Relaxing Household Liquidity Constraints through Social Security

Sylvain Catherine Wharton
Max Miller Wharton
Natasha Sarin* PennLaw & Wharton
July 16, 2020

Abstract
More than a quarter of working-age households in the United States do not have sufficient savings to cover their expenditures after a month of unemployment. Recent proposals suggest giving workers early access to a small portion of their future Social Security benefits to finance their consumption during the COVID-19 pandemic. We empirically analyze their impact. Relying on data from the Survey of Consumer Finances, we build a measure of households’ expected time to cash shortfall based on the incidence of COVID-induced unemployment. We show that access to 1% of future benefits allows 75% of households to maintain their current consumption for three months in case of unemployment. We then compare the efficacy of access to Social Security benefits to already legislated approaches, including early access to retirement accounts, stimulus relief checks, and expanded unemployment insurance.

Keywords: Covid-19, Social Security, Household Finance
JEL codes: E21, G51, H55, H12

*All errors are our own.
1 Introduction

The COVID-19 pandemic has pushed US unemployment to its highest level since the Great Depression. Now, policymakers are weighing an unprecedented change to the Social Security system: allowing workers to access a portion of future benefits prior to retirement to finance consumption today.\footnote{Stein et al. (2020) provides some detail on a recent Trump Administration proposal.} Early access to Social Security wealth would boost household liquidity. But, it will also decrease the resources that retirees will have later in life. The magnitudes are uncertain and may vary across the wealth distribution. Assessment of this proposal requires careful consideration of workers’ Social Security benefits and their distribution. Only then is it possible to analyze the impact of a cut to future benefits on households, today and in the future.

This paper undertakes this task. Specifically, we build on the Catherine et al. (2020) estimate of Social Security wealth to compute the market value of expected Social Security benefits for each worker we observe in the Survey of Consumer Finances (SCF). We compute expected benefits by simulating workers’ earnings trajectories and then discount these benefits, accounting for the long-run correlation between Social Security and stock market returns. We find that a 1% decrease (representing on average $15) in monthly benefits significantly boosts liquidity. It provides on average $2,884 per worker today.

As Figure 1 illustrates, Social Security benefits are relatively evenly distributed across the wealth distribution, whereas the value of retirement accounts and liquid savings is concentrated in the top decile. Social Security is hugely significant to most Americans: It represents nearly 60% of the wealth of the bottom 90% (Catherine et al., 2020). In its last annual report, the Social Security Administration reports that the aggregate value of benefits scheduled for current participants is nearly $80 trillion.

Allowing workers to tap a share of Social Security benefits early would allow them to borrow at historically low interest rates. For most of them, this cannot be done on private markets. As Figure 2 shows, in 2016, a majority of households faced a marginal interest rate above 10%. Households who do not need this loan can choose to invest the money in government bonds and should be indifferent. From the point of view of the government, an approach like this one transforms implicit Social Security liabilities into public debt but leaves its overall long-run
obligations unchanged.

In the second part of the paper, we measure how many days it takes for households to run out of cash in case of unemployment. We use this measure to evaluate the efficiency of an early distribution of 1% of Social Security benefits and compare this policy to already enacted alternatives: allowing workers to tap retirement accounts without penalty, $1,200 stimulus checks, and the extension of unemployment insurance by $600 per week. Importantly, we adjust our unemployment estimates to reflect the fact that this crisis disproportionately displaces young workers in particular industries (e.g., food services and entertainment) with the least liquid savings. Overall, distributing 1% of the value of scheduled benefits allows 75% of households to go through 3 months of unemployment without cutting their consumption. A similar – and more administrable – approach would be to provide workers an advance on future Social Security benefits: a $2,500 check today corresponds to less than a 1% cut in future benefits for nearly all workers. Only the supplemental unemployment insurance of $600 per week provides more liquidity, which is hardly surprising since it implies an median replacement rate of 134% (Ganong et al., 2020).

