EVERCORE ISI

Global Policy | Fiscal Policy

Macro Note

July 13, 2020

Ernie Tedeschi
202-872-5262
Ernie.Tedeschi@evercoreisi.com

EMERGENCY UI: CUTS WOULD BE A DRAG ON 2020 H2 GROWTH, NO EVIDENCE YET THAT UI GENEROSITY HAS HELD BACK JOB FINDING

Congress returns to Washington on July 20 to begin negotiating the next US fiscal package in a deteriorating situation of rising COVID cases and re-closing states. We believe they will ultimately pass a \$1-2 trillion package with several key components [LINK]. One of the most important pieces—and indeed the one driving the entire timing over this legislation—is extending emergency unemployment insurance payments.

We find that the expiration of Federal Pandemic Unemployment Compensation (FPUC, the emergency \$600 per week top-up payment given to all UI recipients) on July 31 would be a material drag on the US economy in 2020 H2 against current policy at a time when the path of the virus and the labor market are becoming more uncertain.

Moreover we find no relationship between FPUC generosity and job finding or job leaving in May or June, suggesting Congress should be cautious about letting fears over labor supply distortions dominate the need for more fiscal support in the near-term.

FPUC expiration risks weakening low-income consumption—which the US fiscal response has been reasonably successful at buttressing so far—and loosening support for aggregate demand at just the moment when consumer anxieties are rising again.

More specifically:

- We project that full FPUC expiration would lead to 2 per cent smaller GDP by the end of 2020 versus a package with full extension, and shave 6 points off Q3 SAAR growth. Payroll growth would slow down by -340K per month, leading to 1.7 million fewer jobs by end-December.
- An illustrative compromise that cuts the FPUC to \$300 per week for the rest of 2020 costs \$200 billion but still shaves a point off real GDP by the end of 2020 and slows down jobs growth by about -170K per month.
- FPUC generosity showed no statistical relationship with the likelihood that a worker transitioned into or out of work in either May or June.
- The typical unemployed worker in Mississippi, Louisiana, and Arizona would see the deepest cuts under full FPUC expiration, with benefits shrinking more than 70 per cent under full expiration.
- In aggregate, Nevada would be the hardest hit state from full expiration: FPUC payments are currently the equivalent of 11 per cent of personal income statewide.

BACKGROUND

As part of the CARES Act, the US extended and augmented unemployment insurance (UI) in a number of ways. One key provision was Federal Pandemic Unemployment Compensation (FPUC), a flat \$600-per-week top-up payment to all recipients of regular state and emergency federal unemployment benefits, including those receiving payments through the new federal Pandemic Unemployment Assistance (PUA) aimed at the self-employed, gig economy workers, and those with light work history.

Whereas regular state UI generally replaces around 30-50 per cent of a worker's prior wage, because the FPUC is a flat \$600 regardless of the worker, her wages, or her UI benefit amount, it raises the replacement rate significantly. Two-thirds of UI recipients are seeing total wage replacement rates of more than 100 per cent of their prior wages thanks to the FPUC.¹

With 30 million Americans receiving some form of unemployment benefits, we estimate FPUC payments alone are currently running about \$18 billion a week, or roughly \$80 billion a month. With the Economic Impact Payments (stimulus checks) and PPP essentially exhausted, the FPUC is now delivering the largest week-to-week economic support of any federal COVID response program.

This makes the FPUC an exceptionally generous program to unemployed families, and this generosity stands out when comparing the United States' COVID fiscal response thus far to that of other nations. Whereas many OECD countries have focused their responses on a strategy of partially subsidizing payrolls, and thus keeping workers tied to their employers albeit generally with no higher pay, the US has had a more mixed strategy but with heavy leaning on the unemployment insurance system augmented with FPUC and PUA. This means the US has been more tolerant of letting employer-employee links break on the one hand, but has also effectively given most unemployed workers a significant temporary raise on the other.

