects of changes in enrollment in higher education or in retirements in response to the pandemic — early retirements are likely a major pandemic-era labor market development (Faria e Castro, 2021), so this group is especially useful. Studying workers without college degrees or from the leisure and retail sectors enable us to focus on the workers hardest hit by the pandemic, and somewhat slower to recover from it (in terms of employment).

For each category of workers, we also present two estimates — one with no controls for social distancing stringency or Covid caseload and one that includes them. All equations control for month, state, age, and education.

Our results indicate a 13.8 percentage point increase in transitions from unemployment to employment among prime-age workers before controlling for stringency and new cases, rising to 14.4 percentage points after controlling for them. We estimate an 11.6 percentage point increase in transitions among prime-age workers without college degrees (and with controls), and an 11.4 percentage point increase among prime-age workers who last worked in the leisure and hospitality and retail industries. Among workers ages 16-64, the results indicate a 13.3 percentage point increase in transitions, again including control variables. Six of the eight estimates are statistically significant; both estimates on the leisure/hospitality and retail sample are not.⁷

⁷ These results are estimated on CPS samples in which we attempt to correct for potentially spurious labor force status transitions using the procedure discussed in Section 3. Our results for prime-age workers are similar in a sample in which we do not incorporate this correction (14 vs. 12 percentage points in the specification with control variables), as well as among prime-age workers without college degrees (12 vs. 11 percentage points). Among prime-age workers last employed in the leisure and hospitality sector, the correction renders the coefficient smaller (11 vs. 16 percentage points) and statistically insignificant. Among workers ages 16-64, the correction increases the magnitude of the coefficient (13 vs. 8 percentage points).

Event study results

In Figure 1, we present event studies for each of our four sample groups, which trace out the dynamic effect of early withdrawal from FPUC and PUA on U-to-E transitions. For each, the monthly coefficients from February through May (the “pre period”) are centered on or near zero, and are imprecisely estimated. This estimated effect mitigates concerns about divergent “pre-period” trends and supports a causal interpretation of our estimates.

It is also reassuring that the magnitude of the September coefficient falls closer to zero and that the coefficient estimate is statistically insignificant. Since both the “treatment” and “control” states had ended pandemic-era UI programs in September, this finding strengthens confidence in our results for July and August.

The event studies confirm what we observe in the difference-in-difference models — namely, that transitions to employment increased in the states ending extended benefits, relative to those that did not, and only in July and August of 2021. Table A2 presents the estimated coefficients and standard errors. For July and August, the coefficients are positive and for our main sample, prime-age workers, are precisely estimated. Among prime-age workers without college degrees, the coefficient for July is statistically significant and of qualitatively similar magnitude (11.8 percentage points), but the coefficient for August is statistically insignificant. The coefficients in the leisure and hospitality and retail sectors are statistically insignificant. Among unemployed workers ages 16-64, the magnitude of the effect is similar in August (14.9 percentage points) and July (14.1 percentage points), and both coefficients are statistically significant.

Counterfactual exercise

While the magnitudes of the estimated impacts on transitions to employment are large (relative to the baseline of about 21 percent per month), by how much would ending extended benefits earlier in the 24 states and D.C. that did not do so have reduced unemployment rates and raised employment-population ratios? To answer this question, we conduct a simple counterfactual exercise. We described the exercise in Section 4. Here, we present and discuss the results.

We provide estimates of these counterfactuals in Tables 4 and 5, for each of the four groups considered. In Table 4, we estimate these counterfactuals only in the 24 states and D.C. that did not terminate extended benefits and among each of our four samples; in Table 5, we do so for the United States economy overall.

Table 4 indicates that the average unemployment rates in the 24 states and D.C. would have declined from 5.8 to 5.0 percent in July, and from 5.7 to 5.0 percent in August, among workers ages 25-54. As expected from the earlier point estimates of impacts, the implied estimates show slightly larger decreases in unemployment rates for workers ages 16-64 of roughly one percentage point, and larger and more variable changes for non-college educated workers or workers in the leisure hospitality and retail sectors.

The estimated counterfactuals in employment-population ratios are a bit smaller for all four groups. Among our main sample of workers ages 25-54, employment rates would have risen in these states from 77.0 to 77.7 percent in July and from 77.3 to 77.9 percent in August. Among the broadest group of workers (ages 16-64), employment rates would have risen in these states from 69.8 to 70.5 percent in July and from 69.4 to 70.1 percent in August. The estimates of

counterfactuals for the other two subgroups are again a bit larger for non-college-educated workers and smaller for workers previously in leisure and hospitality and retail.

