

UNEMPLOYMENT BENEFITS

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Technical Appendix: Expirations of Pandemic Jobless Programs Caused an Unprecedented Drop in Access to Unemployment Insurance

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DECEMBER 2022



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Expirations of Pandemic Jobless Programs Caused an Unprecedented Drop in Access to UI

Executive Summary

1. Research Design

Our paper implements two different research methods in order to assess the impacts of the UI expansion turnoffs: an event study and a difference-in-differences design.

In an event study design, the same entity is compared before and after an event takes place. In our case, we compare states before and after they turn off the UI expansion programs. For states that had the turnoff in September, this involves comparing these states from before and after September 4th, and in early-turnoff states this involves making a comparison from before and after their early-turnoff date in June. Despite the differences in when these turnoffs occurred, these comparisons are pooled together to reach an overall estimate of the impact of the turnoffs.

The main assumption in performing this analysis is that the event (the turnoffs) is the only factor influencing the outcomes being studied (the reciprocity rate, unemployment rate, labor force participation rate, and the employment-to-population ratio). This assumption is often not true; for example, the economy was broadly improving as the Delta Covid variant waned in June of 2021, likely contributing to falling unemployment. For this reason, it is best to use an event study design for an outcome that changes sharply, such as the reciprocity rate. We attempt to account for some of these possible extraneous factors by including time controls in our event-study models. However, these controls cannot account for all possible sources of biases.

We also leverage difference-in-differences designs. In a difference-in-differences design, the difference or gap between a control and treatment group is compared before and after the treatment occurs. An increase or decrease in this gap can be attributed to the treatment.

This type of model assumes that any trends experienced by the control group after the treatment has occurred would have also occurred in the same way to the treatment group if they had not experienced the treatment. For this reason, it is important to establish that the two groups trended in parallel prior to the treatment, as we did in Figure 3.

To conduct a difference-in-differences regression, we include indicators for whether an observation is in the post-treatment period (i.e. if it is after June) and whether the observation is for a state in the treatment group. We also include a variable called the interaction term, which is equal to 1 if the observation is *both* past the date of the treatment and in a treatment state. Since both these conditions must be true for the treatment to be impacting the results, the coefficient on the interaction term should be interpreted as the impact of the treatment.

2. Data

Our report uses data from the Current Population Survey that is jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.¹ We utilize the survey's microlevel data on unemployment and the size of the labor force from January 2020 through December 2021. Additionally, we use data from January 2013 through December 2014 to compare our results to what occurred when UI extensions ended during the Great Recession. We also use data from the Department of Labor to calculate the number of UI claimants, both in total and by extension type.

We chose to focus on the U6 definition of unemployment and the labor force, rather than the more commonly used U3 definition. The U6 definition is broader and includes workers that have been discouraged from actively looking for work as well as workers that are involuntarily working part-time, while the U3 definition does not. We chose to use this more expansive definition because during the pandemic most states stopped requiring workers to search for work in order to receive unemployment benefits, meaning that discouraged workers would still be eligible for benefits. Unless stated otherwise, all figures and results discussed in this paper use the U6 definition of unemployment.

To measure access to UI, we rely primarily on a metric known as UI reciprocity, which measures the proportion of unemployed workers that are receiving UI benefits. All mentions of reciprocity within this paper are referring to this metric.

The below table lists all 18 early-turnoff states and their week of turnoff:

¹ <https://www.census.gov/programs-surveys/cps.html>

Table A1: All early-turnoff states and the week that they withdrew from PEUC²

State	Week of PEUC Turnoff
Iowa	June 12th
Mississippi	June 12th
Missouri	June 12th
Alabama	June 19th
Idaho	June 19th
Nebraska	June 19th
New Hampshire	June 19th
North Dakota	June 19th
West Virginia	June 19th
Wyoming	June 19th
Georgia	June 26th
Montana	June 26th
Oklahoma	June 26th
South Carolina	June 26th
South Dakota	June 26th
Tennessee	June 26th
Texas	June 26th
Utah	June 26th

Notes: Tennessee turned off PEUC in early July and is grouped with the states that turned off in late June. Four additional states (Alaska, Arizona, Florida, and Ohio) also turned off FPUC but not PEUC in June of 2021. Louisiana turned off PEUC on July 31st, 2022.

² See National Employment Law Project's chart on turnoff dates for source: <https://nelp.app.box.com/v/CARES-Early-Term-State-Tracker>

3. Related Literature

Other authors have also analyzed the expiration of PEUC benefits. Coombs et al. (2022) used data from the financial company Earnin to track individual claimants and compared the employment prospects of those who lived in early versus regular turnoff states. They found that those workers who were receiving benefits in late April 2021 were 4.4 percentage-points more likely to be employed and 35 percentage-points less likely to be receiving UI benefits if they lived in an early-turnoff state. However, as the authors acknowledge, these results may be overstated due to the data source used, as individuals who utilized Earnin may be under more financial stress than average claimants and thus more sensitive to policy changes. For example, UI claimants who also utilized Earnin services may be more motivated to search for employment compared to the typical UI claimant due to their greater financial needs.

Holzer, Hubbard, and Strain (2021) examine how PEUC turnoffs affect employment. Using data from the Current Population Survey, their results suggest that if all states had ended PEUC in June of 2021, the national unemployment rate would have been 0.3 percentage-points lower and the employment-population ratio would have been 0.1 percentage-points higher in July and August than what they were. However, these authors focus on the U3 rather than the U6 definition of unemployment that we utilize in this paper.

These two papers primarily focus on the labor outcomes of the PEUC turnoffs. Our report adds to this discourse by focusing on UI access. Additionally, our report contextualizes our results by relating UI benefit duration to the employment and access outcomes through elasticities. We also frame the results relative to the loss in access that occurred during the Great Recession, compute the decline in government expenditures that resulted from the turnoffs, and examine the racial equity implications of PEUC expiring in California.

4. Difference-in-Differences with Total Claimants, PEUC claimants

This section displays the results of a difference-in-differences regression using total claimants and then just PEUC claimants as our outcomes. This method is not preferred due to the large differences in claimants among states given the differences in population and workforce.

Table A2: UI Expansion Turnoff's Impact on Total Number of Claimants

Outcome: Total Claimants	
	Difference-in-Differences
Post Turnoff Period	12854.448
	(60143.14)
Early Turnoff State	-189119.544
	(270819.88)
Early Turnoff State X Post Turnoff Period	-223863.062
	(133516.57)
Constant	520962.174*
	(203678.01)
N	245.000
R-sqr	0.054
Mean total claimants in May	468258.477

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Data covers April through August of 2021. Louisiana excluded.

* p<0.05 ** p<0.01 *** p<0.001

Table A3: UI Expansion Turnoff's Impact on Total Number of PEUC Claimants

Outcome: PEUC Claimants	
	Difference-in-Differences
Post Turnoff Period	27206.213
	(42251.55)
Early Withdrawal State	-78582.811
	(181466.43)
Early Turnoff State X Post Turnoff Period	-247458.822
	(142039.86)
Constant	300507.449*
	(119588.03)
N	245.000
R-Sqr	0.072
Mean PEUC claimants in May	282090.557

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Data covers April through August of 2021. Louisiana excluded.

* p<0.05 ** p<0.01 *** p<0.001

5. Results Using Data from the Bureau of Labor Statistics

The Bureau of Labor Statistics (BLS) also reports unemployment, labor force, and employment data. However, we did not use this data in our main findings and instead rely on CPS micro-data because BLS estimates their variables partially based on unemployment insurance fillings.³ This means that changes in these variables can be the result of changes to UI claims, rather than changes in the actual unemployment, employment, and labor force levels. However, we repeat our main regression results here using BLS data for demonstrative purposes. The results are similar, with the exception of the unemployment and labor force participation rates.

Table A4: UI Expansion Turnoff’s Impact on BLS U6 Recipiency Rate

Outcome: Recipiency Rate			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	-24.765***	-20.481***	-6.086
	(3.48)	(5.7)	(3.95)
Month		-1.224	
		(0.84)	
Early Turnoff State			-12.428
			(7.77)
Early Turnoff State X Post Turnoff			-19.387**
			(5.67)
Constant	44.948***	53.144***	56.840***
	(4.7)	(4.09)	(6.79)
N	343	343	245
R-Sqr	0.292	0.3	0.174
Pre-Period Outcome Mean	48.643	48.643	56.61

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state’s turnoff. In the difference-in-differences regression, data covers April through August of 2021. Louisiana excluded.

* p<0.05 ** p<0.01 *** p<0.001

³ “Payroll employment estimates from the Current Employment Statistics (CES) survey of establishments and unemployment insurance (UI) claims counts from the state workforce agencies are also used as model inputs to help mitigate volatility in the monthly state-level CPS estimates”. See: <https://www.bls.gov/lau/laumthd.htm>.

Table A5: UI Expansion Turnoff's Impact on BLS EPOP Rate

Outcome: Employment-Population Ratio			
	Event Study	Event Study with Linear Trend	Difference-in-Differences
Post Turnoff Period	0.848***	1.535*	0.672***
	(0.11)	(0.72)	(0.08)
Month		-0.196	
		(0.20)	
Early Turnoff State			1.975*
			(0.94)
Early Turnoff State X Post Turnoff			-0.071
			(0.14)
Constant	59.986***	61.301***	59.033***
	(0.53)	(1.30)	(0.62)
N	343	343	245
R-Sqr	0.016	0.026	0.074
Pre-Period Outcome Mean	60.026	60.026	59.578

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state's turnoff. In the difference-in-differences regression, data covers April through August of 2021. Louisiana excluded.

* p<0.05 ** p<0.01 *** p<0.001

Table A6: UI Expansion Turnoff's Impact on BLS U6 Rate

Outcome: U6 Unemployment Rate			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	-2.441***	-2.129**	-0.365***
	(0.17)	(0.76)	(0.10)
Month		-0.089	
		(0.20)	
Early Turnoff State			-1.83
			(1.10)
Early Turnoff State X Post Turnoff			-0.656**
			(0.21)
Constant	9.713***	10.311***	10.560***
	(0.49)	(1.41)	(0.60)
N	343	343	245
R-Sqr	0.234	0.238	0.162
Pre-Period Outcome Mean	9.414	9.414	9.566

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state's turnoff. In the difference-in-differences regression, data covers April through August of 2021. Louisiana excluded.

* p<0.05 ** p<0.01 *** p<0.001

Table A7: UI Expansion Turnoff's Impact on BLS Labor Force Participation Rate

Outcome: Labor Force Participation Rate			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	-0.036	0.725	0.574***
	(0.10)	(0.77)	(0.08)
Month		-0.218	
		(0.21)	
Early Turnoff State			1.260
			(0.98)
Early Turnoff State X Post Turnoff			-0.311*
			(0.14)
Constant	63.510***	64.968***	62.862***
	(0.47)	(1.49)	(0.53)
N	343.000	343.000	245.000
R-Sqr	0.000	0.013	0.031
Pre-Period Outcome Mean	63.446	63.446	63.025

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state's turnoff. In the difference-in-differences regression, data covers April through August of 2021. Excludes Louisiana.

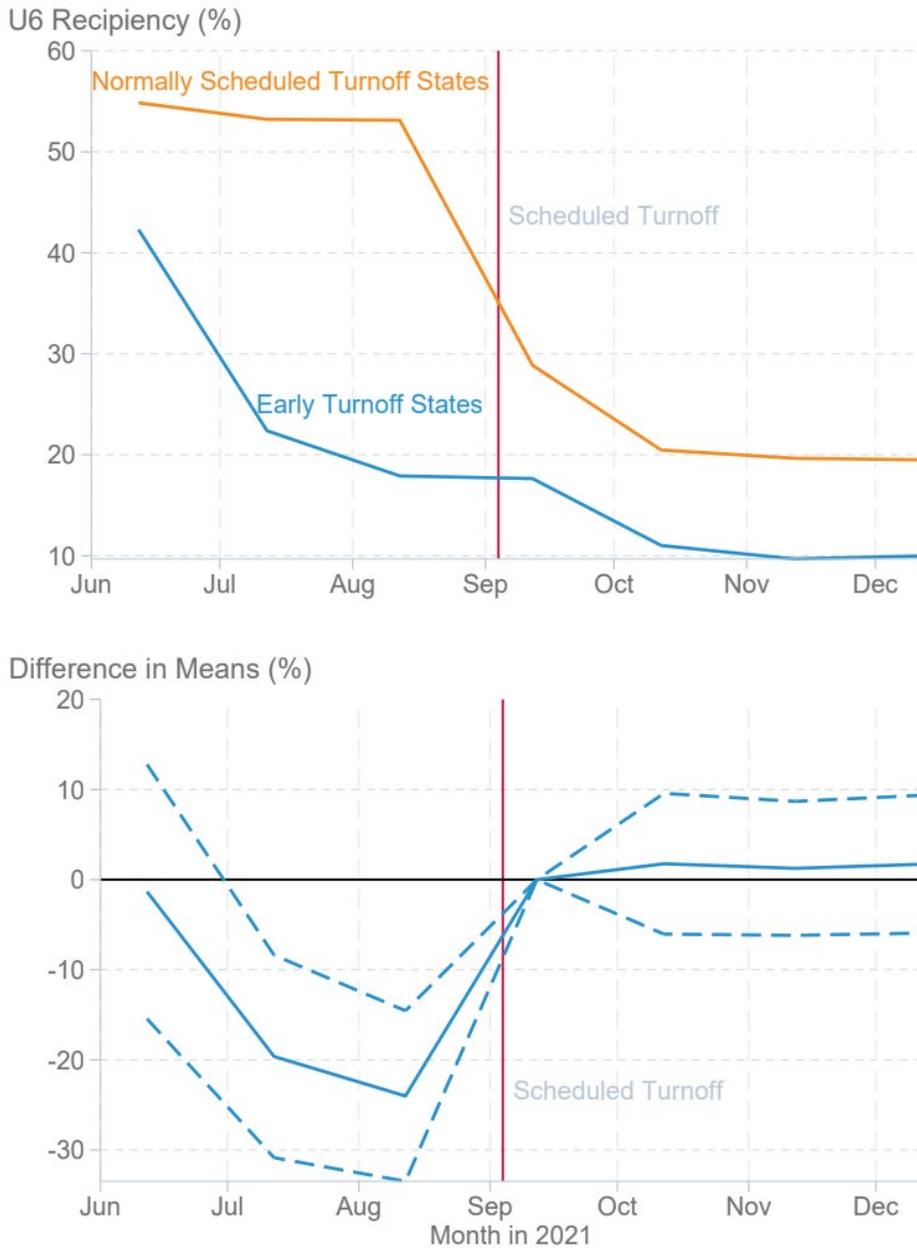
* p<0.05 ** p<0.01 *** p<0.001

6. Flipped Difference-in-Differences Graph and Regression

In this section, we present a regression analysis and supporting figure where the regular turnoff states are considered the treatment group, with the September 4th turnoff being the treatment date. The early turnoff states are treated as the control group. Data for the regression is limited to being only from June and onwards. Using this flipped design, we find a significant result that is very similar from the result in our main research design.