The FPUC expires entirely on July 31 under current law; in practice, this means workers will receive their last FPUC payments on July 25 or 26. Absent the FPUC, unemployed workers will still receive regular state UI benefits, generally for up to 39 weeks. Workers getting federal PUA will also still receive base benefits through the end of calendar year 2020.

Fully extending the \$600 per week FPUC for the rest of the year would cost around \$400 billion in calendar year 2000. Cutting it down to a \$300 per week compromise would lower the cost to \$200 billion.

NOT CLEAR A PRIORI THAT THE FPUC WOULD IMPACT SHORT-TERM LABOR SUPPLY IN A RECESSION

The primary objection to the FPUC has been the worry that its generosity would spark moral hazard concerns in workers. There has long been economic research arguing that more generous UI benefits, either in the form of higher wage replacement rates or longer eligibility durations, affect the labor market by reducing job search efforts and raising wage replacement rates. Krueger & Meyer (2002) for example find that a 10 per cent rise in UI benefits extends the duration of a worker's unemployment insurance spell by 5 per cent on average. Feldstein and Poterba (1984) find that a 10 percentage point rise in wage replacement rates would be

_

¹ See Ganong et al (2020): https://www.nber.org/papers/w27216.pdf

associated with a 4 percent rise in reservation wages, the target wage a worker demands for returning to work.

The fact that FPUC raises the wage replacement rate above 100 per cent *specifically* for most workers has been a focus of the criticism opponents have leveled. The importance of a 100 per cent threshold is untested in the US empirical literature, for the simple reason that the US has never *had* a 100+ per cent UI wage replacement rate before. But the argument relies on some intuitive economic logic: if UI benefits pay more than work, one might expect workers to be more likely to stay on UI. The nonpartisan Congressional Budget Office (CBO) largely relied on this logic in its qualitative assessment of the economic effects of extending the FPUC.² And at least some business contacts in the Fed's Beige Book have offered anecdotes consistent with this narrative.

However there is also evidence to suggest that the FPUC might not have a significant effect on the labor market now. Papers that look at the relationship between the durations of unemployment benefits and unemployment spells generally find small effects, around 1 week—e.g. Rothstein (2011)—while Chodorow-Reich et al (2018) finds the extensions during the Great Recession raised the unemployment rate by at most 0.3 percentage points. Jaeger et al (2018) also revisits the Feldstein and Poterba analysis above and finds no relationship between benefit generosity and wage replacement rates.

There's also a compelling story to tell about why 100+ per cent wage replacement rates may not be an issue with the FPUC in particular. The FPUC after all is a temporary program in the midst of an extraordinarily sharp recession driven by an exogenous factor: a pandemic. Workers may look past the short-term premium from the FPUC and judge that over longer-horizons, a permanent job will pay more than temporary, time-limited UI (whose augmentation under the FPUC is highly uncertain), and the worker cannot be confident a job will be available at will after FPUC expiration. Employers from their perspective may judge that frustrations in hiring are due solely to the FPUC when in fact employees may be making much more complex judgements that take into account factors like public health, workplace safety, and child care arrangements. At any rate, employers still have leverage in that if a UI recipient refuses a job offer they may lose benefits. And it is difficult to isolate any work search impacts of the FPUC at the moment since the CARES Act, in a separate provision, effectively relaxed those conditions for UI receipt in the near-term.

WE FIND NO EVIDENCE THE FPUC SLOWED DOWN JOBS GROWTH IN MAY OR JUNE

To shed light on this debate, we test the hypothesis that the FPUC impacted job finding and job leaving.

To do so we look at how individuals in the Current Population Survey (CPS, also known as the household survey, the source for the official unemployment rate) transitioned between employment and nonemployment between April and May, or between May and June. We augment this data with simulations of state UI benefits and wage replacement rates from Ganong et al (2020). ³

Our strategy is a cross-sectional analysis of workers entering or leaving jobs during the sharp recovery of May and June. We analyzed the relationship between more generous UI wage

_

² https://www.cbo.gov/publication/56387

³ See methodology in the Appendix.

replacement rates under the FPUC and the likelihood that an individual left or found work in those months, controlling for a variety of demographic factors. We also test for whether these likelihoods change significantly at wage replacement rates above 100 per cent.