By how much would unemployment rates in the United States overall have fallen, had all states ended extended benefits early, and by how much would employment-population ratios have risen? Here the implied changes are smaller, as expected, and we present them in Table 5.

Using estimates from the sample of prime-age workers, the national unemployment rate would have declined in July, from 5.7 to 5.4 percent, or 0.3 percentage point, and in August it would have also declined by 0.3 percentage point (from 5.3 to 5.0). Similarly, the national employment rate in the population would have risen from 58.7 to 58.9 percent in July (an increase of 0.2 percentage point) and from 58.6 to 58.7 in August.⁸

Household financial conditions

In Table 6, we present estimates of equation (1), but instead of studying U-to-E transitions these regressions examine the effect of early withdrawal of FPUC and PUA on our “not difficult to pay expenses” variable. For all four samples, the expiration of generous UI benefits reduced the share of households who reported not having trouble meeting their expenses. The coefficient magnitudes range from 2.2 to 2.5 percentage points, or about five percent of the average value of the variable from February-June 2021.

Household financial conditions and U-to-E transitions

In Table A4, present results from our investigation into whether a household’s financial health affects its sensitivity to the expiration of benefits. Using data from the HPS, we compute

⁸ These results are estimated on CPS samples in which we attempt to correct for potentially spurious labor force status transitions using the procedure discussed in Section 3. The results using the coefficient estimated on a sample of prime-age workers are very similar when not correcting for potentially spurious transitions. Similar to estimates of equation (1), the sample with labor-force-status transitions leads to larger counterfactual vs. actual differences when using the coefficient estimated on workers ages 16-64.

the share of respondents in each state-month that report that they are “very confident” that they can meet their next month’s rent or mortgage payment or know that their payment will be deferred. In each month, we rank states based on these shares, and we create an indicator variable equal to one if a state is in the top quintile of the distribution of the variable (in each month) and equal to zero otherwise. We then interact this variable with the treatment variable from equation (1). The estimated coefficient on each of the four samples is negative, but is only statistically significantly different from zero among prime-age workers without college degrees.

This provides suggestive — but not strong — evidence that the unemployment duration of households in relatively stronger financial shape may be relatively less sensitive to the generosity of unemployment benefits. This pattern is relevant to the current U.S. economic context because households have accumulated over \$2 trillion of excess savings (Holtz-Eakin, 2021). It is possible that these savings have muted to at least some degree the velocity of labor market flows following the expiration of pandemic-era UI benefits.

Expanded eligibility, or expanded generosity?

Alaska, Arizona, Florida, and Ohio each ended participation in FPUC, which expanded the generosity of UI benefits, while continuing to participate in PUA, which expanded eligibility for benefits. Arizona ended participation in FPUC in July, so we focus on the remaining three states to study the effect of ending expanded generosity while maintaining expanded eligibility on transitions from unemployment to employment.

We report results in Table A5. Among prime-age workers, ending only FPUC increased transitions from unemployment to employment by 8.3 percentage points (in the model with controls). The magnitude is substantially less than the 14.4 percentage point effect of ending both programs in June, reported in Table 3. We find qualitatively similar results among workers ages

16-64. Unlike the effect of ending participation in both programs, prime-age workers without college degrees do not seem to have had transitions from unemployment to employment affected by the expiration of only FPUC. It may be that expanded eligibility is a larger factor for these workers than expanded generosity. Among prime-age leisure and hospitality and retail workers, the coefficients are statistically insignificant (as they were in the results presented in Table 3) with negative signs (unlike in Table 3).

Taken as a whole, these results suggest that both expanded eligibility and expanded generosity may have slowed transitions from unemployment to employment.

6. Conclusion

In this paper, we provide estimates of the impacts of the early termination of pandemic-era UI benefits that expanded their generosity (FPUC) and the groups of workers eligible for benefits (PUA). Using Current Population Survey data, we present difference-in-difference estimates that the flow of prime-age unemployed workers into employment increased by around 14 percentage points following early termination, or about two-thirds the size of the unemployed-to-employed flow among control states during the February-June 2021 period. We construct a counterfactual scenario for the labor market under the assumption that all states ended FPUC and PUA in June. In this scenario, the unemployment rates in each of July and August would have been around 0.3 percentage point lower, and the employment-population ratio would have been 0.1-0.2 percentage point higher. We also present some weakly suggestive evidence that states with households with greater confidence in their ability to meet key expenses may have been less sensitive to the expiration of benefits. We also present evidence suggesting that both expanded eligibility and expanded generosity may have slowed transitions from

unemployment to employment. Finally, we present evidence that early termination reduced the share of households that had no difficulty meeting expenses by five percent. The welfare implications of the early termination of FPUC and PUA are therefore ambiguous.