This flipped design involves additional assumptions about the duration of the impact of the expansion turnoff. In order for the early turnoff states to be a valid comparison group, there must be no lingering impacts of the June turnoffs that would be causing its reciprocity rate to trend differently from the normally scheduled turnoff states. From Figure A1, it is unclear whether this “parallel trends” assumption holds because the early turn off states are still being affected by their turn offs in the months leading up to the turn offs in the regular states. It is worth noting that if the early cutoff states still experience reductions in the reciprocity rate due to the end of PEUC, this would lead the flipped difference-in-difference design to understate the effect of the September benefit turnoff (since it would attribute the reductions in reciprocity occurring in early cutoff states to improving economic conditions also prevailing in the late turnoff states). Hence, it may not be surprising that the flipped regression results indicate a somewhat smaller turnoff effect.

Figure A1: Trends in Recipiency Rates June through December 2021



Notes: In the first panel, the population-weighted average recipiency for early and normally scheduled turnoff states is shown. In the second panel, the difference between these two trends (early minus normally scheduled turnoff) is shown relative to the difference in September, with the dashed lines representing the 95% confidence interval for this difference. Excludes Louisiana.

Table A8: Flipped U6 Reciprocity Regression

Outcome: U6 Reciprocity		
	Difference-in-Differences, June Included	Difference-in-Differences, June Excluded
Post Turnoff Period	-14.825***	-9.075***
	(2.13)	(1.49)
Normal Turnoff State	22.459**	25.763***
	(6.98)	(6.66)
Normal Turnoff State X Post Turnoff Period	-12.816*	-16.120**
	(5.21)	(4.77)
Constant	25.056***	19.306***
	(2.28)	(1.65)
N	343	294
R-Sqr	0.345	0.363
Mean Reciprocity in August	43.7	43.685

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Data covers June through December of 2021. “Mean Reciprocity in August” refers to the combined population-weighted average of early and normal turnoff states. Excludes Louisiana.

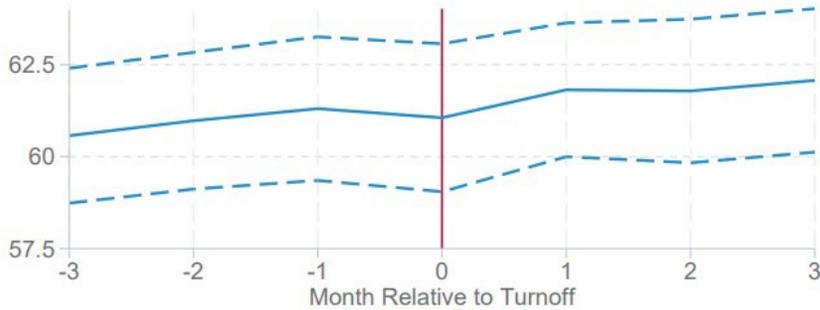
* p<0.05 ** p<0.01 *** p<0.001

7. Event Study Graph and DID Graph for all other Outcome Variables

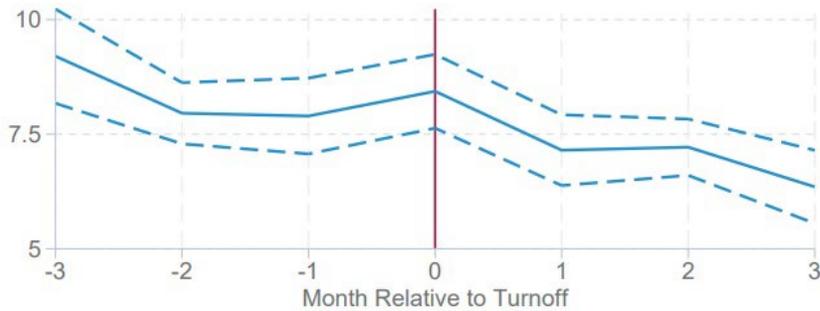
The figure below displays the pooled early-state event study graphs for the early-turnoff states. No outcome displays a clear shift around the early turnoff date. The employment-to-population ratio and the labor force participation rate display little trends over time. In contrast, the unemployment rates display a steady, close to linear trend before and after the early turn off date. The same is true for the regular turn off date. For these reasons, the difference-in-differences regression is our preferred specification for our analysis.

Figure A2: Event Study of Early Turnoff’s Impact on Employment-Population Ratio, U6 Unemployment, and the Labor Force Participation Rate Around June Expiration

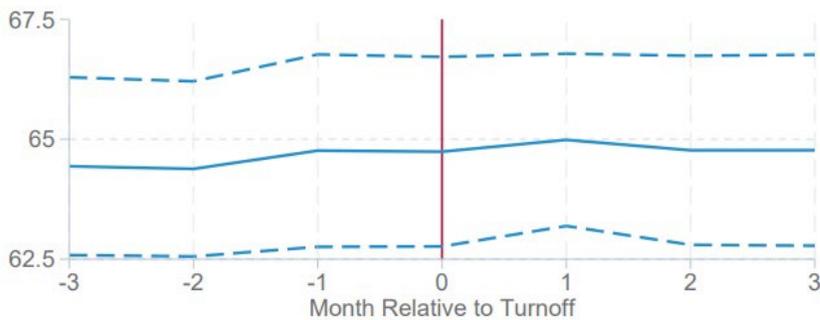
Employment-Population Ratio



U6 Unemployment Rate



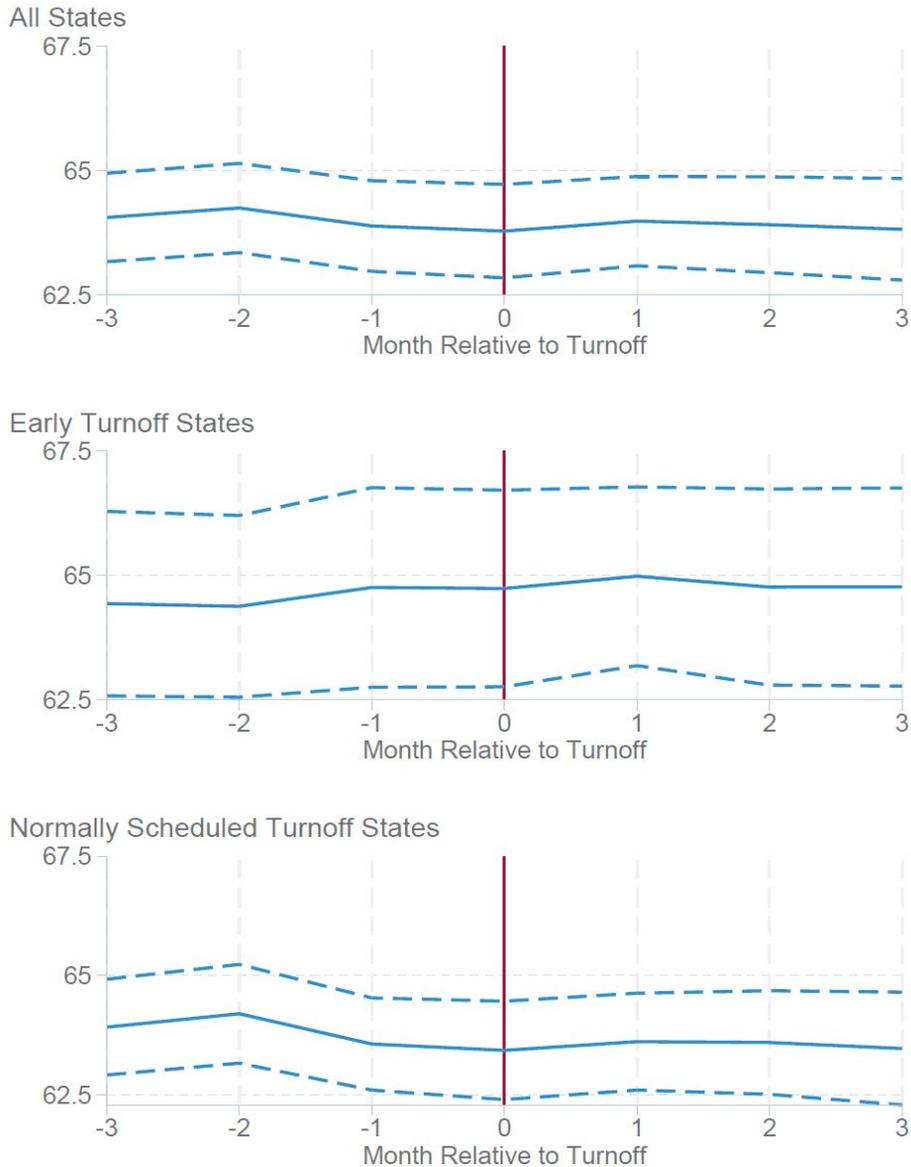
Labor Force Participation Rate



Notes: Displays the population-weighted outcomes for just the early turnoff states combined, excluding Louisiana. As these states all withdrew in June, month 0 refers to June 2021.

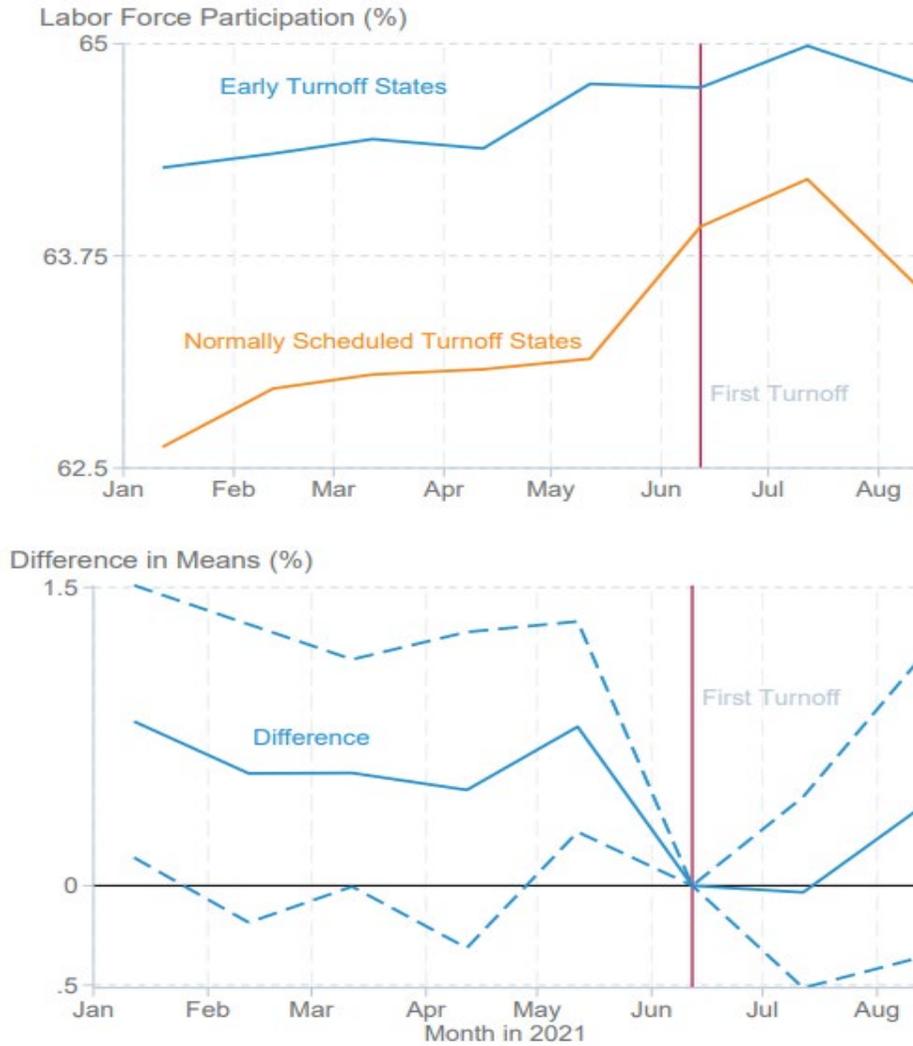
The rest of the figures in this section display an event study and trends graph for each of our labor outcomes.