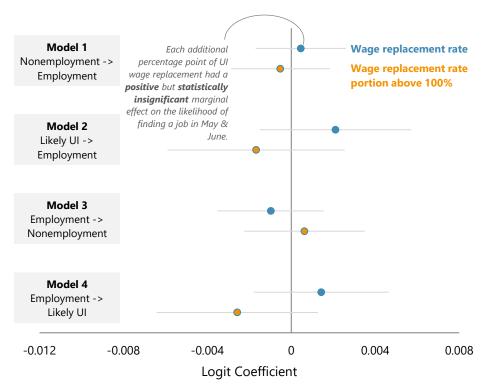
If the FPUC were having negative effects on the labor market now, then we would expect individuals with higher UI wage replacement rates to be less likely to have transitioned into work in May or June, or more likely to have left work. And if the relationship changed at wage replacement rates above 100 per cent, we would expect to see additional positive effects on that variable as well.

But instead, we find that, so far, there is *no* evidence that the FPUC had either job finding or job leaving effects in the May and June data.

The first result that stands out, summarized in the table below, is that the effect of wage replacement rates on job finding is the "wrong" sign: each additional percentage point of wage replacement was associated with, if anything, *increased* rates of job finding, though this point estimate was lower for rates above 100. But more importantly, none of the UI effects are statistically-significant: we cannot distinguish them from zero.

Effect of UI Wage Replacement Rates on Labor Flows in May & June 2020

Point estimate & 95% confidence intervals

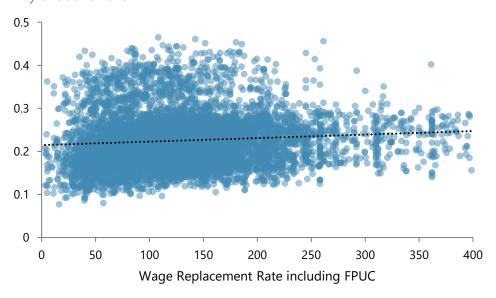


Logit regressions with demographic, labor market, and geographic contorls. Robust standard errors clustered by state-CSA pairs.

Source: CPS, Ganong et al (2020), Evercore ISI.

Job Finding Probability & Wage Replacement Rates

Working-age (18-64) individuals previously likely on UI Transition rate from nonemployment to employment Adjusted for marginal effects of demographics May and June 2020



Source: CPS, Ganong et al (2020), Evercore ISI.

We added several additional controls as well in specifications unreported here, such as for lockdown stringency/social mobility, probability of remote work, and state rather than Census division fixed effects. We also attempted to measure wage replacement rates as categorial percentile bins rather than a continuous linear variable. In no model did the wage replacement rate approach statistical significance, and in most the coefficient point estimates were still the opposite of expectations.

Impact of UI Wage Replacement Rates on Job Finding and Job Leaving in May & June 2020

	JOB FINDING				JOB LEAVING			
	Model 1		Model 2		Model 3		Model 4	
Dependent Variable	NE -> E		Likely UI -> E		E -> NE		E -> Likely UI	
Main Findings								
Wage Replacement Rate	0.0004476	0.001096	0.0021004	0.00184	0.0009744	0.001294	0.001423	0.00164
Wage Replacement Portion Above 100	-0.0005198	0.001202	-0.0016775	0.002155	-0.000625	0.001464	-0.0025758	0.001963
Controls								
Age Groups	х		Х		х		Х	
Sex	Х		x		х		Х	
Parent	X		x		X		x	
Sex-Parent Interaction (Mothers)	X		x		X		x	
Race/Ethnicity	X		X		X		Х	
Immigrant	X		x		х		x	
Education Groups	X		x		х		x	
Census Division	X		x		х		x	
Prior 2-digit NAICS Industry			X		Х		Х	
Age Range	18-64		25-54		18-64		25-54	
Dates	May-Jun 2020	N	Nay-Jun 2020		May-Jun 2020	N	lay-Jun 2020	
N	25,872		4,987		43,782		31,189	
Pseudo R2	0.0253		0.0301		0.0441		0.0391	

All models are weighted logit regressions. Robust standard errors clustered within state-CSA pairs in italics. Source: Basic Monthly CPS, Ganong et al (2020), Evercore ISI.