References

- Abowd, John M. and Arnold Zellner, "Estimating Gross Labor-Force Flows," *Journal of Business and Economic Statistics*, vol. 3, no. 3, 1985.
- Agrawal, Virat, Jonathan H. Cantor, Neeraj Sood, and Christopher M. Whaley, "The Impact of the Covid-19 Pandemic and Policy Responses on Excess Mortality," No. w28930, National Bureau of Economic Research, June 2021.
- Coombs, Kyle, Arindrajit Dube, Suresh Naidu, Calvin Jahnke, Raymond Kluender, and Michael Steiner, "Early Withdrawal of Pandemic Unemployment Insurance: Effects on Earnings, Employment and Consumption," unpublished manuscript, August 20, 2021.
- Congressional Research Service (2021) States Opting Out of COVID-19 Unemployment Insurance (UI) Agreements IN11679. Last updated August 20, 2021.
- Dube, Arindrajit. 2021. "Aggregate Employment Effects of Unemployment Benefits During Deep Downturns: Evidence from the Expiration of the Federal Pandemic Unemployment Compensation." No. w28470. National Bureau of Economic Research. February 2021.
- Farber, Henry S., Jesse Rothstein, and Robert G. Valletta. "The Effect of Extended Unemployment Insurance Benefits: Evidence from the 2012-2013 Phase-Out." *American Economic Review* 105, no. 5 (2015): 171-76.
- Faria e Castro, Miguel, "The COVID Retirement Boom," Economic Synopses, No. 25, 2021.
- Ganong, Peter, Fiona Greig, Max Liebeskind, Pascal Noel, Daniel Sullivan, and Joseph Vavra. 2021. "Spending and Job Search Impacts of Expanded Unemployment Benefits: Evidence from Administrative Micro Data." University of Chicago, Becker Friedman Institute for Economics Working Paper 2021-19. February 2021.
- Ganong, Peter, Fiona Greig, Pascal Noel, Daniel M. Sullivan, and Joseph Vavra, "Micro and Macro Disincentive Effects of Expanded Unemployment Benefits," July 29, 2021.
- Ganong, Peter, Pascal Noel, and Joseph Vavra, "US Unemployment Insurance Replacement Rates During the Pandemic," *Journal of Public Economics*, November 2020.
- Hallas, Laura, Ariq Hatibie, Saptarshi Majumdar, Monika Pyarali, Rachelle Koch, Andrew Wood and Thomas Hale. "Variation in US States' Responses to COVID-19 3.0." Blavatnik School of Government. Working Paper. May 2021.
- Holtz-Eakin, Douglas, "Should You Fear Fiscal Drag?" The Daily Dish, American Action Forum, November 23, 2021.
- Krueger, Alan B. and Bruce D. Meyer, "Labor Supply Effects of Social Insurance," *Handbook of Public Economics*, vol. 4, 2002.

Lee, Sang Yoon Tim, Minsung Park, and Yongseok Shin. Hit Harder, Recover Slower? Unequal Employment Effects of the Covid-19 Shock." No. w28354. National Bureau of Economic Research, January 2021.

Petrosky-Nadeau, Nicolas, and Robert G. Valletta. "UI Generosity and Job Acceptance: Effects of the 2020 CARES Act." No. 14454. IZA Discussion Paper Series. June 2021.

Rothstein, Jesse. "Unemployment Insurance and Job Search in the Great Recession." Brookings Papers on Economic Activity, Fall 2011.

Schmieder, Johannes F. and Till von Wachter, "The Effects of Unemployment Insurance Benefits: New Evidence and Interpretation," Annual Review of Economics, vol. 8, October 2016.

Tables and Figures

Table 1: List of States Ending Both FPUC and PUA In June 2021 and Ending Neither Program Before September 2021

<u>States ending both FPUC and PUA</u>	<u>States ending neither FPUC nor PUA</u>
Alabama	California
Arkansas	Colorado
Georgia	Connecticut
Idaho	Delaware
Iowa	District of Columbia
Mississippi	Hawaii
Missouri	Illinois
Montana	Kansas
Nebraska	Kentucky
New Hampshire	Maine
North Dakota	Massachusetts
Oklahoma	Michigan
South Carolina	Minnesota
South Dakota	Nevada
Texas	New Jersey
Utah	New Mexico
West Virginia	New York
Wyoming	North Carolina
	Oregon
	Pennsylvania
	Rhode Island
	Vermont
	Virginia
	Washington
	Wisconsin

Notes: States ending both FPUC and PUA participation in June 2021 do not include Tennessee and Louisiana, which terminated payments in July 2021, or Maryland and Indiana which terminated benefits but where a court order reinstated payments. Alaska, Arizona, Florida, and Ohio terminated participation in FPUC early, but not PUA.