For most retirees, Social Security income is their primary source of support during retirement. Thus, consideration of any Social Security-based emergency liquidity program must consider the impact on future retirement security. The goal of this paper is to provide an actuarial analysis of a proposal to decrease future Social Security benefits to fund consumption today and to quantify its effect on household liquidity. We do not seek to provide a normative judgment on optimal policies to be pursued. Indeed, there are strong political economy arguments against a Social Security-based approach: opening up the idea that Social Security can be used to meet liquidity needs may lead policymakers to meet other needs that occur during working lives through erosion of retirement support, rather than alternative social insurance arrangements.2

One contribution of our paper is it provides a framework to evaluate the consequences of policy proposals in this vein for households and to determine whether they are being priced in an actuarially fair manner. The baseline approach we consider estimates the liquidity that results from a fairly priced exchange of 1% of future Social Security benefits for a check today. On average, $15 less in monthly benefits in retirement means households can finance their consumption for two

2Sarin (2020) details these concerns.
months. The details of current policy proposals are not yet clear, but some press reports suggest significantly larger magnitudes: that workers may be able to opt into $10,000 of benefits today. This would constitute 3.5% share of future benefits or claiming benefits five months later, if priced in an actuarially fair way. Further, since workers can opt-in to this program, concerns about adverse selection loom large.

**Figure 1: Distribution of various forms of wealth**

This figure shows the distribution of Social Security wealth, retirement wealth, and liquid wealth across deciles of the marketable wealth distribution. The red bar denotes the per household average present value of scheduled Social Security benefits, the green bar shows the per household average amount of retirement savings, and the blue bar displays the per household average liquid wealth. We calculate the present value of Social Security benefits by simulating workers’ earnings trajectories and matching this data with the SCF based on current earnings. Retirement accounts are defined as IRA accounts, thrift accounts, or any current or future defined contribution pension obligations and comes from the SCF. Liquid wealth is defined as all wealth held in transactions accounts, certificates of deposit, mutual funds, stocks, bonds, and also comes from the SCF.
This paper adds to several strands of literature. First, we contribute to the growing literature on the economic impact of COVID-19 and evaluation of policies aimed at stemming it (Baker et al., 2020, Barrero et al., 2020, Bartik et al., 2020, Ganong et al., 2020, Gormsen and Koijen, 2020). In a recent policy piece, Biggs and Rauh (2020) consider a related approach: allowing workers to access Social Security wealth today and delay retirement to repay these benefits. Under current law, workers can offset a 1% cut in benefits by claiming benefits eight weeks later.

We also add to the literature on the design of public savings programs. In the U.S. and many other countries, public savings are designed to be illiquid to supplement the private market for longevity insurance, plagued by adverse selection problems (Abel, 1986, Eckstein et al., 1985, Hosseini, 2015). In recent work, Beshears et al. (2019) point out that illiquid retirement savings are optimal with households with present bias. They suggest a role for three distinct types of savings accounts: liquid savings, semi-liquid retirement accounts with withdrawals made at penalty, and

Electronic copy available at: https://ssrn.com/abstract=3593054
fully illiquid accounts. We extend this literature by pointing out that the optimal mandatory savings rate could be countercyclical. Practically, even if these three types of savings vehicles are first-best, when nearly half of households lack any semi-liquid retirement savings, introducing some liquidity into the Social Security program may be beneficial. Much work has advocated the provision of lump-sum benefits of Social Security wealth to discourage early retirement, noting households’ preferences for one-time payouts that enable them to pay down mortgages or other debt (Maurer and Mitchell, 2018, Maurer et al., 2016). We build on this insight, suggesting that lump sum payments in this crisis would provide households a way to finance expenditure at record-low rates of interest.

The remainder of our paper proceeds as follows. Section 2 describes the Social Security program and our approach for valuing Social Security benefits, and estimates the consequences of early access to Social Security across the age distribution. Section 3 compares this approach to other alternatives to increase households’ liquidity, including tapping retirement accounts, stimulus checks, and extended unemployment benefits. Section 4 concludes.

## 2 Valuing scheduled benefits

In this section, we estimate how much can be paid immediately to households in exchange for a small cut in future Social Security benefits. Because benefits are determined based on individuals’ historical earnings, the present value of benefits depends on age and earnings trajectories.

We estimate the market value of a benefit cut in two steps. First, we compute expected benefits by simulating earnings trajectories and applying the Social Security benefit formula, assuming all workers retire at full retirement age.\(^3\) Second, we discount expected benefits using the real yield curve\(^4\) implied by Treasury inflation-protected securities (TIPS) and taking into account the long run correlation between Social Security and stock market returns, following the approach of Catherine et al. (2020).