These results do not rule out the possibility that wage replacement rates of 100+ per cent could be binding in some labor market states, such as when the economy is close to full employment and if they were to become a permanent fixture of the UI system rather than a temporary one.

But they do suggest that to date, the emergency UI payments have not been binding on the labor market. Our baseline assumption then is that it would be some time before the FPUC would risk being a binding drag on the recovery. Even after two months of improvement, the unemployment rate is still higher than it was at the peak of the Great Recession, and payroll employment is still 10 per cent smaller than February. Moreover a temporary FPUC in response to a pandemic may continue to have indistinguishable employment flow effects.

MACROECONOMIC IMPACT: EVEN PARTIAL EXTENSION WOULD TAKE SOME MOMENTUM OUT OF THE ECONOMY

In the absence of any evidence of short-term microeconomic effects, then, we turn to the macroeconomic impacts of the FPUC and its expiration.

Unemployment insurance provides macroeconomic stimulus through several channels. The most intuitive is through direct consumption support. Hsu, Matsa, and Melzer (2018) also find that greater UI generosity translates to lower mortgage delinquency and fewer foreclosure starts. Kekre (2016) and McKay & Reis (2017) posit that UI can also increase consumption by reducing the need for precautionary savings among job keepers; Engen and Gruber (2001) estimate that

halving the replacement rate increases the savings rate by 0.8 per cent, though note that this effect is potentially asymmetric since workers at high risk of layoff already generally have low savings, so increased UI generosity such as through FPUC can only decrease savings so much.

In aggregate, the FPUC is a large program. It is currently running \$18 billion per week or \$80 billion per month, which is an annualized pace of around 5 per cent of GDP. But as the economy gradually heals, this amount would likely fall over time even if the FPUC lasted beyond July, especially as the current crop of unemployed workers exhaust their eligible weeks of unemployment insurance.

To gauge the macro effects of FPUC expiration over the next 6 quarters, then, we model how the economy would react to full or partial FPUC expiration, against a neutral current policy baseline where the next fiscal package entirely *extends* the full \$600 per week of FPUC.⁴ We calibrate a current policy projection of future FPUC spending assuming full extension using CBO's July 2020 economic baseline. We then use the Federal Reserve's workhorse FRB/US macro model to calculate the impacts on real GDP, employment, and the unemployment rate of two different scenarios for the next fiscal package: that it doesn't address FPUC at all and therefore full FPUC expiration happens as scheduled on July 31, and that it includes a partial expiration whereby the FPUC lives on at half strength (\$300 per week) until December 31 and then expires fully beginning in January 2021. We are assuming as part of this exercise that the next fiscal package is otherwise identical in our current policy as well as our two alternative scenarios.

We modify FRB/US to accept different fiscal multipliers for UI and run the model using the bookends of CBO's multiplier assumptions for personal transfers (0.4 and 2.1) as well as the midpoint of 1.25. Our sense is that, in a deep recession with a highly-accommodative central bank, multipliers are likelier to be on the upper-end rather than lower-end of CBO's range. In any event, as this is a short-term exercise we also assume monetary policy is accommodative through end-2021.⁵

We find under our first scenario that if the FPUC expires in full on July 31, the US economy would suffer a palpable hit in H2. Full expiration lowers the level of real GDP by -2 per cent by the end of 2020 against current policy, with a range of from -0.6 to -3.4 using low and high CBO multipliers respectively. GDP growth in Q3 alone comes in more than 6 per cent SAAR slower than otherwise. There would be 1.7 million fewer jobs by the end of 2020 as well, implying that monthly payroll growth would be around -340,000 slower. And the unemployment rate ends 2020 0.8 percentage points higher than otherwise.