Table 2: Unadjusted Differences Across Sets of States

	(1)	(2)	(3)	(4)	(5)
	Feb-Jun 2021	Jul-Aug 2021	Change	Change Relative to Non-Ending States	Change Relative to Baseline
Unemployed to Employed					
Ending Neither PUA or FPUC	21.02	20.27	-0.75		-3.57
Ending Both PUA and FPUC	22.43	35.83	13.40	14.15	59.74
Stringency Index					
Ending Neither PUA or FPUC	46.51	20.41	-26.10		-56.12
Ending Both PUA and FPUC	31.45	21.92	-9.53	16.57	-30.30
New Covid Cases (1000s)					
Ending Neither PUA or FPUC	73.61	105.7	32.09		43.59
Ending Both PUA and FPUC	70.37	159.8	89.43	57.34	127.09
Share Not Having Any Difficulty Paying Expenses in the Past Week					
Ending Neither PUA or FPUC	47.75	51.03	3.28		6.87
Ending Both PUA and FPUC	44.46	45.30	0.84	-2.44	1.89

Notes: This table reports simple differences for our sample of individuals ages 25-54 living in states that ended participation in both PUA and FPUC in June 2021 or ended participation in neither PUA nor FPUC before September 2021. Entries for unemployed to employed summarize data from the Current Population Survey (CPS). The stringency index and monthly new COVID-19 case measures come from OxCGRT. Data on the share not having difficulty meeting expenses in the last seven days come from the Household Pulse Survey. Column 1 reports the average value between February and June 2021 for each row, column 2 reports the average value between July and August 2021, and column 3 reports the difference between the two. Column 4 reports the change in the average value for each row relative to the relevant non-ending value. Column 5 reports the change in the average value from February - June to July - August. Averages are weighted by state population.

Table 3: Effects of Early Expiration of FPUC/PUA on the Probability of Employment in the Current Month

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample	Ages 25-54		Ages 25-54; Not Graduated College		Ages 25-54; LH & Retail		Ages 16-64	
Ending Both FPUC and PUA In June X Post June 2021	13.810*** (3.428)	14.385*** (4.523)	10.242** (4.336)	11.561** (5.196)	10.757 (8.162)	11.374 (8.912)	11.766*** (2.388)	13.347*** (3.488)
State Level Stringency Index from OxCGRT		-0.163 (0.136)		-0.353** (0.149)		-0.044 (0.297)		-0.160 (0.116)
Ln(New Covid Cases)		2.797* (1.480)		5.760*** (1.264)		0.132 (2.434)		1.310 (1.092)
Observations	4,419	4,419	3,237	3,237	920	920	7,219	7,219

Notes: This table reports regression results measuring the effect of ending participation in both FPUC and PUA early on unemployment to employment transitions. The sample is from the Basic Monthly CPS from February - August 2021. Columns 1 and 2 include all individuals ages 25-54. Columns 3 and 4 include all individuals ages 25-54 who have not graduated college. Columns 5 and 6 include all individuals ages 25-54 who last worked in the leisure and hospitality or retail industries. Columns 7 and 8 include all individuals ages 16-64. All specifications include month, state, age, and education fixed effects. Standard errors are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1

Table 4: Counterfactual Analysis of Ending FPUC/PUA: Estimated Effect on States Not Ending Programs

	(1)	(2)	(3)	(4)	(5)
	June Actual	July Actual	July Counterfactual	August Actual	August Counterfactual
<u>Panel A: Among Workers Ages 25-54</u>					
Employment-Population Ratio	76.9	77.0	77.7	77.3	77.9
Unemployment Rate	6.0	5.8	5.0	5.7	5.0
<u>Panel B: Among Workers Ages 25-54. Not Graduated College</u>					
Employment-Population Ratio	70.4	70.9	71.7	71.6	71.8
Unemployment Rate	8.2	7.5	6.6	7.4	7.1
<u>Panel C: Among Workers Ages 25-54. Leisure Hospitality and Retail</u>					
Employment-Population Ratio	89.3	90.9	90.0	90.2	91.8
Unemployment Rate	10.1	8.7	9.6	9.2	7.6
<u>Panel D: Among Workers Ages 16-64</u>					
Employment-Population Ratio	69.3	69.8	70.5	69.4	70.1
Unemployment Rate	6.7	6.6	5.6	6.1	5.1