Figure A3: Labor Force Participation Rate Event Study



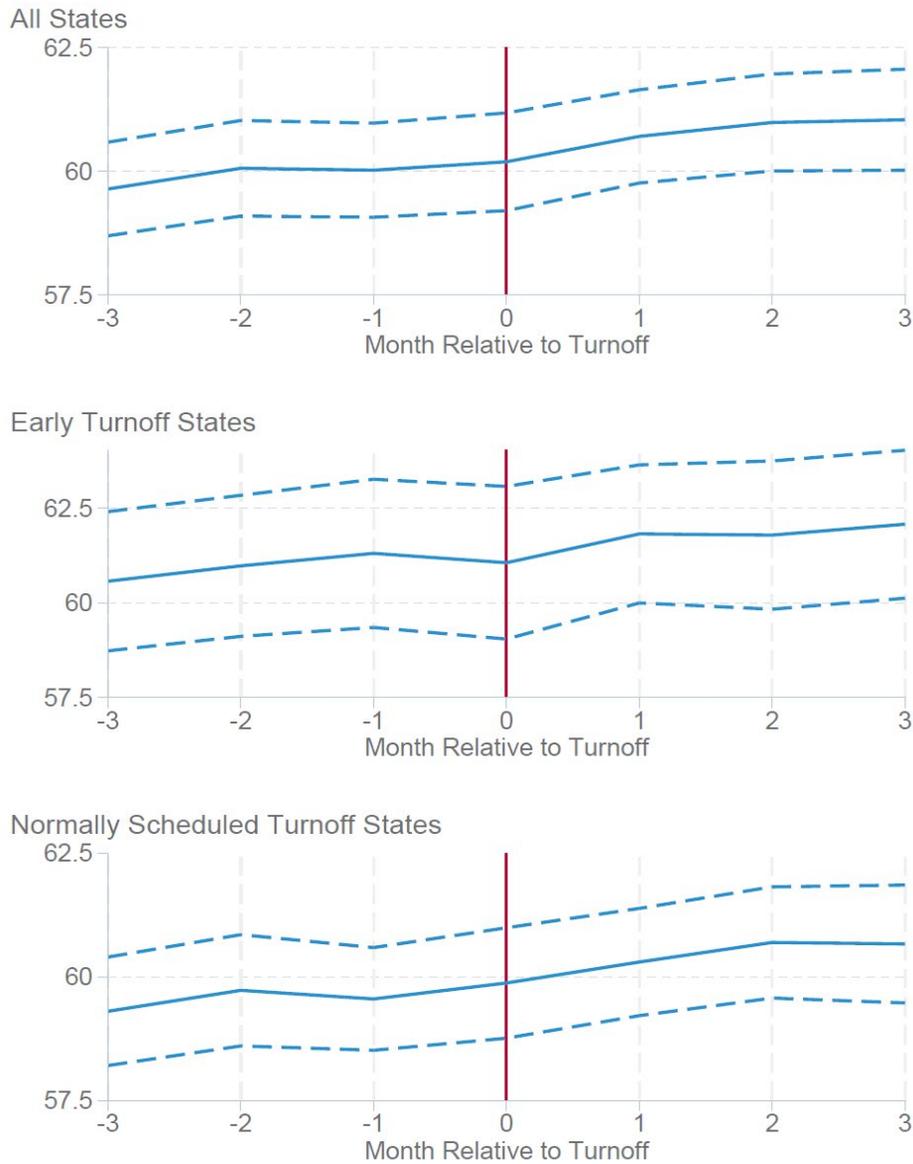
Notes: This figure presents event studies of the labor force participation rate around the time of withdrawal from UI expansions. The top panel displays the population-weighted mean labor force participation rate for all states (excluding Louisiana) combined. The middle panel displays this outcome for just the states that turned off UI expansion programs early in June 2021. The bottom panel displays this outcome for just the states that turned off the UI expansion programs on September 4th, 2021. In the top panel, the labor force participation rates are combined relative to each state's turnoff, meaning that -1 on the x-axis is averaging May LFP rates from early turnoff states and August LFP rates from normally scheduled turnoff states. Louisiana is excluded from all panels.

Figure A4: Labor Force Participation Trends graph



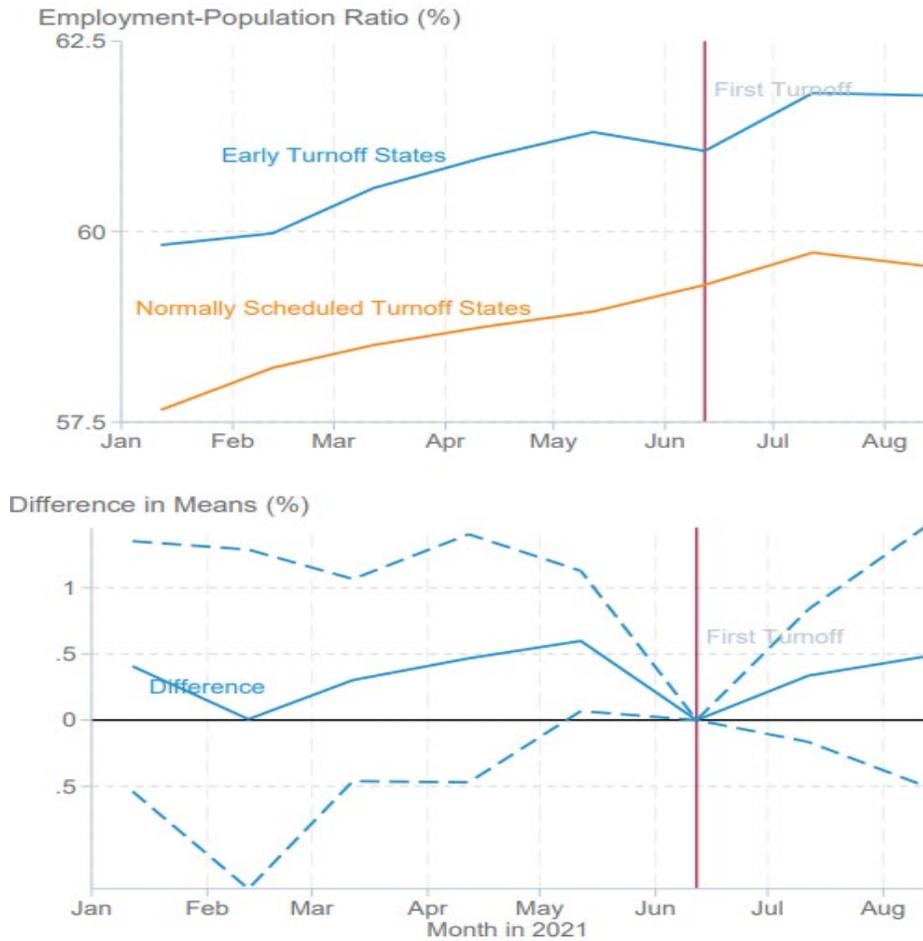
Notes: In the first panel, the population-weighted average labor force participation rate for early and normally scheduled turnoff states is shown. In the second panel, the difference between these two trends (early minus normally scheduled turnoff) is shown relative to the difference in June, with the dashed lines representing the 95% confidence interval for this difference. Excludes Louisiana.

Figure A5: EPOP Event Study



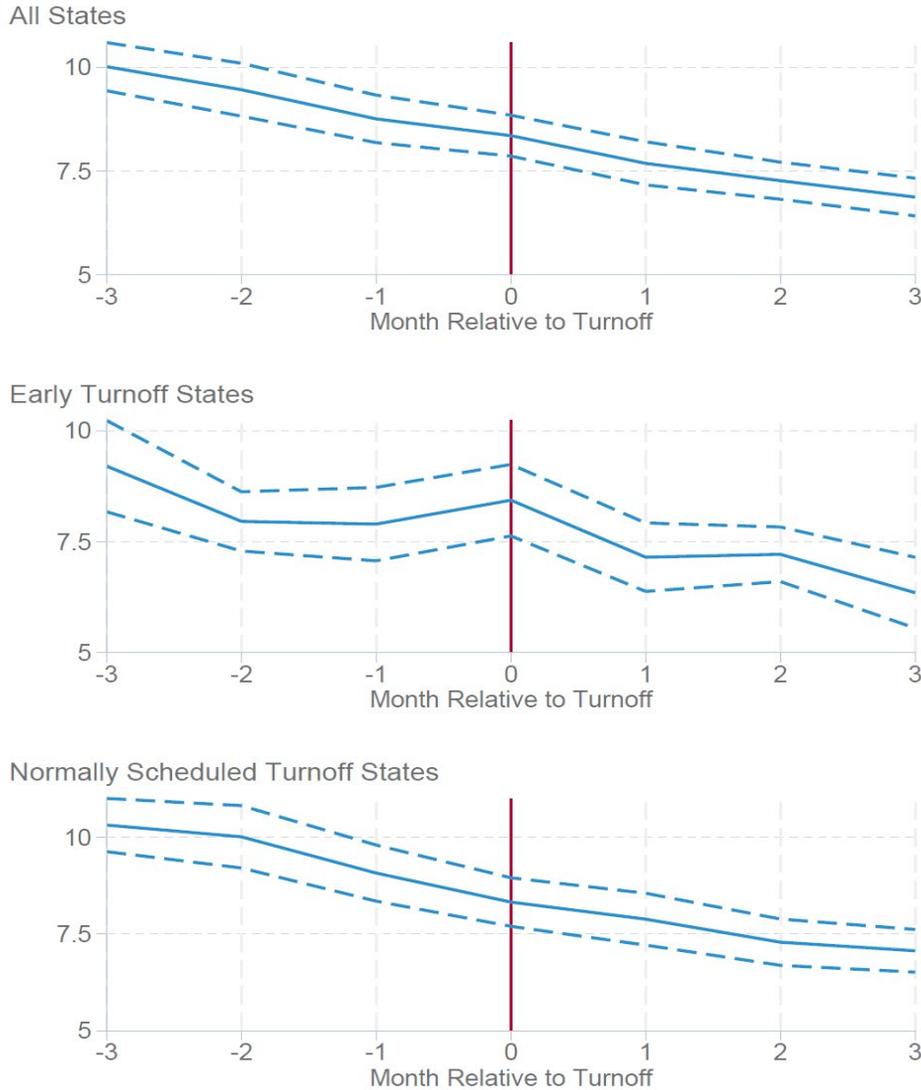
Notes: This figure presents event studies of the EPOP rate around the time of withdrawal from UI expansions. The top panel displays the population-weighted mean EPOP rate for all states (excluding Louisiana) combined. The middle panel displays this outcome for just the states that turned off UI expansion programs early in June 2021. The bottom panel displays this outcome for just the states that turned off the UI expansion programs on September 4th, 2021. In the top panel, the EPOP rates are combined relative to each state's turnoff, meaning that -1 on the x-axis is averaging May EPOP rates from early turnoff states and August EPOP rates from normally scheduled turnoff states. Louisiana is excluded from all panels.

Figure A6: EPOP Trends Graph



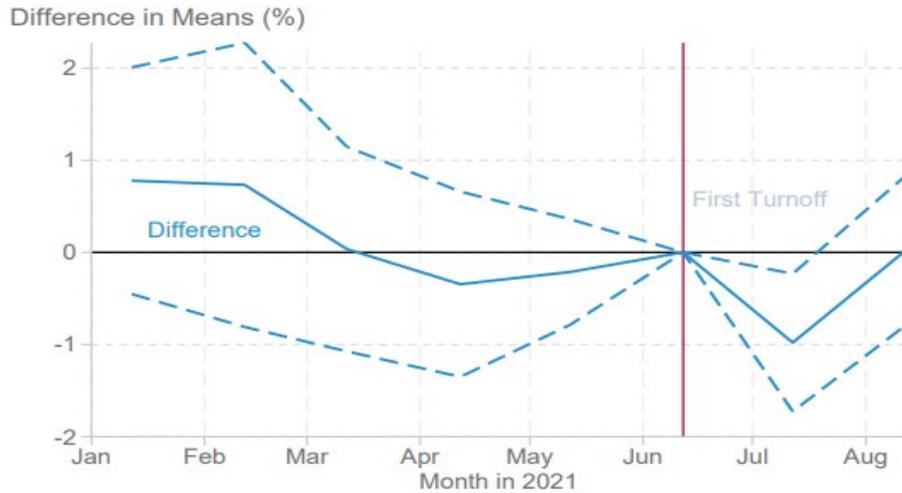
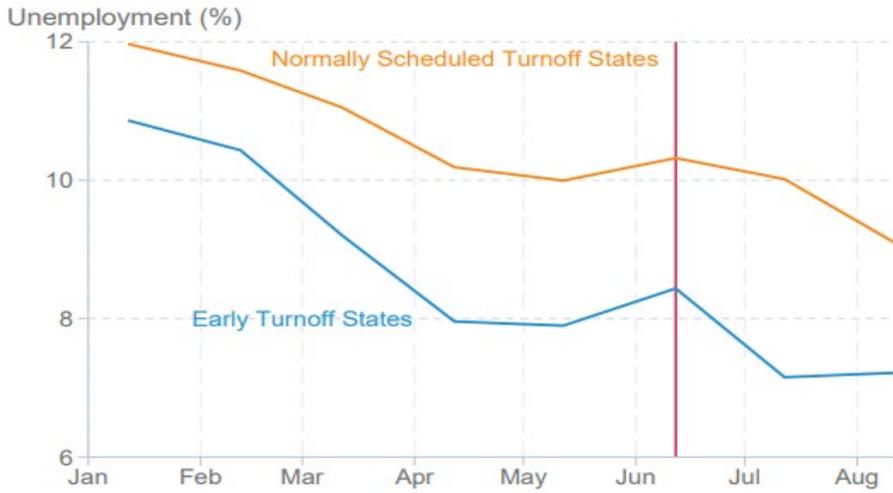
Notes: In the first panel, the population-weighted average EPOP rate for early and normally scheduled turnoff states is shown. In the second panel, the difference between these two trends (early minus normally scheduled turnoff) is shown relative to the difference in June, with the dashed lines representing the 95% confidence interval for this difference. Excludes Louisiana.

Figure A7: U6 Rate Event Study Graph



Notes: This figure presents event studies of the U6 rate around the time of withdrawal from UI expansions. The top panel displays the population-weighted mean U6 rate for all states (excluding Louisiana) combined. The middle panel displays this outcome for just the states that turned off UI expansion programs early in June 2021. The bottom panel displays this outcome for just the states that turned off the UI expansion programs on September 4th, 2021. In the top panel, the U6 rates are combined relative to each state's turnoff, meaning that -1 on the x-axis is averaging May U6 rates from early turnoff states and August U6 rates from normally scheduled turnoff states. Louisiana is excluded from all panels.

Figure A8: U6 Rate Trends Graph



Notes: In the first panel, the population-weighted average U6 rate for early and normally scheduled turnoff states is shown. In the second panel, the difference between these two trends (early minus normally scheduled turnoff) is shown relative to the difference in June, with the dashed lines representing the 95% confidence interval for this difference. Excludes Louisiana.

8. California Event Study

Below displays an event-study regression of just the state of California, with and without the inclusion of linear controls. However, we hesitate to draw conclusions from this regression given the small number of observations.

Table A9: California Event Study U6 Reciprocity Regression

Outcome: U6 Reciprocity		
	Event Study (1)	Event Study with Linear Trend (2)
Post Turnoff Period	-44.806**	-22.897
	(9.46)	(16.95)
Month		-6.260
		(4.19)
Constant	70.869***	117.816*
	(6.19)	(31.95)
R-sqr	0.818	0.883
N	7.000	7.000
Reciprocity in August	73.883	73.883

Notes: Standard errors in parentheses. Data covers June through December of 2021.

* p<0.05 ** p<0.01 *** p<0.001

9. Labor Outcome Event Studies

The results of event-study regressions for our three labor supply outcomes (the employment-population ratio, the unemployment rate, and the labor force participation rate) are shown below. Note that an event study design is not a sensible specification for these labor outcomes due to their slower reactions to policy changes. The unemployment rate in particular is inappropriate for an event-study design due to the apparent pre-existing trend before the June turnoffs, as shown in Section 7 of the appendix (the unemployment rate was already declining prior to the turnoff). More generally, the difference-in-difference results are our preferred estimates, since they control for countervailing trends and hence more closely reflect the true impact of extension turnoffs.