Notice that this means even full FPUC expiration likely wouldn't be near enough to turn Q3 negative or even weak in absolute terms: CBO for example projects Q3 growth of 17 per cent SAAR even with full FPUC extension. But expiration would cut deeply into the magnitude of any Q3 or Q4 bounceback, at a time when the outlook for H2 is becoming less, not more, certain.

The second scenario we analyze is an illustration of our baseline political outlook: that some form of partial FPUC extension will be included in the fourth fiscal package. For simplicity here, we

⁴ See further methodological details in the Appendix.

8

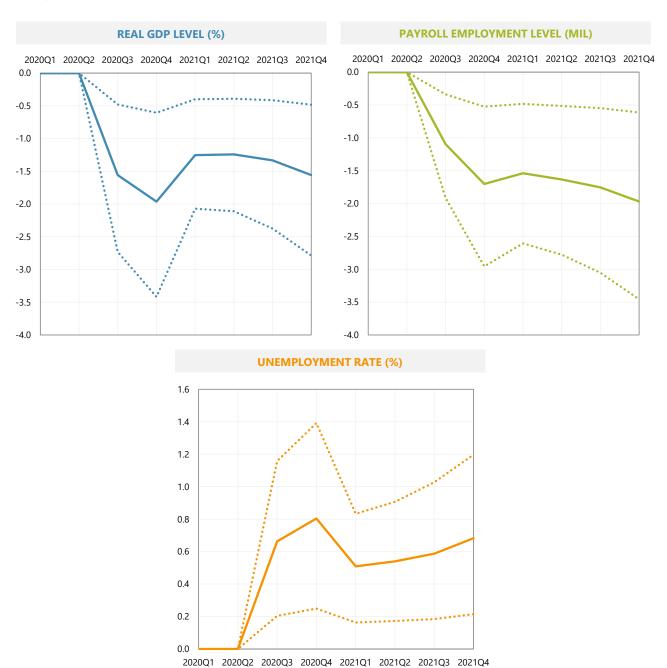
⁵ Note that different monetary policy assumptions are already embedded in the range of CBO's fiscal multipliers. Interestingly, though, FRB/US itself yields an 8-quarter cumulative transfer multiplier of 0.47 even under full accommodation, close to the low-end of CBO's assumptions. We therefore include the full CBO range for sensitivity. Given the high degree of forward-looking uncertainty we also assume all agents in FRB/US are purely backwards looking.

assume that Congress extends the FPUC through the end of 2020, but only at half-strength: \$300 per week. It then expires entirely in January 2021.

As a rule of thumb, then, it's little surprise that our second scenario shows about half of the impact of the first scenario in 2020: GDP is 1 per cent smaller in Q4, jobs growth runs around - 170,000 lower per month to over -800,000 fewer jobs by year's end, and an unemployment rate that is 0.4 percentage points higher. But this means that even under an FPUC compromise, 2020 H2 takes a material economic hit against current policy.

Macroeconomic Effects of Full FPUC Expiration on July 31

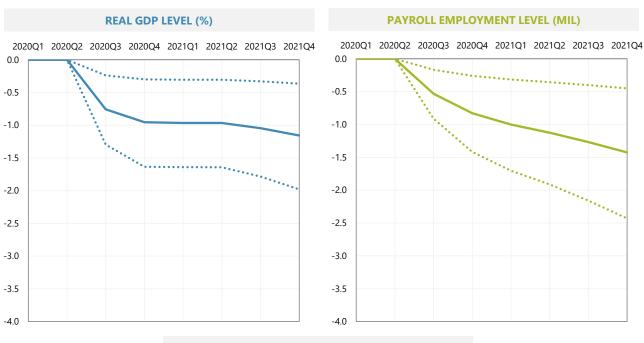
FPUC eliminated entirely after July 31. Against current policy baseline of full extension Fiscal multipliers of 1.25 (solid), 0.4, and 2.1 (dotted)

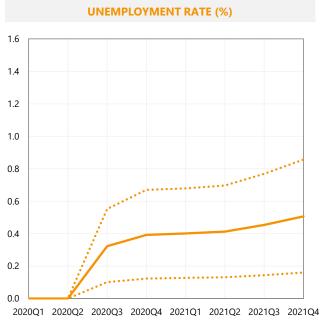


Source: FRB, CBO, Furman (2020), Bivens (2020), Evercore ISI.