Notes: This table displays results of a counterfactual exercise where we estimate the effects on the level of employment and unemployment, the employment population ratio and the unemployment rate if FPUC and PUA were ended in all states in June 2021. The "Actual" series come from the Basic Monthly CPS. We construct July counterfactual employment and unemployment levels by applying the transition rate from unemployment to employment calculated from the event study regressions to the actual employment data for June. We construct August counterfactual employment and unemployment levels by applying the transition rate from unemployment to employment calculated from the event study regressions to the actual employment data for July. We then use these to calculate the employment-population ratio and unemployment rate.

Table 5: Counterfactual Analysis of Ending FPUC/PUA: National Estimates

	(1)	(2)	(3)	(4)	(5)
	June Actual	July Actual	July Counterfactual	August Actual	August Counterfactual
<u>Panel A: Using Effect Estimated on a Sample of Workers Ages 25-54</u>					
Employment-Population Ratio	58.3	58.7	58.9	58.6	58.7
Unemployment Rate	6.1	5.7	5.4	5.3	5.0
<u>Panel B: Using Effect Estimated on a Sample of Workers Ages 25-54. Not Graduated College</u>					
Employment-Population Ratio	58.3	58.7	58.8	58.6	58.6
Unemployment Rate	6.1	5.7	5.5	5.3	5.2
<u>Panel C: Using Effect Estimated on a Sample of Workers Ages 25-54. Leisure Hospitality and Retail</u>					
Employment-Population Ratio	58.3	58.7	58.7	58.6	58.6
Unemployment Rate	6.1	5.7	5.7	5.3	5.2
<u>Panel D: Using Effect Estimated on a Sample of Workers Ages 16-64</u>					
Employment-Population Ratio	58.3	58.7	59.0	58.6	58.9
Unemployment Rate	6.1	5.7	5.2	5.3	4.8

Notes: This table displays results of a counterfactual exercise where we estimate the effects on the level of employment and unemployment, the employment population ratio and the unemployment rate if FPUC and PUA were ended in all states in June 2021. The "Actual" series come from the Basic Monthly CPS. We construct July counterfactual employment and unemployment levels by applying the transition rate from unemployment to employment calculated from the event study regressions to the actual employment data for June. We construct August counterfactual employment and unemployment levels by applying the transition rate from unemployment to employment calculated from the event study regressions to the actual employment data for July. We then use these to calculate the employment-population ratio and unemployment rate.

Table 6: Effects of Early Expiration of FPUC/PUA on the Share of HPS Respondents Who Report No Difficulty Paying Expenses in the Past Seven Days

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample	Ages 25-54		Ages 25-54; Not Graduated College		Ages 25-54; LH & Retail		Ages 16-64	
Ending Both FPUC and PUA In June X Post June 2021	-2.535*** (0.690)	-2.231** (0.837)	-2.532*** (0.684)	-2.218** (0.827)	-2.545*** (0.685)	-2.299*** (0.835)	-2.522*** (0.696)	-2.221** (0.845)
State Level Stringency Index from OxCGR		-0.029 (0.025)		-0.031 (0.025)		-0.024 (0.026)		-0.029 (0.026)
Ln(New Covid Cases)		0.215 (0.368)		0.244 (0.361)		0.181 (0.377)		0.212 (0.370)
Observations	103,822	103,822	60,206	60,206	14,009	14,009	169,933	169,933

Notes: This table reports regression results measuring the effect of ending participation in both FPUC and PUA early on the share of Household Pulse Survey respondents who say they have no difficulty meeting expenses in the past seven days. The sample is from the Basic Monthly CPS from February - August 2021 who are not in rotations 1, 4, 5, or 8. Columns 1 and 2 include all individuals ages 25-54. Columns 3 and 4 include all individuals ages 25-54 who have not graduated college. Columns 5 and 6 include all individuals ages 25-54 who last worked in the leisure and hospitality or retail industries. Columns 7 and 8 include all individuals ages 16-64. All specifications include month, state, age, and education fixed effects. Standard errors are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1