For the sake of transparency, our event-study results for our labor outcomes are displayed below despite the above reservations.

Table A10: Employment-Population Ratio Event Study

Outcome: Employment-Population Ratio		
	Event Study (1)	Event Study with Linear Trend (2)
Post Turnoff Period	0.931***	1.736*
	(0.16)	(0.79)
Month		-0.230
		(0.22)
Constant	59.978***	61.517***
	(0.54)	(1.47)
N	343	343
R-Sqr	0.018	0.030
Mean of Outcome in Month Before Turnoff	60.021	60.021

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state's turnoff. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

Table A11: U6 Unemployment Rate Event Study

Outcome: Unemployment Rate		
	Event Study (1)	Event Study with Linear Trend (2)
Post Turnoff Period	-1.872***	-1.824**
	(0.11)	(0.55)
Month		-0.014
		(0.14)
Constant	9.150***	9.243***
	(0.45)	(0.93)
N	343	343
R-Sqr	0.183	0.183
Mean of Outcome in Month Before Turnoff	8.761	8.761

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state's turnoff. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

Table A12: Labor Force Participation Rate Event Study

Outcome: Labor Force Participation Rate		
	Event Study (1)	Event Study with Linear Trend (2)
Post Turnoff Period	-0.089	0.796
	(0.18)	(0.87)
Month		-0.253
		(0.24)
Constant	63.996***	65.689***
	(0.49)	(1.67)
N	343.000	343.000
R-Sqr	0.000	0.016
Mean of Outcome in Month Before Turnoff	63.889	63.889

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state’s turnoff. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

10. Alternative Specifications

In this section, we recreate our main difference-in-differences regressions with the inclusion of state and time fixed effects, which are controls that can potentially account for extraneous factors that may be influencing our results. These controls function similarly to the “Early Turnoff State” and “Post Turnoff Period” control variables respectively we have been including in our regressions.

We find that including these fixed effects in place of the control variables used previously do not impact the results of our analysis and actually make our results less precise.

Table A13: DID Regressions with State Fixed-Effects

Outcome:	Reciency	Unemployment Rate	Labor Participation Rate	Employment-Population Ratio
Post Turnoff Period	-5.459	-0.621*	0.503**	0.636***
	(5.03)	(0.24)	(0.16)	(0.16)
Early Turnoff State X Post Turnoff Period	-22.015**	-0.292	-0.253	0.053
	(7.67)	(0.33)	(0.37)	(0.34)
N	245.000	245.000	245.000	245.000
R-Sqr	0.887	0.854	0.954	0.963
Outcome Mean in May	57.586	9.432	63.578	59.582

Notes: Coefficients on individual 50 states not shown. Alaska dropped due to multicollinearity. Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Data covers April through August of 2021.

* p<0.05 ** p<0.01 *** p<0.001

Table A14: DID Regressions with Time Fixed-Effects

Outcome:	Reciency	Unemployment Rate	Labor Participation Rate	Employment-Population Ratio
Early Withdrawal State	-11.020	-2.070*	1.246	2.113*
	(9.14)	(0.84)	(1.06)	(1.04)
Early Turnoff State X Post Turnoff Period	-22.015**	-0.292	-0.253	0.053
	(6.93)	(0.29)	(0.34)	(0.30)
Month=May	-0.374	-0.157	0.147	0.233
	(1.99)	(0.23)	(0.20)	(0.22)
Month=June	-6.471	0.225	0.711***	0.423
	(3.56)	(0.28)	(0.16)	(0.22)
Month=July	-7.107	-0.263	1.050***	0.923***
	(6.44)	(0.27)	(0.23)	(0.26)
Month=August	-8.374	-0.933**	0.528*	0.787**
	(5.30)	(0.28)	(0.22)	(0.23)
N	245	245	245	245
R-Sqr	0.169	0.205	0.036	0.082
Outcome Mean in May	57.586	9.432	63.578	59.582

Notes: April dropped due to multicollinearity. Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Data covers April through August of 2021.

* p<0.05 ** p<0.01 *** p<0.001

Table A15: DID Regressions with Both State and Time Fixed Effects

Outcome:	Reciency	Unemployment Rate	Labor Participation Rate	Employment-Population Ratio
Early Turnoff State X Post Turnoff Period	-22.015**	-0.292	-0.253	0.053
	(7.73)	(0.33)	(0.38)	(0.34)
month=5	-0.374	-0.157	0.147	0.233
	(2.22)	(0.26)	(0.23)	(0.24)
month=6	-6.471	0.225	0.711***	0.423
	(3.97)	(0.32)	(0.18)	(0.24)
month=7	-7.107	-0.263	1.050***	0.923**
	(7.19)	(0.31)	(0.26)	(0.29)
month=8	-8.374	-0.933**	0.528*	0.787**
	(5.91)	(0.31)	(0.24)	(0.26)
N	245	245	245	245
R-Sqr	0.893	0.865	0.962	0.965
Outcome Mean in May	57.586	9.432	63.578	59.582

Notes: Coefficients on individual 50 states not shown. April and Alaska dropped due to multicollinearity. Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Data covers April through August of 2021.

* p<0.05 ** p<0.01 *** p<0.001

11. CPS U3 Regressions

The following table displays our event study and difference-in-differences regression results using the U3 unemployment rate as our outcome variable. This unemployment rate does not include discouraged workers. Our difference-in-differences results, which is our preferred regression model for the unemployment rate, does not display significant results.

This is in contrast to the results found by Coombs et al., which found that the turnoffs would have led to a 0.3 percentage point decline in the U3 unemployment rate. However, these authors utilized a dataset from the financial company Earnin, rather than a comprehensive dataset of all unemployed workers. This means that the authors' sample is "composed entirely of low-income and credit-constrained workers who

are likely to respond more strongly to a loss of benefits than higher-income workers affected by the same policy”, likely leading to their results being an overestimate of the true effect.

Table A16: U3 Unemployment Rate Regressions

Outcome: U3 Unemployment Rate			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	-1.551***	-1.471***	-0.172
	(0.11)	(0.37)	(0.18)
Month		-0.023	
		(0.09)	
Early Withdrawal State			-1.342*
			(0.50)
Early Turnoff State X Post Turnoff Period			-0.457
			(0.26)
Constant	5.586***	5.739***	6.138***
	(0.27)	(0.60)	(0.39)
N	343	343	245
R-Sqr	0.261	0.262	0.205
Mean of Outcome in Month Before Turnoff	5.432	5.432	5.488

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. In the event study regressions, data is restricted to three months before and after each state’s turnoff. In the difference-in-differences regression, data covers April through August of 2021. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

12. CPS Regressions with Transition Month Dropped

The month that a state turns off the PEUC extensions can be thought of as a transitory month. Even if the reference date for our monthly CPS data is technically past the date of a PEUC turnoff, many former claimants are still receiving PEUC benefits due to the late filing of their claims. Additionally, potential labor effects resulting from a turnoff might not have had time to take effect in the first week or two after a turnoff occurs.

In the regressions in our paper, we treat the month in which a turnoff occurs as being in the pre-turnoff period. To account for potential concerns about the classification of the turnoff month, the regressions below display the event study and difference-in-differences regressions with observations from the month of the turnoff dropped. Our point estimates do not change substantially after dropping these months,

although they become slightly less precise. The results from our labor difference-in-differences regressions remain insignificant.

Table A17: UI Reciprocity Regressions with Transition Months Dropped

Outcome: UI Reciprocity			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	-32.477***	-35.020***	-7.349
	(4.41)	(8.78)	(5.64)
Month		0.636	
		(1.25)	
Early Withdrawal State			-10.256
			(9.37)
Early Turnoff State X Post Turnoff Period			-22.779**
			(7.98)
Constant	52.199***	48.259***	60.523***
	(5.68)	(4.75)	(7.21)
N	294.000	294.000	196.000
R-Sqr	0.412	0.414	0.195
Mean Reciprocity in Month Before Turnoff	51.958	51.958	57.586

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Difference-in-differences regression data covers April through August of 2021, dropping June. Event study regression data covers 3-months before and after each state's turnoff, dropping the month of the turnoff. "Mean Reciprocity in Month Before Turnoff" refers to the population-weighted average in the month before the turnoff. Uses U6 definition of unemployment to calculate reciprocity. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

Table A18: EPOP Regressions with Transition Months Dropped

Outcome: Employment-to-Population			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	1.002***	2.147*	0.786***
	(0.18)	(1.02)	(0.17)
Month		-0.286	
		(0.25)	
Early Withdrawal State			2.290*
			(1.04)
Early Turnoff State X Post Turnoff Period			-0.125
			(0.34)
Constant	59.908***	61.681***	58.852***
	(0.54)	(1.53)	(0.68)
N	294	294	196
R-Sqr	0.021	0.038	0.090
Mean Employment-to-Population Rate in Month Before Turnoff	60.021	60.021	59.582

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Difference-in-differences regression data covers April through August of 2021, dropping June. Event study regression data covers 3-months before and after each state's turnoff, dropping the month of the turnoff. "Mean Employment-to-Population in Month Before Turnoff" refers to the population-weighted average in the month before the turnoff. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

Table A19: Unemployment Rate Regressions with Transition Months Dropped

Outcome: Unemployment Rate			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	-2.137***	-2.516**	-0.544*
	(0.15)	(0.81)	(0.24)
Month		0.095	
		(0.18)	
Early Withdrawal State			-2.163*
			(0.87)
Early Turnoff State X Post Turnoff Period			-0.198
			(0.32)
Constant	9.415***	8.827***	10.091***
	(0.48)	(1.03)	(0.69)
N	294	294	196
R-Sqr	0.230	0.234	0.192
Mean Unemployment Rate in Month Before Turnoff	8.761	8.761	9.432

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Difference-in-differences regression data covers April through August of 2021, dropping June. Event study regression data covers 3-months before and after each state's turnoff, dropping the month of the turnoff. "Mean Unemployment Rate in Month Before Turnoff" refers to the population-weighted average in the month before the turnoff. Uses U6 definition of unemployment. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

Table A20: LFP Rate Regressions with Transition Months Dropped

Outcome: Labor Force Participation Rate			
	Event Study (1)	Event Study with Linear Trend (2)	Difference-in-Differences (3)
Post Turnoff Period	-0.159	0.856	0.772***
	(0.20)	(1.13)	(0.16)
Month		-0.254	
		(0.27)	
Early Withdrawal State			1.460
			(1.06)
Early Turnoff State X Post Turnoff Period			-0.466
			(0.39)
Constant	64.066***	65.639***	63.113***
	(0.48)	(1.76)	(0.56)
N	294.000	294.000	196.000
R-Sqr	0.001	0.015	0.038
Mean Labor Force Participation Rate in Month Before Turnoff	63.889	63.889	63.578

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Difference-in-differences regression data covers April through August of 2021, dropping June. Event study regression data covers 3-months before and after each state's turnoff, dropping the month of the turnoff. "Mean Labor Force Participation Rate in Month Before Turnoff" refers to the population-weighted average in the month before the turnoff. Uses U6 definition of labor force. Excludes Louisiana.

* p<0.05 ** p<0.01 *** p<0.001

13. Mechanical Change in Claimants Following Turnoffs

The table in this section displays the total number of UI claimants affected by the end of PEUC, irrespective of whether they found a job. Comparing the month before and after the turnoffs, there were about 1 million fewer PEUC claimants in early turnoff states and 3.5 million fewer PEUC claimants in normally scheduled turnoff states (note that some unemployed workers continue to claim PEUC after the turnoff date due to the late filing of their benefits).⁴

Table A21: Total PEUC Claimants by Turnoff and Period

	Early Turnoff States	Normal Turnoff States ⁵	Aggregate
Number of PEUC claimants 1-month before turnoff	964,666	3,770,458	4,735,124
Number of PEUC claimants 1-month after turnoff⁶	15,641	224,634	240,275
Number of Total Claimants 1-month before turnoff	1,628,746	6,075,044	7,703,790
Number of Total Claimants 1-month after turnoff	685,516	2,013,082	2,698,598
Change in PEUC claimants	-949,025	-3,545,824	-4,494,849
Change in Total Claimants	-943,230	-4,061,962	-5,005,192

Notes: Displays the number of total and PEUC claimants in each group of states in the month before and after their turnoff. Also displays the differences between these values.

⁴ This approximately 4.5 million mechanical change in PEUC claimants is larger than our preferred estimated impact of 3.1 million claimants. This is because our estimated 3.1 million claimants accounts for national trends in variables such as reciprocity and unemployment that would have still occurred in the absence of the turnoffs.

⁵ This includes Louisiana, which compares Louisiana's total and PEUC claimants from July to August.

⁶ Some claims continued to be paid after the PEUC turnoff due to their late filing.

Total claimants (which includes PEUC, base, and extended benefit claimants) declined by 943,230 in the early turnoff states and by 4,017,864 in the late turnoff states, yielding a combined decline of 4,961,094 total claimants. PEUC claimants composed 90.6% of this total, declining by a combined 4,494,849 claimants.

In Table A22, we use the estimates from our difference-in-differences model to extrapolate how many unemployed workers lost UI coverage as a result of the turnoffs. In our model, we estimated that the turnoffs lead to a 22 percentage-point decrease in reciprocity rates, with an upper bound of 35 percentage-points and a lower bound of 8.5 percentage-points. Using this method, we find that between 1.2 and 5 million claimants lost benefits as a result of the turnoffs, with a point-estimate of 3.1 million.