Macroeconomic Effects of Partial FPUC Expiration on July 31

FPUC falls to \$300/week Aug-Dec 2020, then expires entirely thereafter. Against current policy baseline of full extension Fiscal multipliers of 1.25 (solid), 0.4, and 2.1 (dotted)





Source: FRB, CBO, Furman (2020), Bivens (2020), Evercore ISI.

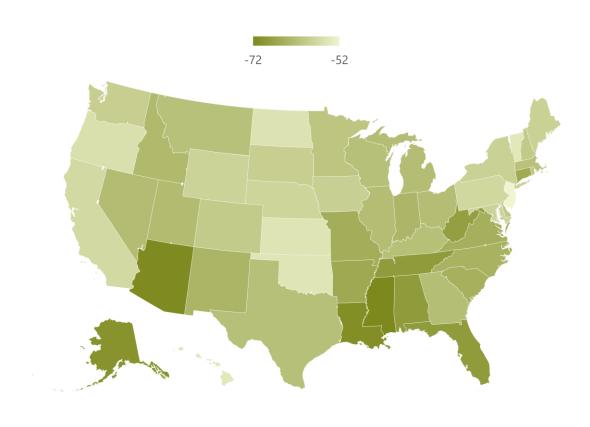
IMPACT OF POTENTIAL CUTS BY STATE: ARIZONA, MICHIGAN, AND NEVADA AMONG STATES SEEING DEEP PAIN.

FPUC expiration would also have widely different implications across states, depending on the depth of the regional downturn and the contours of the state's UI system.

One way to measure the impact of expiration is the expected cut in benefits for a typical UI recipient. We estimate that the median cut in benefits from full FPUC expiration would range from 52 to 72 per cent, with Mississippi, Arizona, and Louisiana seeing the deepest cuts from full FPUC expiration. Partial FPUC expiration would imply a smaller impact; our illustrative \$300 per week compromise leads to a median cut of between -26 and -36 per cent, though the relative rank ordering of states remains the same. Even under this compromise, workers on UI still lose a quarter to a third of their benefits overnight.

Median Cut in UI Benefits Under Full FPUC Expiration

As of June 2020 Percent of UI benefits



Source: Ganong et al (2020), CPS, Evercore ISI.

Powered by Bing © GeoNames, Microsoft, TomTom

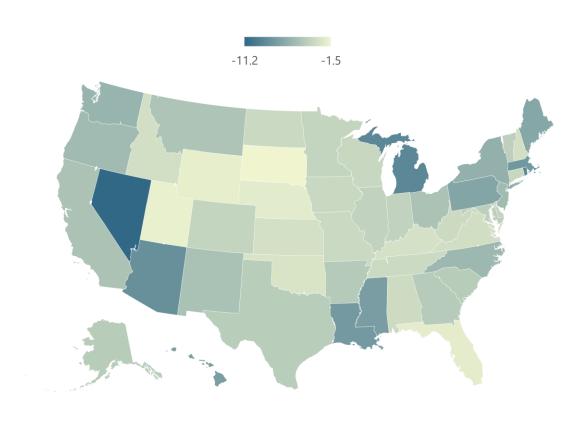
A different approach is to look at the aggregate impact of possible FPUC cuts. This would account for not only the severity of cuts for each beneficiary, but also how many unemployed workers each state has and their overall income.

Looked at this way, the state story changes a bit. Arizona, Mississippi, and Louisiana are still worse off than the average state. But Nevada is the deepest hit in aggregate, with full FPUC

expiration coming to 11 per cent of the state's pre-COVID personal income. Rhode Island and Michigan come in at 9 per cent. These states stood out less in the prior chart because their UI systems are consistent with the generosity of those in other states on average. As a result the typical worker in these states was more or less in line with what the typical worker elsewhere in the country would see under FPUC expiration. Nevada, Michigan, and Rhode Island stand out in aggregate however thanks to the sheer number of UI recipients they have. This may in part reflect greater logistical success in processing claims, and in particular in getting the PUA program up and running, but it also signals the depth of the downturn in these areas.