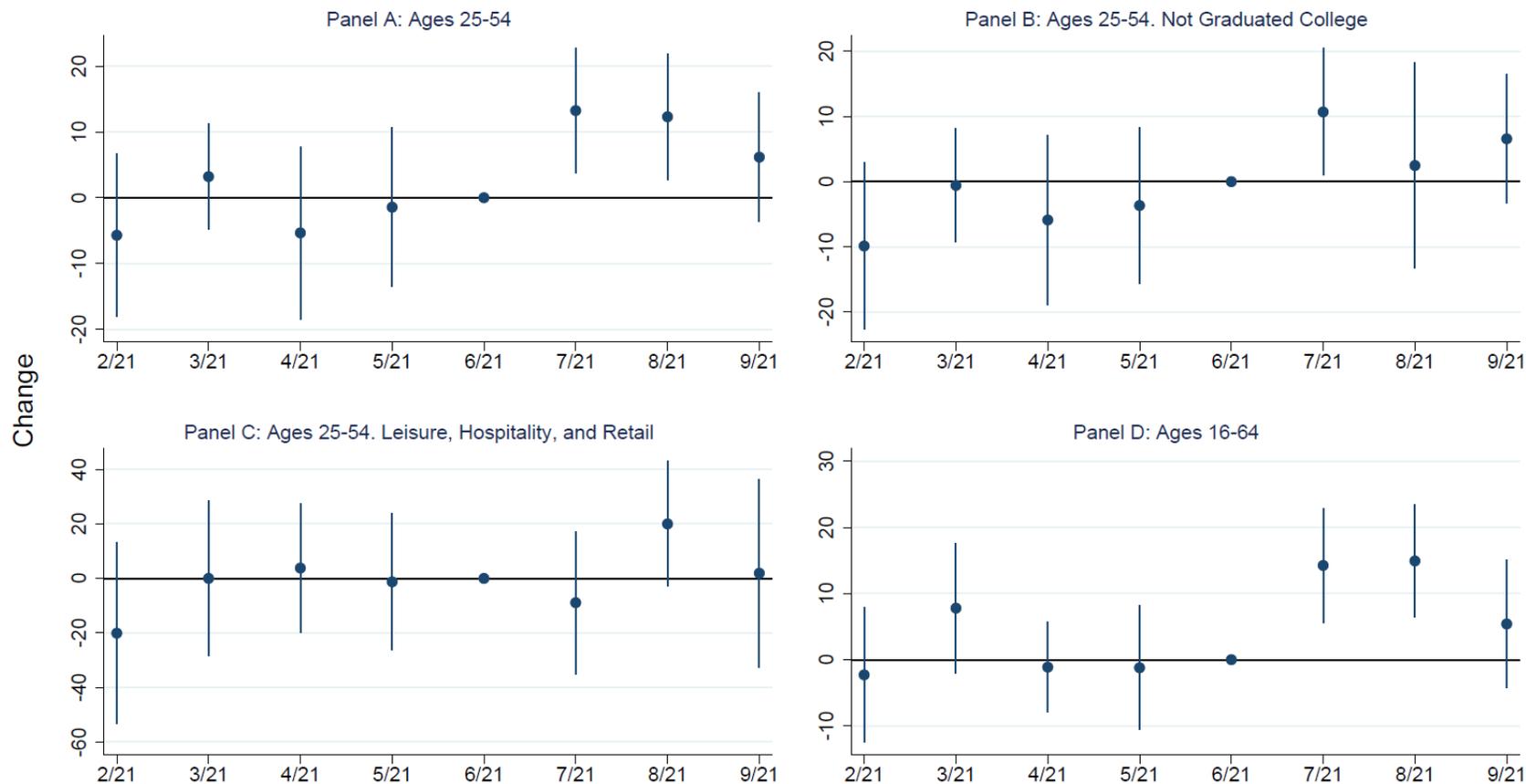


Figure 1: Event Studies of Changes in Monthly Transitions into Employment from Unemployment Following the June 2021 Expiration of FPUC and PUA UI Benefits Extended to September 2021. This figure displays estimated coefficients from event study regressions measuring the effect of expiring UI programs on individual transitions from unemployment to employment extended to September 2021 when the programs expired for all states. The samples are individuals from the CPS who were unemployed in the previous month. Panel A includes all individuals ages 25-54. Panel B includes all individuals ages 25-54 who have not graduated college. Panel C includes all individuals ages 25-54 who last worked in the leisure and hospitality or retail industries. Panel D includes all individuals ages 16-64. Regressions include state, month, age, and education fixed effects, as well as controls for new monthly state Covid-19 cases and an index measuring the stringency of Covid-19-related restrictions. Error bars denote 95 percent confidence intervals around each estimated coefficient, which measures the change in the transition rate relative to June 2021. Standard errors are clustered by state.