Table A22: Total Unemployed by Turnoff Group and Period, and the Extrapolated Change in Number of Claimants

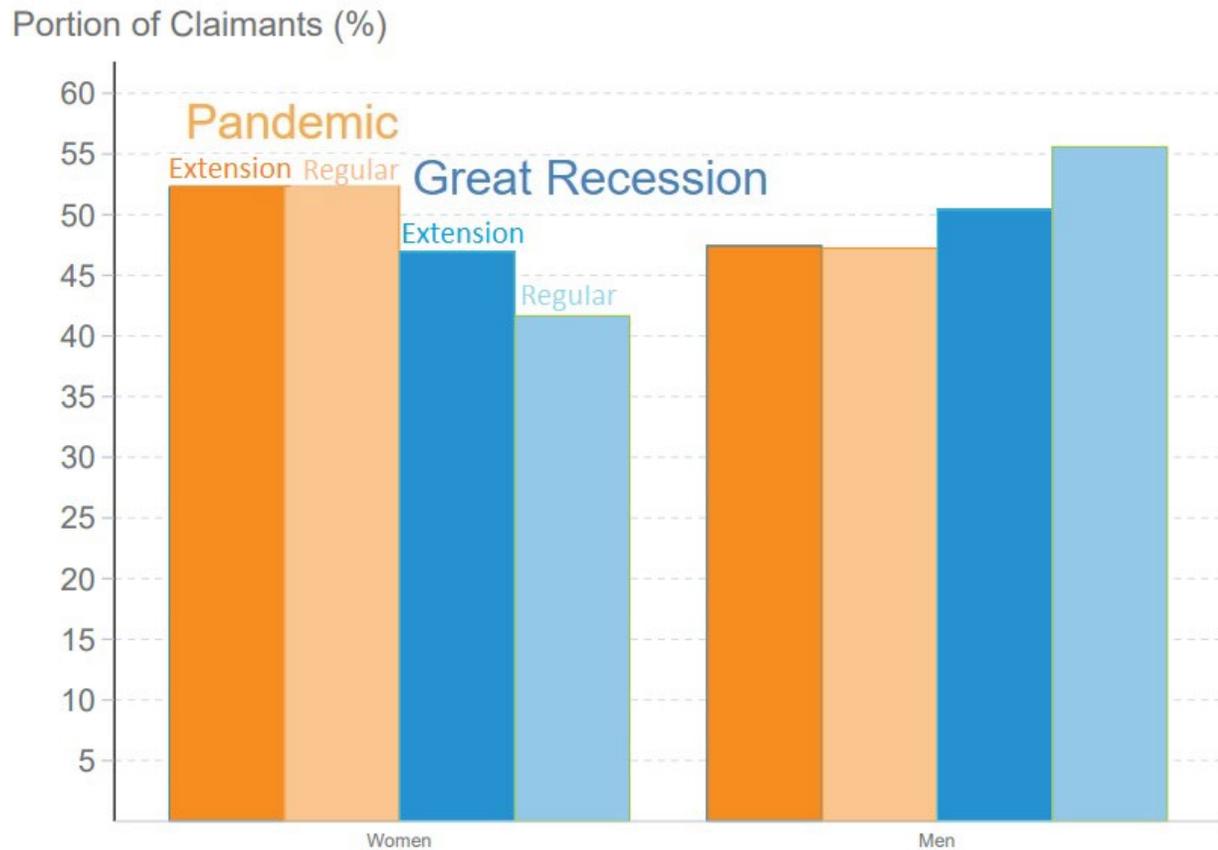
	Early Turnoff States	Normal Turnoff States	Aggregate
Number of unemployed workers 1-month before turnoff	3,342,025	10,906,903	14,248,928
Number of removed claimants based on DID point estimates and unemployment	735,747	2,401,155	3,136,902
Number of removed claimants based on DID lower bound and unemployment	285,081	930,381	1,215,462
Number of removed claimants based on DID upper bound and unemployment	1,186,413	3,871,929	5,058,342
Total reciprocity 1-month before turnoff	48.74%	55.74%	54.10%
Estimated change in reciprocity from DID model	22.015 (+- 1.96 * 6.88) percentage-points	22.015 (+- 1.96 * 6.88) percentage-points	22.015 (+- 1.96 * 6.88) percentage-points

14. Great Recession Demographic Comparisons

In this section, we examine how the demographic results in the main report compare to the demographics of claimants during the most recent previous UI expansion which occurred during the Great Recession. During the Great Recession, claimants could obtain additional weeks of UI benefits through the EUC program. In the main report, we examined how the demographics of PEUC claimants compared with base UI claimants during the week of September 4th, 2021 in California. There, we found that PEUC claimants were more likely to be less-educated workers, Black workers, and workers over the age of 64 compared to base claimants. Here, we add to this analysis base and extension claimants in California during the week of December 28th, 2013, which is right before the EUC program expired. All data in this section comes from California's Employment Development Department.

The below figure examines the gender of claimants during both expansion periods. While most claimants during the pandemic expansion were women, we find that most claimants during the Great Recession expansion were men. This can reflect how the pandemic uniquely affected women-dominated industries. Although most base and EUC claimants during the Great Recession were men, there was a relatively higher share of women on EUC than on base UI.

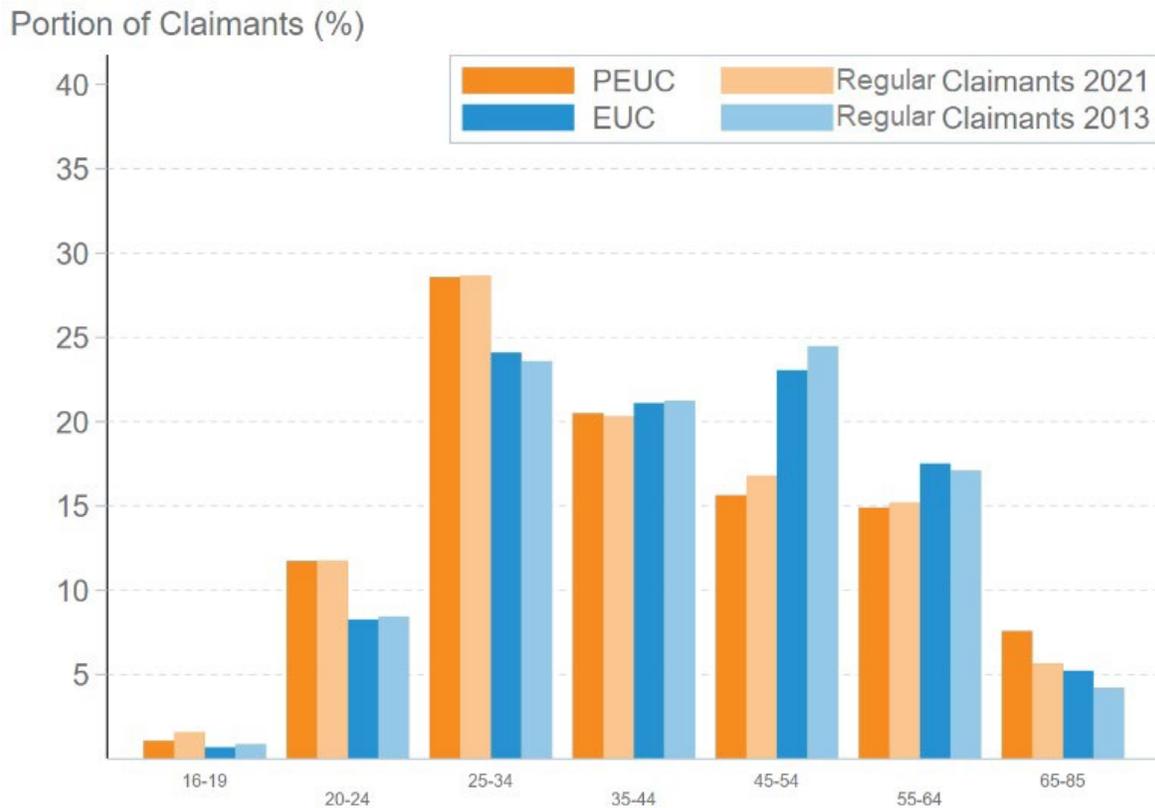
Figure A9: California Extension and Base UI Claimants by Gender Separated by Claimant Type in the Week Ending September 4th 2021 and in the Week Ending December 28th 2013



Notes: Displays the proportion of claimants that identify as male or female by claimant type and year. The bars add up to slightly less than 100% (>99%) for each claimant type (base and PEUC/EUC) for each year due to missing or unreported data. Gender data is collected by the Employment Development Department and is self-reported.

The below figure now conducts this demographic breakdown by the age of claimants. Claimants during the pandemic were on average younger than during the Great Recession, at least in California. Additionally, PEUC claimants were about 34% more likely to be over the age of 64 compared to base claimants during the pandemic. We do find that EUC claimants were also more likely that 2013 base claimants to be over the age of 65, but the difference is not as large.

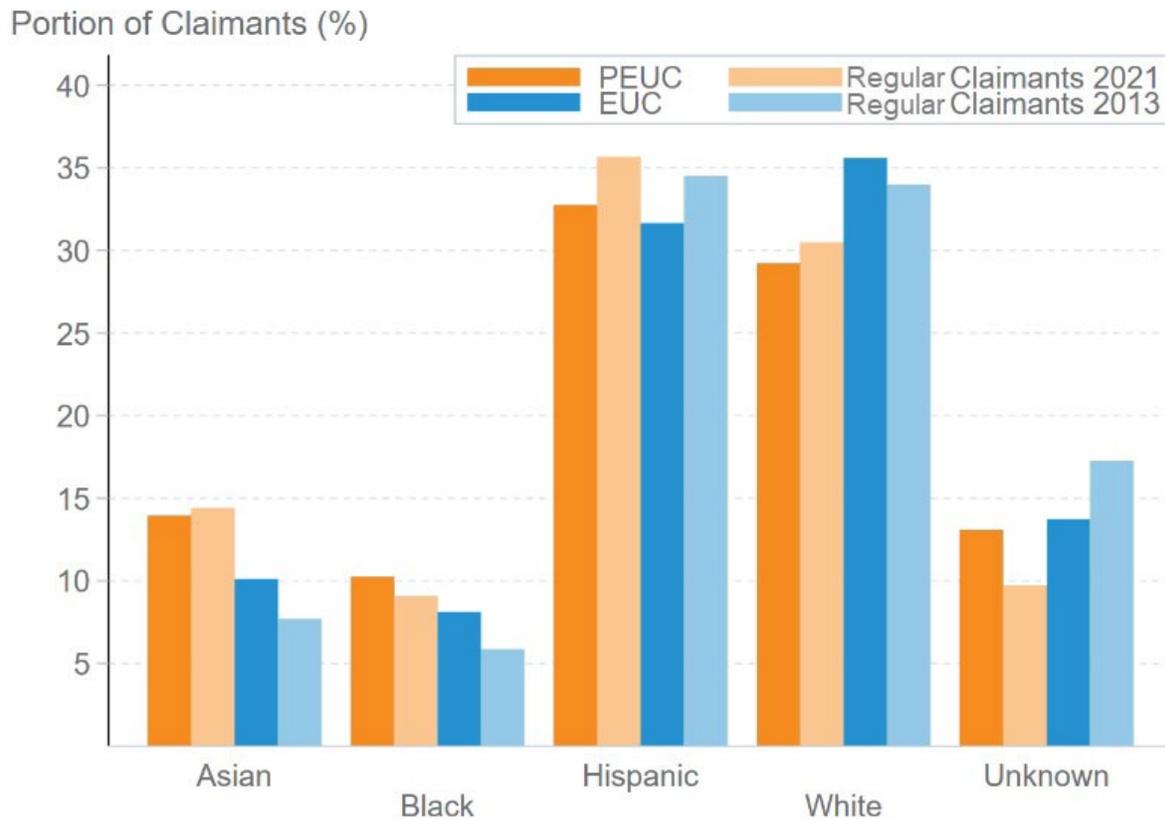
Figure A10: California Extension and Base UI Claimants by Age Separated by Claimant Type in the Week Ending September 4th 2021 and in the Week Ending December 28th 2013



Notes: This figure displays the proportion of claimants by age group by claimant type and year. Age data is collected by the Employment Development Department, and bars add up to 100% for each category.

The below figure performs this analysis by race and ethnicity. As with our PEUC findings, we find that EUC claimants were more likely to identify as Black relative to base claimants in that week. However, in both turnoffs, a sizable portion of claimants (between 10% and 17%) also do not disclose their racial identity, meaning these initial results should be interpreted with a degree of caution.

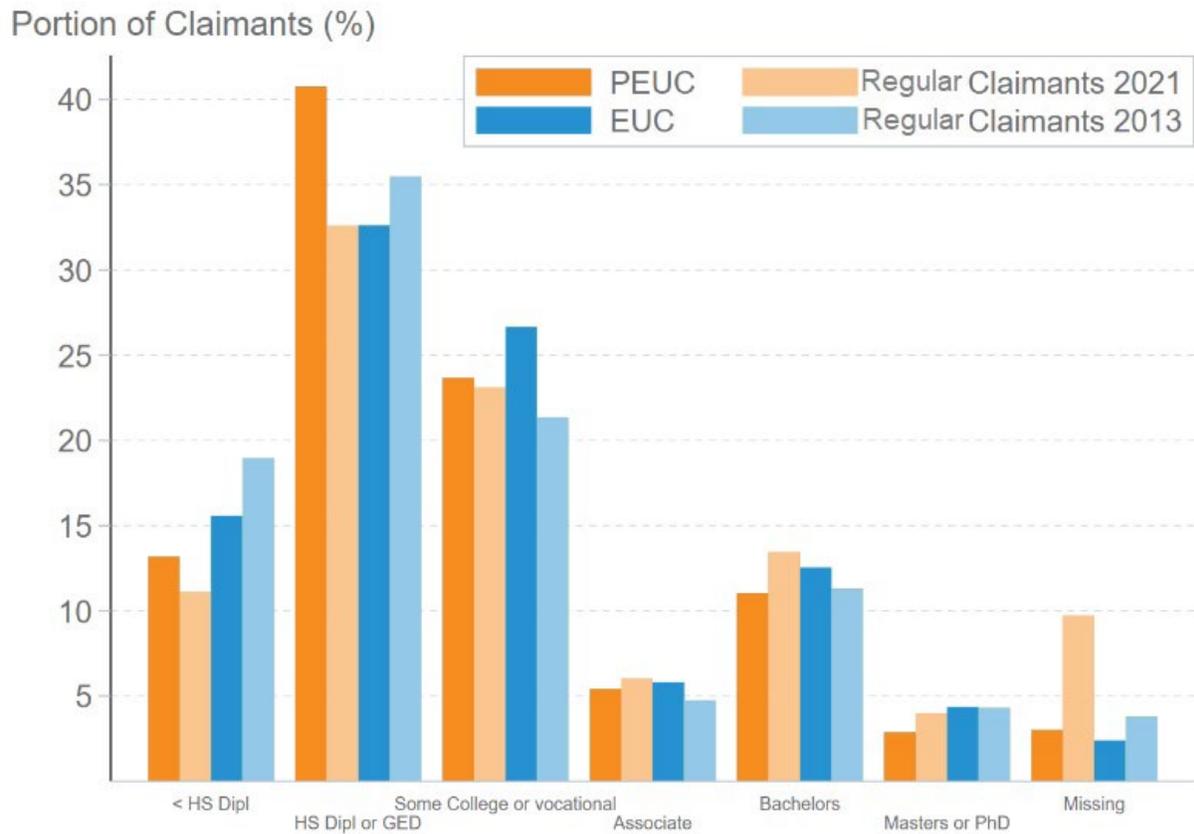
Figure A11: California Extension and Base UI Claimants by Race and Ethnicity Separated by Claimant Type in the Week Ending September 4th 2021 and in the Week Ending December 28th 2013



Notes: Displays the proportion of claimants that are of each race and ethnicity by claimant type and year. Claimants that identified as Native American or Alaskan are not shown. This group composed 0.71% of PEUC claimants, 0.69% of 2021 base claimants, 0.77% of EUC claimants, and 0.66% of 2013 base claimants. For this reason, the bars add up to slightly less than 100% for each claimant type (base and PEUC/EUC) for each year. Race and ethnic demographic data is collected by the Employment Development Department and is self-reported.