### 2.1 Expected benefits

\(^3\)As we discuss in Appendix B.1, this assumption does not really impact our findings.

\(^4\)The construction of this series is detailed in Appendix A.1.
Simulating earnings To forecast benefits, we simulate earnings using the income process estimated in Guvenen et al. (2019). Specifically, we assume that a worker $i$ earnings at age $t$ are:

$$L_{it} = L_{1,t} \cdot L_{2,it}. \quad (2.1)$$

where $L_{1,t}$ is the average wage in the economy and $L_{2,it}$ represents the idiosyncratic component of earnings. The latter evolves as follows:

Level of idiosyncratic earnings: $$L_{2,it} = (1 - \nu_i^t)e^{\left(g(t) + \alpha \gamma + \beta \tau + z_i^t + \epsilon_i^t\right)} \quad (2.1.1)$$

Persistent component: $$z_i^t = \rho z_{i-1}^t + \eta_i^t \quad (2.1.2)$$

Innovations to AR(1): $$\eta_i^t \sim \begin{cases} N(\mu_{\eta,1}, \sigma_{\eta,1}^2) & \text{with prob. } p_z \\ N(\mu_{\eta,2}, \sigma_{\eta,2}^2) & \text{with prob. } 1 - p_z \end{cases} \quad (2.1.3)$$

Initial condition of $z_i^0$: $$z_0^t \sim N(0, \sigma_z^2) \quad (2.1.4)$$

Transitory shock: $$\varepsilon_i^t \sim \begin{cases} N(\mu_{\varepsilon,1}, \sigma_{\varepsilon,1}^2) & \text{with prob. } p_\varepsilon \\ N(\mu_{\varepsilon,2}, \sigma_{\varepsilon,2}^2) & \text{with prob. } 1 - p_\varepsilon \end{cases} \quad (2.1.5)$$

Nonemployment duration: $$\nu_i^t \sim \begin{cases} 0 & \text{with prob. } 1 - p_\nu(t, z_i^t) \\ \min\{1, \exp\{\lambda\}\} & \text{with prob. } p_\nu(t, z_i^t) \end{cases} \quad (2.1.6)$$

Prob. of Nonemp. shock: $$p_\nu^t(t, z_i) = \frac{e^{\xi_i^t}}{1 + e^{\xi_i^t}}, \text{ where } \xi_i^t = a + bt + cz_i^t + dz_i^t \quad (2.1.7)$$

where $z_i$ is a component of earnings with persistence $\rho$ and innovations drawn from a mixture of normal distributions. Transitory shocks $\varepsilon_i$ also have a normal mixture distribution. Finally, workers can experience a period of unemployment with probability $p$ which depends on age, earnings and gender, and whose length follows an exponential distribution. We refer readers to Guvenen et al. (2019)’s study for more details.

Benefit formula Social Security benefits are computed in three steps. First, past taxable earnings are wage-indexed, which means that they are adjusted to reflect the growth in nominal wages up to the year a worker reaches age 60. In a second step, the average indexed yearly earnings
(“AIYE”) is determined by averaging the best 35 years of indexed earnings. Finally, benefits are computed as a concave function of the AIYE. Specifically, benefits equal the sum of 90% of the share of the AIYE below the first Social Security “bend point” ($11,112 in 2019), 32% of the share AIYE between the first and second bend point ($66,996) and 15% of the remaining part of the AIYE. Since the 1980’s, these bend points have tracked the evolution of earnings, representing 0.21 and 1.25 times the national wage index \( L_1 \). We assume that they will keep evolving that way. Hence, the value of benefits is a piece-wise linear function of the AIYE:

\[
\text{Benefits}_i = \begin{cases} 
0.9 \times AIYE_i & \text{if } AIYE/L_{1,60} < 0.21 \\
0.1218 \times L_{1,60} + 0.32 \times AIYE & \text{if } 0.21 \leq AIYE/L_{1,60} < 1.25 \\
0.3343 \times L_{1,60} + 0.15 \times AIYE & \text{if } 1.25 \leq AIYE/L_{1,60},
\end{cases}
\]

(2.2)

where \( L_{1,60} \) is the level of wage index when a worker turns 60.