Appendix Tables

Table A1: Sample Summary Statistics: CPS Respondents Ages 25-54 Unemployed in the Prior Month, Employed in the Current Month, and Not Unemployed the Following Month

Years Sample	(1) Feb-Jun 2021 Ending Both FPUC and PUA	(2) Jul-Aug 2021	(3) Feb-Jun 2021 Ending Neither FPUC nor PUA	(4) Jul-Aug 2021
Unemployed to Employed Transition	22.43 (41.73)	35.83 (48.02)	21.02 (40.75)	20.27 (40.23)
Stringency Index	31.45 (9.059)	21.92 (6.070)	46.51 (12.51)	20.41 (6.532)
Thousands of New Covid Cases	70.37 (80.49)	159.8 (169.5)	73.61 (70.47)	105.7 (132.7)
Age	37.99 (8.828)	37.02 (8.591)	38.37 (8.742)	37.86 (8.788)
High School Degree	0.359 (0.480)	0.355 (0.479)	0.317 (0.466)	0.292 (0.455)
Some College Education	0.322 (0.467)	0.217 (0.413)	0.284 (0.451)	0.310 (0.463)
4-Year College Education or Greater	0.186 (0.390)	0.273 (0.446)	0.283 (0.451)	0.298 (0.458)
Observations	1,081	341	2,228	769

Notes: This table reports summary statistics for our two sample groups. Columns 1 and 2 report averages and standard deviations (in parenthesis) of each of the variables for a sample of individuals ages 25-54, who were unemployed in the previous month, and can be linked across adjacent months in the CPS in states that ended both FPUC and PUA in June. Columns 3 and 4 report averages and standard deviations (in parenthesis) of each of the variables for individuals ages 25-54, who were unemployed in the previous month, and can be linked across adjacent months in the CPS living in states that did not end participation in FPUC or PUA before September. Entries for transitions into employment, age, and education summarize data from the Current Population Survey (CPS). The stringency index and monthly new COVID-19 case measures come from the Oxford Covid-19 Government Response Tracker (OxCGRT).

Table A2: Event Study Estimates of the Effect of Early Expiration of FPUC and PUA on Transitions From Unemployment Into Employment Using June 2021 as the Base Period

Sample	(1) Ages 25-54	(2) Ages 25-54; No College	(3) Ages 25-54; LH & Retail	(4) Ages 16-64
Ending Both FPUC and PUA In June X February	-4.876 (6.083)	-9.647 (6.069)	-18.152 (15.184)	-1.362 (5.156)
Ending Both FPUC and PUA In June X March	4.054 (3.931)	-0.309 (4.280)	-0.516 (13.519)	8.604* (4.930)
Ending Both FPUC and PUA In June X April	-4.684 (6.561)	-5.403 (6.431)	6.499 (11.494)	-0.451 (3.405)
Ending Both FPUC and PUA In June X May	-1.142 (6.432)	-3.898 (6.266)	0.666 (12.479)	-0.682 (4.911)
Ending Both FPUC and PUA In June X July	13.737*** (4.863)	11.754** (5.139)	-9.443 (12.456)	14.083*** (4.305)
Ending Both FPUC and PUA In June X August	12.759** (4.824)	4.093 (7.999)	19.011 (11.703)	14.911*** (4.254)
State Level Stringency Index from OxCGRT	-0.176 (0.144)	-0.392** (0.151)	-0.101 (0.308)	-0.151 (0.123)
Ln(New Covid Cases)	2.784* (1.562)	5.718*** (1.414)	1.000 (2.179)	1.471 (1.115)
Observations	4,419	3,237	920	7,219

Notes: This table reports regression results measuring the effect of ending participation in both FPUC and PUA early on unemployment to employment transitions using the event study regression specifications in equation 2. Column 1 includes all individuals ages 25-54. Column 2 includes individuals ages 25-54 who have not graduated college. Column 3 includes individuals ages 25-54 who last worked in the leisure and hospitality or retail industries. Column 4 includes all individuals ages 16-64. All specifications include month, state, age, and education fixed effects. Standard errors are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1

Table A3: Effect of Early Expiration of FPUC and PUA on the Probability that Individuals Ages 25-54 Have Labor Market Transitions