Aggregate Cut in UI Benefits Under Full FPUC Expiration

Percent of 2020 Q1 personal income



Source: DOL, BEA, CPS, Evercore ISI.

Powered by Bing © GeoNames, Microsoft, TomTom

METHODOLOGY

Macroeconomic Analysis

Similar to Bivens (2020), we calibrate future spending on the FPUC based on the relationship between aggregate FPUC spending in the May 2020 personal income data, and the May 2020 unemployment rate adjusted for misclassification. We assume this relationship holds based on CBO's July 2020 economic projections, with adjustments similar to Furman (2020) that account for changes in underlying UI eligibility and extended weeks of unemployment eligibility. Also similar to Furman (2020) we assume a current policy baseline of no FPUC expiration.

We then feed these aggregate FPUC spending calibrations to the Fed's FRB/US macroeconomic model to account for general equilibrium interactions. In all cases we assume that monetary policy is fixed (accommodative) between now and end-2021, and that all agents have VAR (adaptive/backwards-looking) expectations. The FRB/US eight-quarter cumulative fiscal multiplier for government transfers is 0.49 under these conditions; we scale our sims to test outcomes under the 0.4-2.1 range of CBO's assumed multipliers for government transfers.

Wage Replacement Rate Analysis

We conduct a cross-sectional logit regression on linked month-to-month records in the basic monthly CPS in May and June; therefore the analysis covers April-May and May-June flows. We use two specifications: a broad model that includes all working age (18-64) individuals transitioning between employment and nonemployment (Models 1 and 3), and a more targeted specification that uses just prime age (25-54) individuals transitioning between employment and likely UI eligibility (Models 2 and 4), which we define as workers unemployed for less than 39 weeks who are not job leavers or new/re-entrants, or workers likely misclassified as employed in the CPS. We exclude non-US citizens from all model samples. The specifications control for sex, 10-year age group, 5-category educational attainment, 4-category race/ethnicity, parenthood, sex-parenthood interaction, immigrant status, and Census division. Models 2 – 4 also include the individual's prior 2-digit NAICS industry, either of employment or labor force. Because industry is not coded for all nonemployed individuals this variable is not present in Model 1.

Wage replacement rates in this analysis are generated by the Ganong et al (2020) UI benefits calculator using the 2019 CPS Annual Social and Economic Supplement (ASEC). We link these to our sample in the May and June 2020 basic monthly CPS by randomly drawing from the ASEC-generated sample within the same sex-age-education-state clusters. We include the linear effects of these wage replacement rates in our analysis; we also test for a kink at 100 per cent by separately including the wage replacement rate portion above 100 per cent (which is 0 for wage replacement rates below 100 per cent).

The logistic regressions are weighted by the CPS longitudinal weights. Robust standard errors are clustered by State-CSA pairs, an approximation of the CPS primary sampling units.

State Median & Aggregate FPUC Cuts

For median cuts, we use the linked CPS-Ganong et al (2020) data from the wage replacement analysis and calculate the median cut to benefits for workers we deem likely to be UI-eligible (see description above).

For aggregate cuts, we assume 30 million total UI recipients on July 31, implying \$18 billion per week or \$936 billion SAAR in FPUC payments. We distribute this among the states based on their chare of combined regular state and emergency federal PUA claims through June 27. For regular state programs we use spot continuing claims on June 27. For federal PUA we use cumulative initial claims through June 27 to account for data issues in some states with PUA continuing claims reporting.