The below figure performs a similar analysis on the educational attainment of California’s claimants. We find opposite trends between the two periods of expansion. During the pandemic, extension claimants were less educated than those on base UI. During the Great Recession, those on EUC were on average more educated than claimants on base UI.

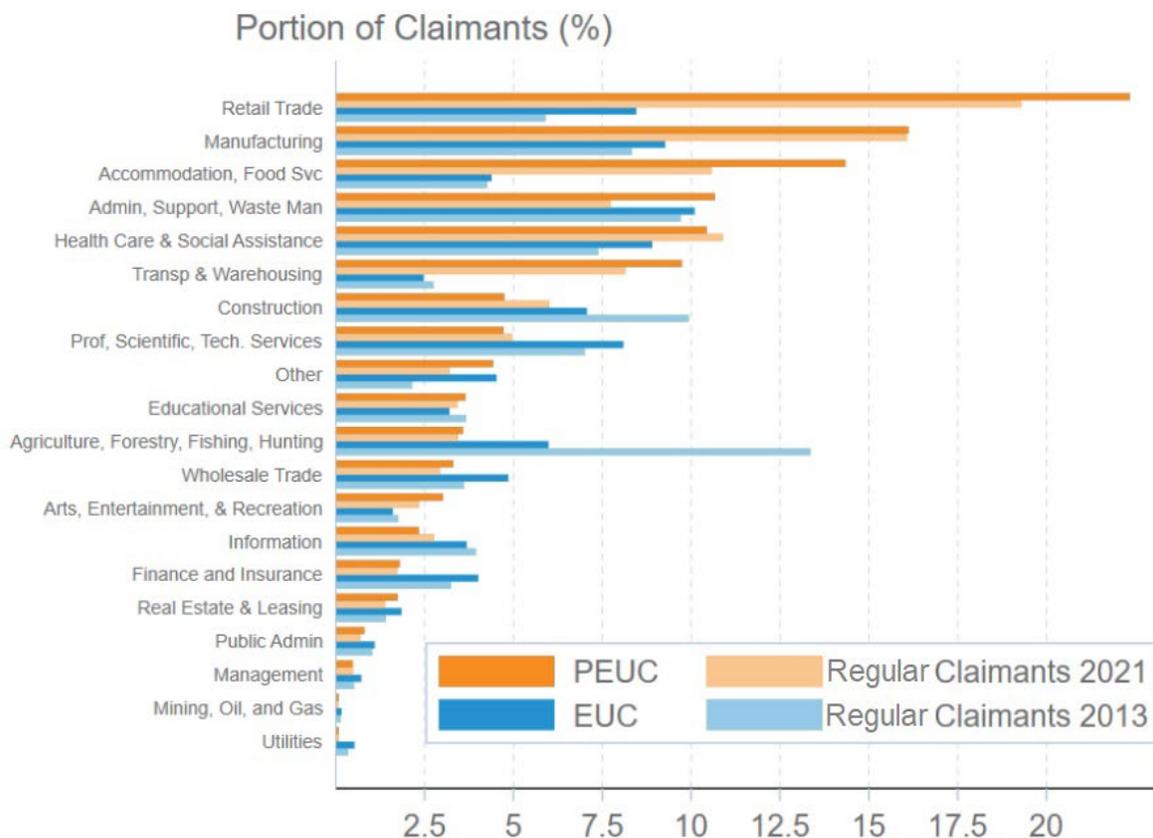
Figure A12: California Extension and Base UI Claimants by Educational Attainment Separated by Claimant Type in the Week Ending September 4th 2021 and in the Week Ending December 28th 2013



Notes: Displays the proportion of claimants by highest degree obtained by claimant type and year. The bars add up to 100% for each claimant type (base and PEUC/EUC) for each year. Educational data is collected by the Employment Development Department and is self-reported.

In the below figure, we analyze claimant's industries. Agriculture, finance, and construction workers were much more prominent among claimants during the Great Recession compared to during the pandemic.

Figure A13: California Extension and Base UI Claimants by Industry Separated by Claimant Type in the Week Ending September 4th 2021 and in the Week Ending December 28th 2013



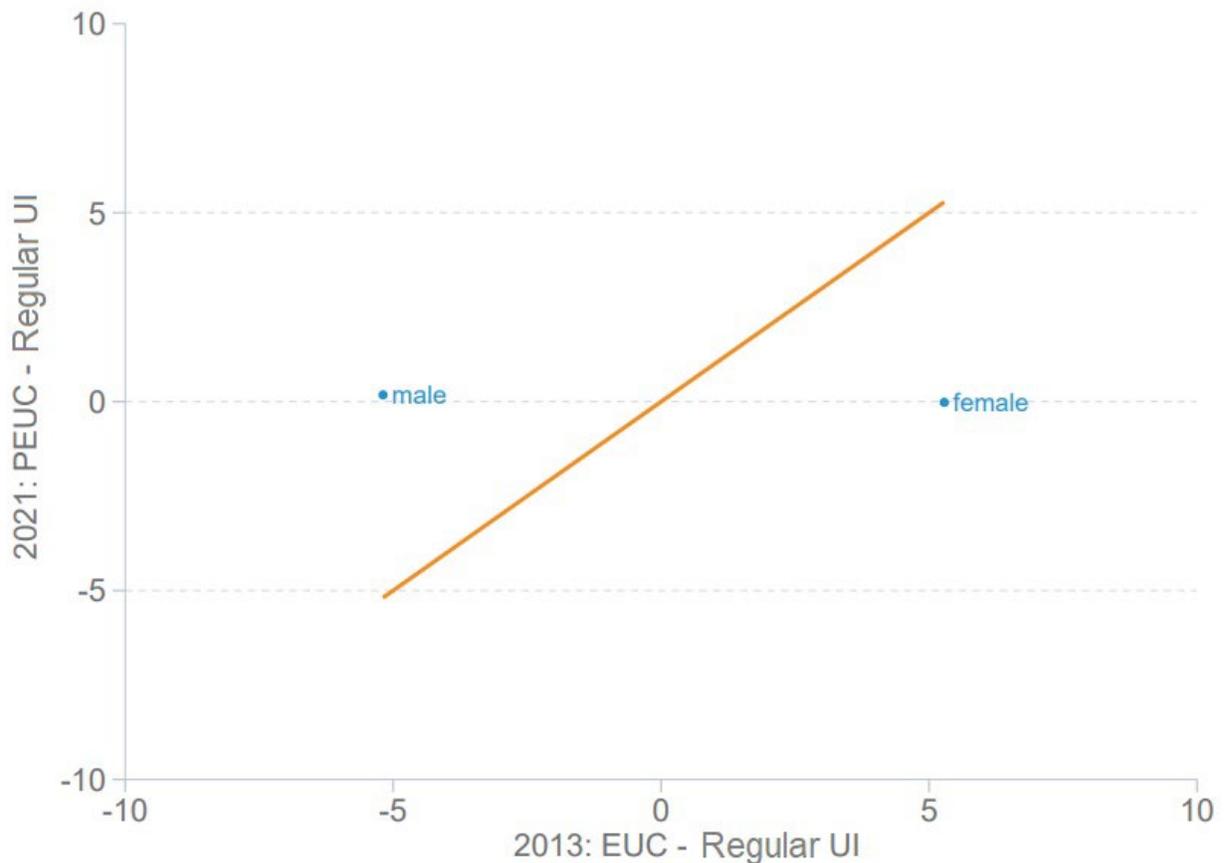
Notes: Displays the proportion of claimants that worked in each industry prior to claiming UI benefits by claimant type and year. The bars add up to less than 100% for each claimant type (base and PEUC) because claimants whose industry is missing is not included. During the pandemic, 8.3% of extension and 18.1% of base claimants had missing industries, and during the Great Recession 9.0% of extension and 9.5% of extension claimants had missing industries. Industry is found by matching each claimant's previous employer to the "Quarterly Census of Employment and Wages" to find the employer's corresponding NAICS code.

Another way of presenting this information is through a 45-degree graph, where the percentage-point difference between the PEUC extension and base UI in 2021 is the y-axis and the percentage-point difference between the EUC extension and base UI in 2013 is the x-axis. If a group of claimants were equally more likely to be on the extension compared to the respective base UI during both periods, then they are graphed on the orange 45-degree line. If a group of claimants were relatively more likely to be on

PEUC than EUC compared to the respective base UI, then they would be graphed above the 45 degree, and vice versa for groups that were relatively more represented on EUC. As before, these graphs use data from California’s Employment Development Department for the weeks of September 4th, 2021 and December 28th, 2013.

The below figure performs this process by gender. There was no gender difference between PEUC and base UI claimants, so the below points are graphed at 0 on the y-axis. However, EUC claimants were about 5 percentage points more likely to be women than men. This means that men were relatively more represented in PEUC compared to EUC, and vice versa for women.

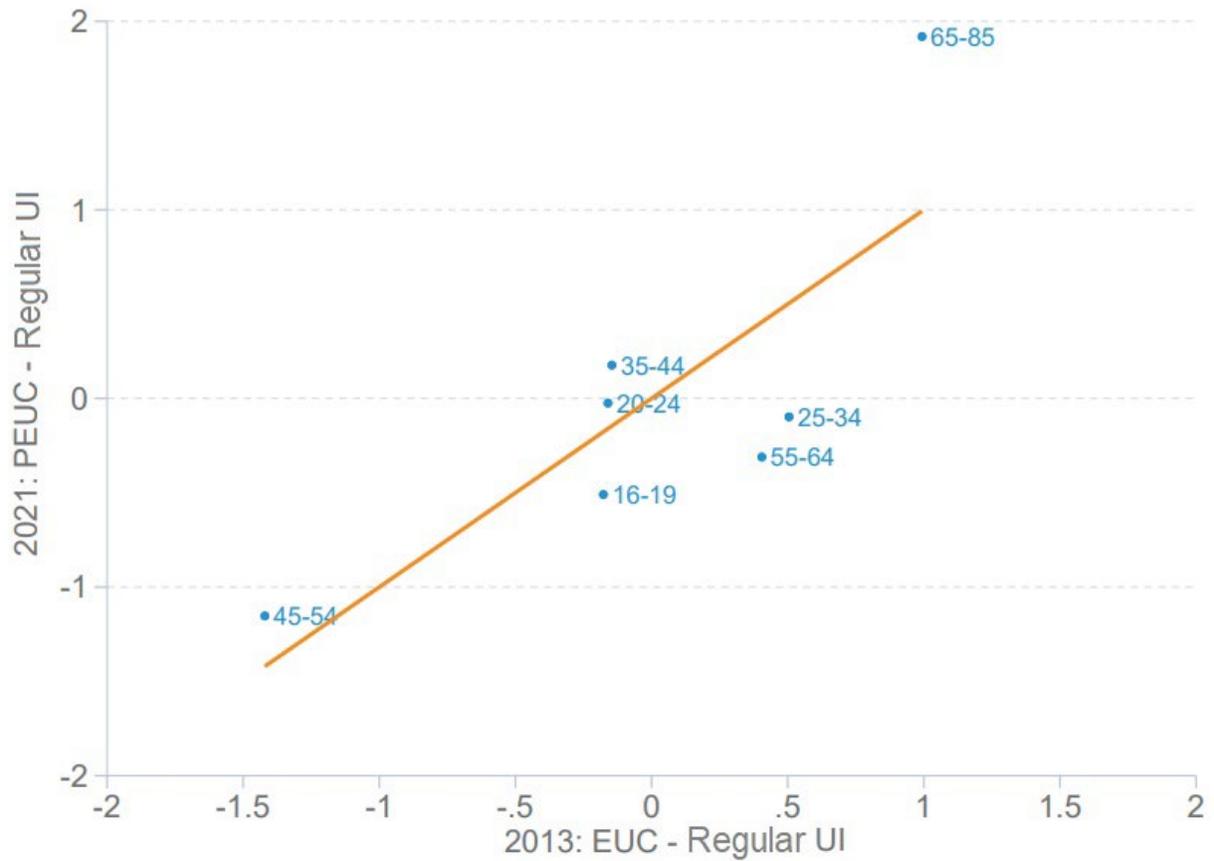
Figure A14: California 45-Degree Line Graph for Extension Minus Base Claimants for Pandemic and Great Recession, By Gender



Notes: Plots the difference in each demographic between PEUC and base claimants on the y-axis, and the difference between PEUC and base claimants on the x-axis. The orange line is a 45-degree line. Points above the line were relatively more represented by PEUC than EUC, compared to their respective base UI. Points below the line were relatively more represented by EUC than PEUC, compared to their respective base UI.

Performing this analysis by age helps demonstrate that those aged 20 to 24, 35 to 44, and 45 to 54 were about equally likely to be on PEUC or EUC compared to base UI. However, those aged 65 and older were disproportionately PEUC claimants, and those aged 16 to 19, 25 to 34, and 55 to 64 were disproportionately EUC claimants, compared to each extension’s respective base UI.