Dependent Variable	(1) UEtoE	(2) NILFtoE	(3) EtoUE	(4) EtoNILF	(5) UEtoNILF	(6) NILFtoUE
Ending Both FPUC and PUA Before In June X Post June 2021	14.385*** (4.523)	0.307 (1.402)	-0.283 (0.185)	-0.339 (0.332)	-9.399** (4.567)	-1.253 (0.921)
State Level Stringency Index from OxCGRT	-0.163 (0.136)	0.038 (0.057)	-0.002 (0.009)	-0.001 (0.008)	0.216* (0.121)	0.020 (0.025)
Ln(New Covid Cases)	2.797* (1.480)	-0.045 (0.333)	0.123 (0.096)	0.275*** (0.074)	-0.643 (1.153)	0.286 (0.361)
Observations	4,419	18,734	80,669	80,669	4,419	18,734

Notes: This table reports regression results measuring the effect of ending participation in both FPUC and PUA early on labor market transitions. The sample is from the Basic Monthly CPS from February - August 2021, and consists of all individuals ages 25-54. All specifications include month, state, age, and education fixed effects. Standard errors are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1

Table A4: Effects of Early Expiration of FPUC and PUA on Transitions into Employment: Controlling for Confidence in Ability to Pay Rent or Mortgage Next Month

Sample	(1) Ages 25-54	(2) Ages 25-54; No College	(3) Ages 25-54; LH & Retail	(4) Ages 16-64
Top Quintile Confident Mortgage or Rent				
Ending Both FPUC and PUA In June X Post June 2021	-10.158	-19.901**	-28.834	-7.385
X Top Quintile Confident Mortgage or Rent	(6.901)	(7.947)	(27.286)	(7.071)
Ending Both FPUC and PUA In June X Post June 2021	15.538***	13.118**	12.457	13.623***
	(4.876)	(5.479)	(8.934)	(3.675)
Ending Both FPUC and PUA In June X Top Quintile	6.679	7.321	2.460	0.069
Confident Mortgage or Rent	(4.838)	(4.546)	(20.881)	(4.034)
Post June 2021 X Top Quintile Confident Mortgage or	-1.941	0.410	-29.326*	-5.322
Rent	(7.439)	(7.714)	(15.504)	(5.543)
State Level Stringency Index from OxCGRT	2.927*	5.878***	0.842	1.433
	(1.615)	(1.348)	(2.613)	(1.168)
Ln(New Covid Cases)	-0.183	-0.366**	-0.019	-0.151
	(0.145)	(0.157)	(0.301)	(0.122)
Top Quintile Confident Mortgage or Rent	-1.647	-1.156	17.146	2.314
	(5.166)	(6.401)	(11.313)	(3.325)
Observations	4,419	3,237	920	7,219

Notes: This table reports regression results measuring how the effect of ending participation in both FPUC and PUA early on unemployment to employment transitions varies with the state share of individuals each month very confident they can make mortgage or rent payments next month or who know their payments will be deferred. Column 1 includes all individuals ages 25-54. Column 2 includes individuals ages 25-54 who have not graduated college. Column 3 includes individuals ages 25-54 who last worked in the leisure and hospitality or retail industries. Column 4 includes all individuals ages 16-64. All specifications include month, state, age, and education fixed effects. Standard errors are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1

Table A5: Effects of Early Expiration Only FPUC on the Probability of Employment in the Current Month

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample	Ages 25-54		Ages 25-54; Not Graduated College		Ages 25-54; LH & Retail		Ages 16-64	
Ending Only FPUC In June X Post June	9.050*** (1.807)	8.280*** (2.085)	2.398 (3.101)	1.572 (2.117)	-7.068 (5.587)	-8.766 (5.342)	9.994* (5.290)	9.406* (4.986)
State Level Stringency Index from OxCGRT		-0.087 (0.126)		-0.250 (0.163)		0.066 (0.381)		-0.069 (0.114)
Ln(New Covid Cases)		2.710 (1.726)		5.536*** (1.577)		2.873 (2.058)		2.121 (1.337)
Observations	3,461	3,461	2,479	2,479	782	782	5,560	5,560

Notes: This table reports regression results measuring the effect of ending participation in FPUC but not PUA early on unemployment to employment transitions. The sample is from the Basic Monthly CPS from February - August 2021. Columns 1 and 2 include all individuals ages 25-54. Columns 3 and 4 include all individuals ages 25-54 who have not graduated college. Columns 5 and 6 include all individuals ages 25-54 who last worked in the leisure and hospitality or retail industries. Columns 7 and 8 include all individuals ages 16-64. All specifications include month, state, age, and education fixed effects. Standard errors are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1