GENERAL DISCLOSURES

This report is approved and/or distributed by International Strategy & Investment Group LLC ("ISI Group LLC"), a U.S. licensed broker-dealer regulated by the Financial Industry Regulatory Authority ("FINRA") and by International Strategy & Investment Group (UK) Limited ("ISI UK"), which is authorised and regulated in the United Kingdom by the Financial Conduct Authority. The institutional sales, trading and research businesses of Evercore Group and IDI UK collectively operate under the global marketing brand name Evercore ISI ("Evercore ISI"). Both Evercore Group and ISI UK are subsidiaries of Evercore Partners Inc. ("Evercore Partners"). The trademarks, logos and service marks shown on this report are registered trademarks of Evercore Partners Inc.

This report is provided for informational purposes only. It is not to be construed as an offer to buy or sell or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy in any jurisdiction. The information and opinions in this report were prepared by registered employees of Evercore ISI. The information herein is believed by Evercore ISI to be reliable and has been obtained from public sources believed to be reliable, but Evercore ISI makes no representation as to the accuracy or completeness of such information. Opinions, estimates and projections in this report constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of Evercore and are subject to change without notice. In addition, opinions, estimates and projections in this report may differ from or be contrary to those expressed by other business areas or groups of Evercore and its affiliates. Evercore ISI has no obligation to update, modify or amend this report or to otherwise notify a reader thereof in the event that any matter stated herein, or any opinion, projection, forecast or estimate set forth herein, changes or subsequently becomes inaccurate. Facts and views in Evercore ISI research reports and notes have not been reviewed by, and may not reflect information known to, professionals in other Evercore affiliates or business areas, including investment banking personnel.

Evercore ISI does not provide individually tailored investment advice in research reports. This report has been prepared without regard to the particular investments and circumstances of the recipient. The financial instruments discussed in this report may not suitable for all investors and investors must make their own investment decisions using their own independent advisors as they believe necessary and based upon their specific financial situations and investment objectives. Securities and other financial instruments discussed in this report, or recommended or offered by Evercore ISI, are not insured by the Federal Deposit Insurance Corporation and are not deposits of or other obligations of any insured depository institution. If a financial instrument is denominated in a currency other than an investor's currency, a change in exchange rates may adversely affect the price or value of, or the income derived from the financial instrument, and such investor effectively assumes such currency risk. In addition, income from an investment may fluctuate and the price or value of financial instruments described in this report, either directly or indirectly, may rise or fall. Estimates of future performance are based on assumptions that may not be realized. Furthermore, past performance is not necessarily indicative of future performance.

Evercore ISI salespeople, traders and other professionals may provide oral or written market commentary or trading strategies to our clients that reflect opinions that are contrary to the opinions expressed in this research. Our asset management affiliates and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

Electronic research is simultaneously available to all clients. This report is provided to Evercore ISI clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of Evercore ISI. Receipt and review of this research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion or information contained in this report (including any investment recommendations, estimates or target prices) without first obtaining express permission from Evercore ISI.

This report is not intended for distribution to, or use by any person or entity in any jurisdiction or country where such distribution or use would be contrary to local law or regulation.

For investors in the UK: In making this report available, Evercore makes no recommendation to buy, sell or otherwise deal in any securities or investments whatsoever and you should neither rely or act upon, directly or indirectly, any of the information contained in this report in respect of any such investment activity. This report is being directed at or distributed to, (a) persons who fall within the definition of Investment Professionals (set out in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order")); (b) persons falling within the definition of high net worth companies, unincorporated associations, etc. (set out in Article 49(2) of the Order); (c) other persons to whom it may otherwise lawfully be communicated (all such persons together being referred to as "relevant persons"). This report must not be acted on or relied on by persons who are not relevant persons.

Applicable current disclosures regarding the subject companies covered in this report are available at the offices of Evercore ISI, and can be obtained by writing to Evercore Group LLC, Attn. Compliance, 666 Fifth Avenue, 11th Floor, New York, NY 10103.

In compliance with the European Securities and Markets Authority's Market Abuse Regulation, a list of all Evercore ISI recommendations disseminated in the preceding 12 months for the subject companies herein, may be found at the following site: https://evercoreisi.mediasterling.com/disclosure.

© 2020. Evercore Group L.L.C. All rights reserved.