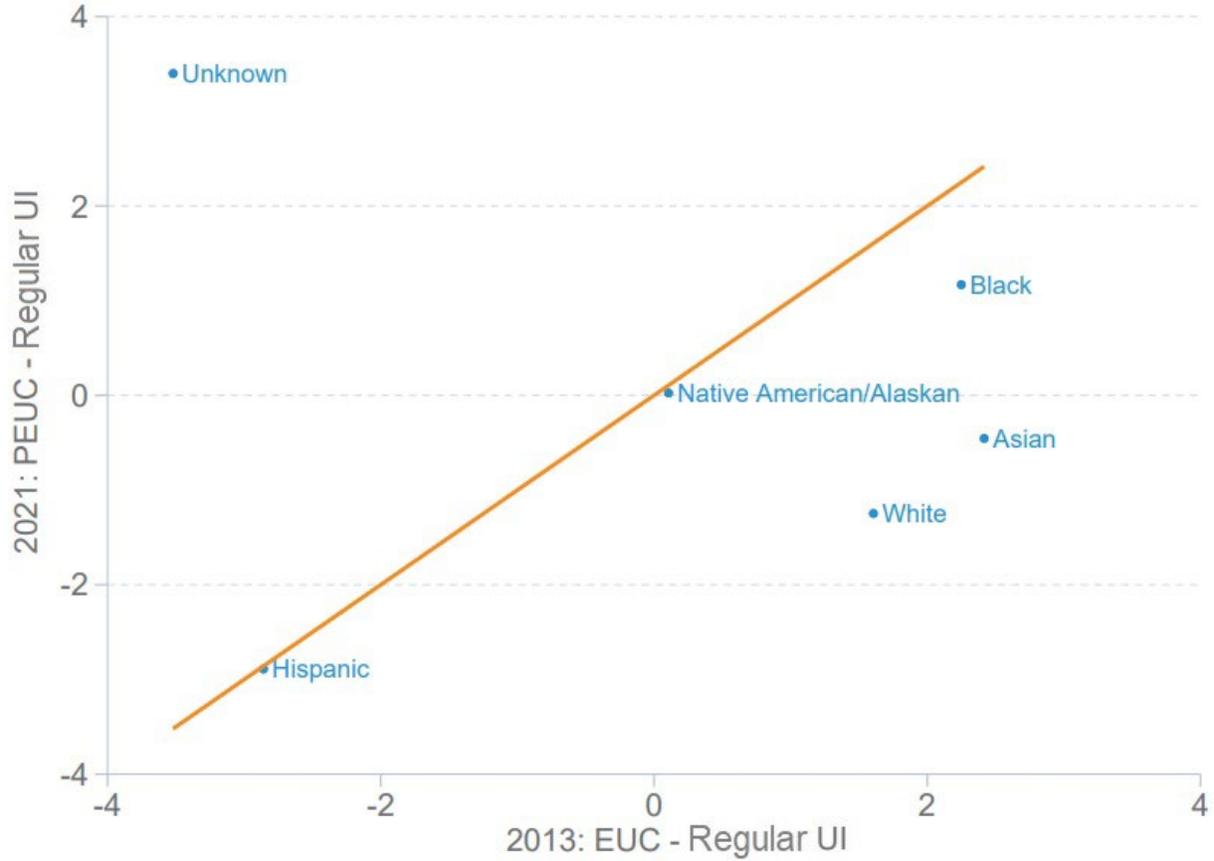
Figure A15: California 45-Degree Line Graph for Extension Minus Base Claimants for Pandemic and Great Recession, By Age



Notes: Plots the difference in each demographic between PEUC and base claimants on the y-axis, and the difference between PEUC and base claimants on the x-axis. The orange line is a 45-degree line. Points above the line were relatively more represented by PEUC than EUC, compared to their respective base UI. Points below the line were relatively more represented by EUC than PEUC, compared to their respective base UI.

For race, Asian, Black, and White workers were relatively more represented on EUC than PEUC, compared to each extension’s base UI. Claimants that did not report a race or who’s race is unknown were relatively more likely to be PEUC than EUC claimants.

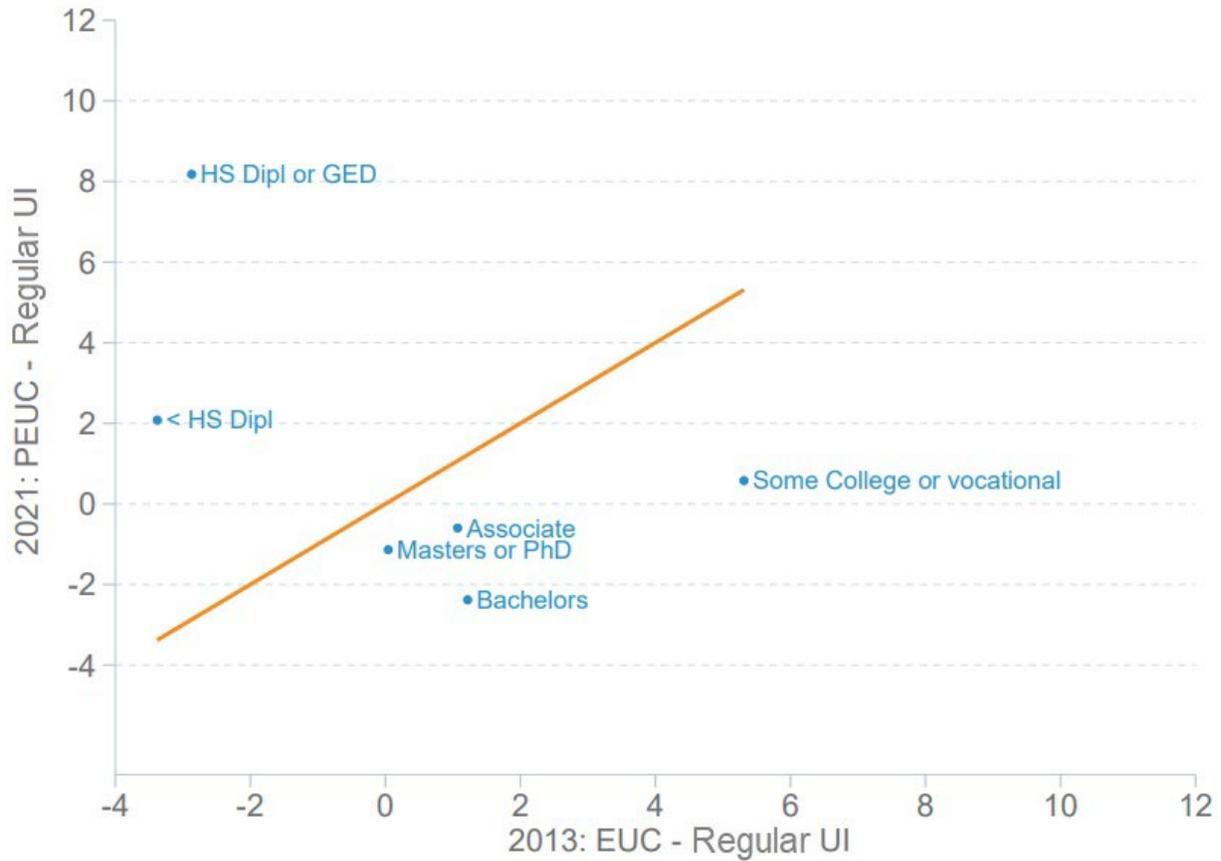
Figure A16: California 45-Degree Line Graph for Extension Minus Base Claimants for Pandemic and Great Recession, By Race



Notes: Plots the difference in each demographic between PEUC and base claimants on the y-axis, and the difference between PEUC and base claimants on the x-axis. The orange line is a 45-degree line. Points above the line were relatively more represented by PEUC than EUC, compared to their respective base UI. Points below the line were relatively more represented by EUC than PEUC, compared to their respective base UI.

We perform this same analysis for Figure A17. Here, we find strong differences between the two extensions. Relative to their respective base UIs, PEUC saw greater utilization among those with less education. Workers with college and advanced degrees were more likely to take up EUC.

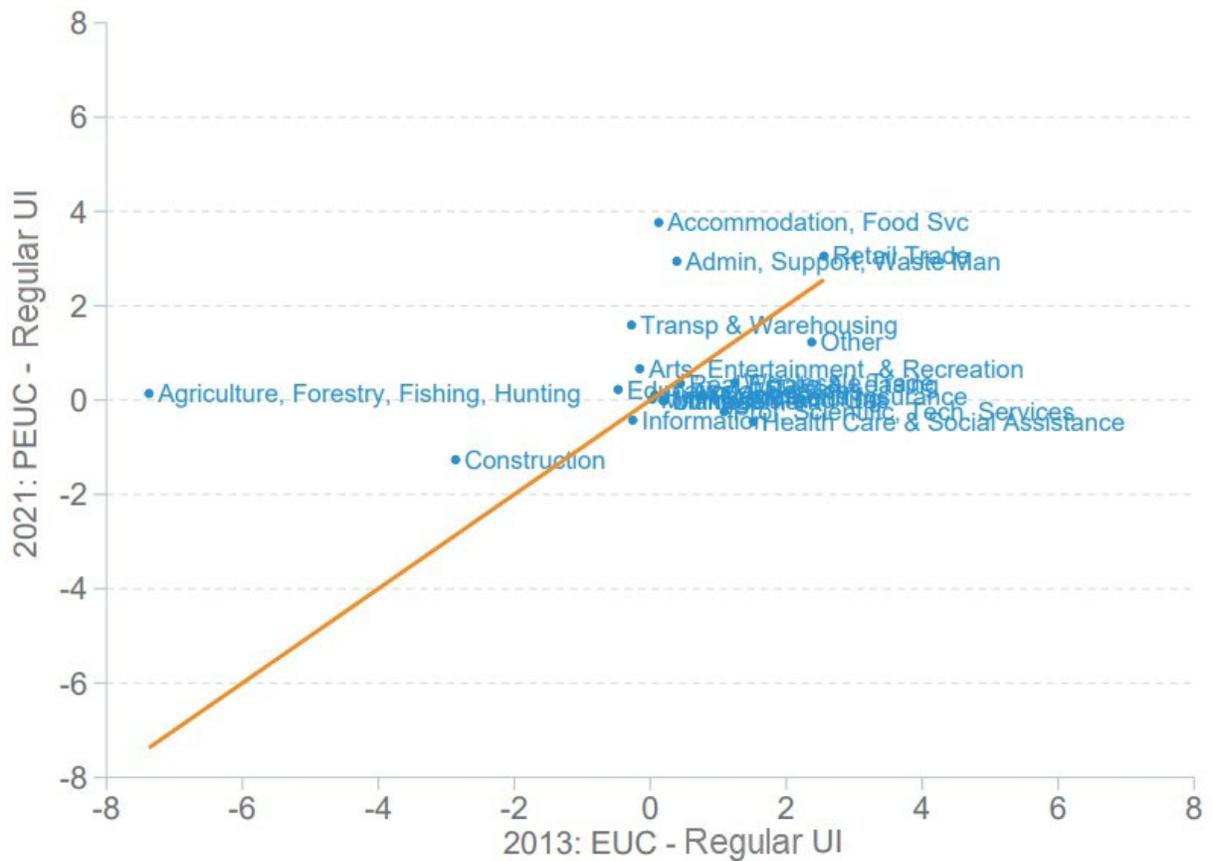
Figure A17: California 45-Degree Line Graph for Extension Minus Base Claimants for Pandemic and Great Recession, by Education Level



Notes: Plots the difference in each demographic between PEUC and base claimants on the y-axis, and the difference between PEUC and base claimants on the x-axis. The orange line is a 45-degree line. Points above the line were relatively more represented by PEUC than EUC, compared to their respective base UI. Points below the line were relatively more represented by EUC than PEUC, compared to their respective base UI.

Notable differences also become apparent with our occupation graph. Claimants that worked in food service and accommodation industries were more represented in PEUC than EUC, relative to each group's base UI. Although agriculture workers were more represented in the Great Recession claimants, there is a large difference between EUC and 2013 base claimants that is not present during the pandemic extension.

Figure A18: California 45-Degree Line Graph for Extension Minus Base Claimants for Pandemic and Great Recession, By Occupation



Notes: Plots the difference in each demographic between PEUC and base claimants on the y-axis, and the difference between PEUC and base claimants on the x-axis. The orange line is a 45-degree line. Points above the line were relatively more represented by PEUC than EUC, compared to their respective base UI. Points below the line were relatively more represented by EUC than PEUC, compared to their respective base UI.

In summary, we find that our results still hold for older workers and Black workers. Extensions during both time periods saw increased utilization by both these groups. However, results were not consistent in terms of education or occupation. Additional analyzes for states other than California and for other time periods could help settle how generalizable these demographic results are.

15. Methodology for Calculating Potential Expenditure and GDP Impacts

In this section, we explain the methodology we utilized to generate our estimates on how all states turning off the UI expansions on September 4th, 2021 may have impacted government expenditures as well as national GDP.

To calculate this, we first use our difference-in-difference estimates of the impacts of the turnoffs on reciprocity rates to calculate the number of workers that lost access to UI benefits as a result of the early turnoffs. We find that the early turnoffs in June 2021 resulted in between 300,000 and 1,260,000 claimants losing access to UI benefits, with a point estimate of 780,000 claimants.⁷ It is important to note that the labor market was generally improving at this time, with the U3 unemployment rate declining by 0.2 percentage points from April to May.⁸ We do not find evidence that such improvements were the result of the turnoffs.

Because economic models predict that government spending stimulates consumption and increases GDP, we perform a back-of-the-envelope calculation that suggests that if all states remained on the UI expansion programs until the national turnoff on September 4th, 2021, this would have resulted in total government UI expenditures increasing by **between \$2.3 billion and \$9.5 billion** and increased national quarterly GDP on the order of **0.06% to 0.31%**. That calculation was made as follows. Using benefit amounts published by the Department of Labor, we find that total state government expenditures would have increased by between **\$1.2 billion and \$5 billion** and total federal expenditures would have increased by between **\$1.07 billion and \$4.46 billion**. In other words, 53% of the increase in expenditures would have come from state governments and 47% from the federal government. Using these expenditure declines, we estimate the resulting change in gross domestic product using a fiscal stimulus equation.⁹ Using a more conservative estimate of consumption, we find that changing to all states turning off the expansion programs on September 4th, 2021 would have increased gross domestic product by between **\$3.62 billion and \$15.1 billion**. Using a larger estimate of people's consumption, we find this increase in GDP could have ranged between **\$4.30 billion and \$17.9 billion**. The seasonally-adjusted Gross Domestic Product of the United States in the third quarter of 2021 was \$5.8 trillion, meaning that a national turnoff of PEUC in September of 2021 could have resulted in between a **0.062% and 0.260%** larger third-quarter GDP using the lower estimate of consumption and between a **0.074% and 0.310%** larger third-quarter GDP using the higher estimate. However, an early turnoff may also have lessened inflationary pressures, lowered government debt, and/or reduced tax burdens. Additionally, the U.S. GDP recovered quickly from the onset of the pandemic, suggesting that a prolonged GDP stimulus was potentially not necessary.¹⁰

⁷ We calculate this result by first finding the total reciprocity rate among all early turnoff states and Louisiana in June. This is done by summing the number of claimants across these states and then dividing by the sum of U6 unemployed. Then, we subtract our difference-in-differences point estimate (22 percentage points) from these reciprocity results. We then multiply the sum of unemployed by the new reciprocity rate. Finally, we calculate the change in claimants by subtracting this product from the original sum of claimants. We repeat this process for the upper and lower bounds from our reciprocity difference-in-differences regression. For simplicity, we treat Louisiana as a June turnoff state, as these estimates are rounded and Louisiana's reciprocity was relatively stable from June to July.

⁸ For change in rate, see FRED graph on national U3 unemployment rate: <https://fred.stlouisfed.org/series/UNRATE>.

⁹ For this equation, our more conservative estimate of the marginal propensity to consume (which measures the proportion of additional income that is spent) is derived from estimates of this value for UI claimants during the Great Recession and is equal to 0.37 (see Mark Zandi's written testimony to the Joint Economic Committee: <https://www.economy.com/mark-zandi/documents/JEC-Fiscal-Stimulus-102909.pdf>). Our other estimate of the marginal propensity to consume was taken from estimates for this value for the stimulus checks sent during the pandemic and is equal to 0.47 (Karger and Rajan 2020).

¹⁰ For U.S. GDP over time, see FRED graph: <https://fred.stlouisfed.org/series/GDP>.

16. Elasticities

One way we can contextualize our labor results is by presenting them as an elasticity, in which we relate a 1% change in the length of benefit durations to a percent change in each of our labor outcomes. For this, we use the fact that those in early-turnoff states were eligible for about 12% less weeks of benefits than those who lived in states that terminated PEUC on September 4th, 2021.

We find that a 1% decline in the length that claimants are eligible to receive UI benefits results in a change in the employment-to-population ratio of between -0.090% and +0.031% (point estimate of -0.007%), a change in the U6 unemployment rate of between -0.245% and +0.763% (point estimate of 0.259%), and a change in the labor force participation rate of between -0.052% and +0.118% (point estimate of 0.033%).

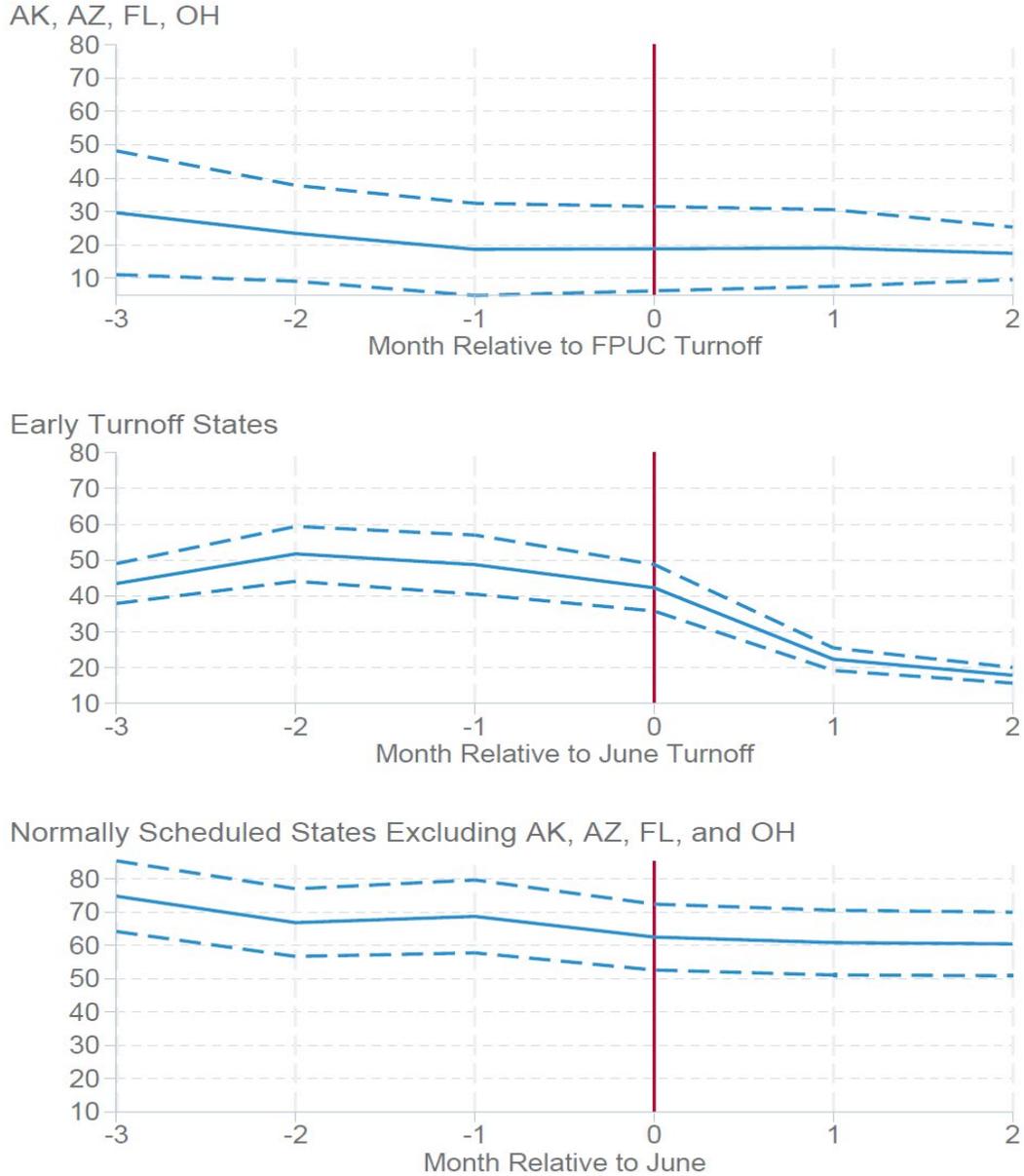
For these three labor outcomes, the confidence interval ranges from being negative to positive. This stresses the imprecise nature of our results: shortening the length of UI can plausibly either improve or hurt these aspects of the economy. Additionally, for both the employment-to-population ratio and the labor force participation rate, the confidence interval is quite small. Only the impact on the unemployment rate is potentially substantial, with a 1% decrease in UI length leading to at most a 0.763% decline in the unemployment rate.

17. The Classification of States that Only Turned Off FPUC Early

In addition to the 18 states that ended the UI expansion programs early, 4 states (Alaska, Arizona, Florida, and Ohio) chose to just end the FPUC program in June and July while keeping the PEUC and PUA program intact. In our report, we treat these states as normally-scheduled turnoff states. In this section, we justify this classification.

In the below figure, we present a three-panel graph. In the first panel, we display the mean reciprocity rate of these four states relative to the month in which they turned off FPUC benefits (June and July of 2021). The second panel displays the mean reciprocity rate of all early turnoff states relative to their June turnoff. The third panel displays the mean reciprocity of the normally scheduled turnoff states (excluding Alaska, Arizona, Florida, and Ohio) relative to June.

Figure A19: Reciprocity Rates Relative to FPUC Turnoff and June, by Early FPUC Turnoff States, Early Turnoff States, and Normally-Scheduled Turnoff States

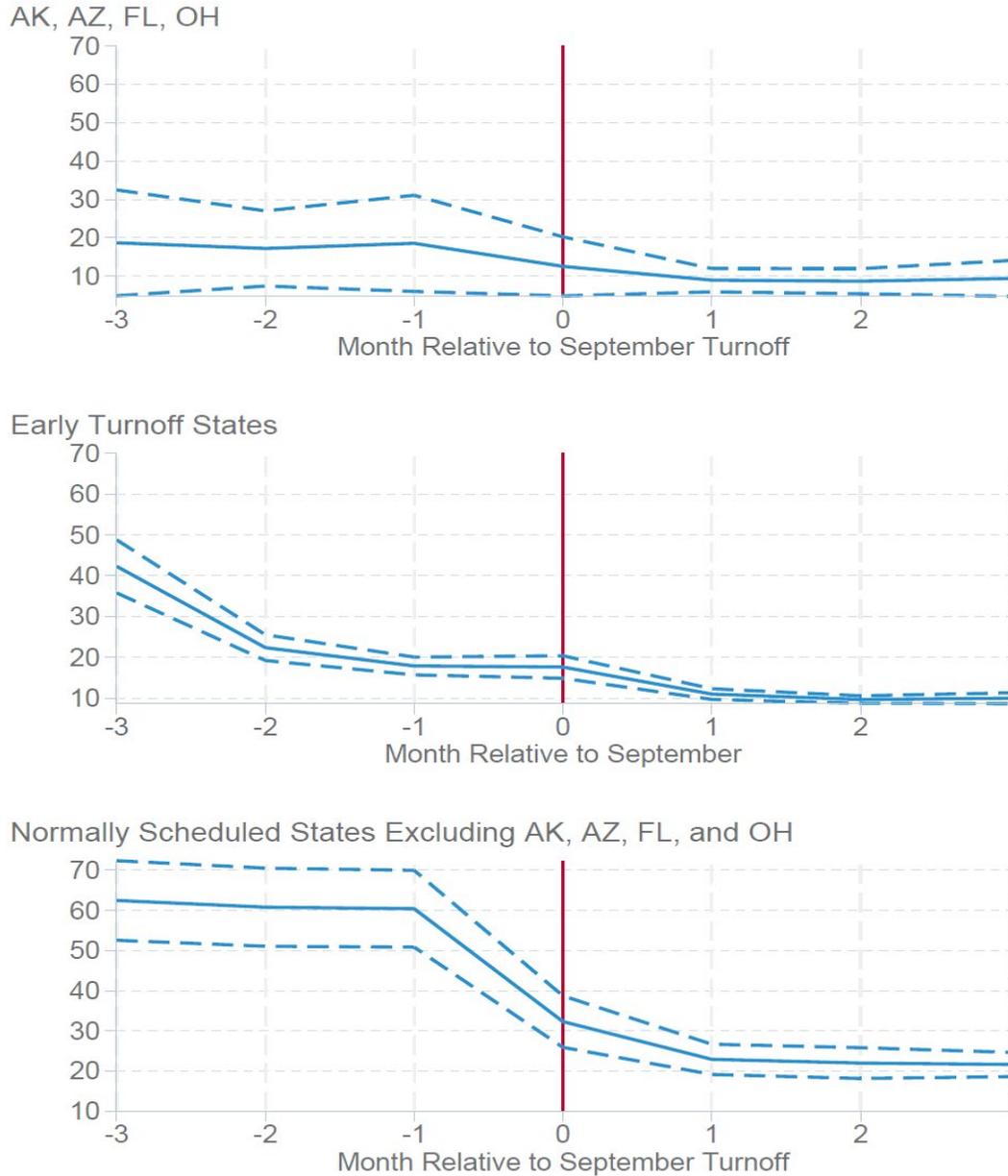


Notes: This figure presents event studies of the reciprocity rate around June and July. The top panel displays the population-weighted mean reciprocity rate for Alaska, Arizona, Florida, and Ohio combined relative to when they ended FPUC. Of these four, Arizona ended FPUC in July and the rest in June. The middle panel displays this outcome for just the states that turned off UI expansion programs early in June 2021. The bottom panel displays this outcome for just the states that turned off the UI expansion programs on September 4th, 2021 (excluding the above four states). Louisiana is excluded from all panels.

What these panels show is that the four states that ended FPUC early do not display a meaningful decline in the reciprocity rate around the time of the turnoff. This resembles the normally scheduled turnoff states, which also did not experience a significant decline around June. Only the states that turned off all programs in June saw steep declines in their reciprocity.

The below figure repeats this process, but examining these groups of states relative to the September turnoffs. Here, we find an opposite trend. The four states and the normally scheduled turnoff states experience declines relative to September, while the early turnoff states continue on an already-present downward trend.

Figure A20: Reciprocity Rates Relative to September, by Early FPUC Turnoff States, Early Turnoff States, and Normally-Scheduled Turnoff States



Notes: This figure presents event studies of the reciprocity rate around September. The top panel displays the population-weighted mean reciprocity rate for Alaska, Arizona, Florida, and Ohio combined. The middle panel displays this outcome for just the states that turned off UI expansion programs early in June 2021. The bottom panel displays this outcome for just the states that turned off the UI expansion programs on September 4th, 2021 (excluding the above four states). Louisiana is excluded from all panels.

Taken together, these graphs help demonstrate that Alaska, Arizona, Florida, and Ohio behaved more similarly to the normally scheduled turnoff states than the early turnoff states. To further provide evidence of this distinction, we perform a difference-in-differences regression that classifies these four states as the treatment group and the normally scheduled turnoff states as the control, with the date of the FPUC turnoff being considered the treatment date. If the FPUC turnoff did impact the reciprocity rates of these four states, we would expect to see significant results on the interaction coefficient of being post the FPUC turnoff and being one of these four states.

Table A23: FPUC Difference-in-Differences Regression

	Outcome: Reciprocity Rate
	Difference-in-Differences (1)
Post FPUC Turnoff Period	-5.382
	(5.48)
Early FPUC Turnoff State	-42.553***
	(9.95)
Early FPUC Turnoff State X Post FPUC Turnoff Period	-0.267
	(5.73)
Constant	65.987***
	(6.10)
N	155.000
R-sqr	0.306
Mean of Outcome Variable in Month Before Turnoff	60.819

Notes: Standard errors in parentheses. Standard errors clustered at the state level, and results are weighted by state populations in 2021. Data covers April through August of 2021. “Mean Outcome in Month Before Turnoff” refers to the population-weighted average in the month before the turnoff. Uses U6 definition of unemployment to calculate reciprocity. Louisiana excluded.

* p<0.05 ** p<0.01 *** p<0.001

The interaction term in our result is insignificant, suggesting that the four states did change their reciprocity rates any differently than the states that kept FPUC intact until the September cutoff. For these reasons, we choose to classify these four states as normally scheduled turnoff states.