### 2.2 Market value

We need to determine the present value of a stream of benefits protected against inflation, backed by the Federal government and indexed on the national wage index. We define the present value of expected benefits as:

\[
\text{Value of Benefits}_{st} = \sum_{s=66}^{T} \left( \prod_{k=t}^{s-1} (1 - m_{ik}) \right) \Psi_s \mathbb{E}[\text{Benefits}_{st}]
\]

(2.3)

where \( T \) is the maximum age, \( m_{ik} \) is mortality at age \( k \), and \( \Psi_s \) is the appropriate discount factor for benefits paid at age \( s \).

When discounting benefits, we take into account that wage indexation exposes the government to systematic risk because of the correlation between market returns and the wage index. This contemporaneous correlation is small but Benzoni et al. (2007) argue that the labor and stock markets are cointegrated, which reduces the present value of benefits substantially (Catherine, 2019, Geanokoplos and Zeldes, 2010). To take this into account, we model the evolution of the log national index \( l_1 \) and the log cumulative market returns \( s_t \) as in Benzoni et al. (2007):

\[
\begin{align*}
&dl_{1,t} = \left( (\phi - \kappa) y_t + \mu - \delta - \frac{\sigma_1^2}{2} \right) dt + v_1 dz_{1,t} \\
&ds_t = \left( \mu + \phi y_t - \frac{\sigma_2^2}{2} \right) dt + \sigma_s dz_{2,t} \\
&dy_t = -\kappa y_t + \sigma_1 dz_{1,t} - \sigma_s dz_{2,t}
\end{align*}
\]

(2.4)
In these equations, $\mu - \delta$ determines the unconditional log aggregate growth rate of earnings and $v_1$ its volatility. $\mu$ and $\sigma_s$ represent expected stock market log returns and their volatility. The state variable $y_t$ keeps track of whether the labor market performed better or worse than the stock market relative to expectations. Finally, $\kappa$ determines the strength of the cointegration between the labor and stock markets.

In Catherine et al. (2020), we show that the market beta of a “wage bond” paying a single cash flow indexed to the value of $L_{1,n}$ in $n$ years is:

$$\beta_{L_{1,n}} = \left(1 - \frac{\phi}{\kappa}\right)(1 - e^{-\kappa n})$$

and we demonstrate that, under the no-arbitrage condition, the expected return on such a bond is:

$$E[r_{L_{1,n}}] = \beta_{L_{1,n}}(\mu - r) + r$$

where $r$ is the risk-free rate. Therefore, for workers below age 60, the appropriate discount factor for a benefit expected at age $s$ is:

$$\Psi_s \approx \left[\prod_{k=t+1}^{60} \left(1 + \beta_{L_{1,60-k}}(\mu - r) + f_k\right) \prod_{s=n+1}^{k} (1 + f_k)\right]^{-1},$$

where $f_k$ is the forward real interest rate between years $k - 1$ and $k$.

### 2.3 Calibration and validity

We calibrate the dynamics of idiosyncratic earnings using the benchmark estimation of Guvenen et al. (2019) (see Appendix Table C.1). In Catherine et al. (2020), we use the same simulation strategy to estimate the value of future benefits, net of future payroll taxes, from 1989 to 2016. We validate this approach by showing that, when using the same macroeconomic assumptions, we can track very well the evolution of aggregate Social Security obligations reported by the Office of the Chief Actuary of the SSA. Moreover, we also show that our simulation produces full-retirement benefits that match those observed in the SCF. Finally, the income process estimated in Guvenen et al. (2019) matches many moments of the cross-section and dynamics of earnings.

We calibrate the model in Section 2.2 as in Benzoni et al. (2007). These authors estimate $\kappa = .16$ and $\phi = .08$ using US macroeconomic data from 1929 to 2004. This calibration implies
a market beta of 0.5 for very distant Social Security benefits. We assume an equity premium
of $\mu - r = 0.06$. We use the TIPS yield curve of April 2020 to compute forward interest rates.
Finally, we use the SSA wage growth projections from the 2019 report of the Office of the Chief
Actuary for the national wage index.\footnote{Appendix B.2 discusses the implications of alternative assumptions for the equity premium and wage growth. For workers nearing retirement, the implications of alternative parameters are not meaningful. For young workers they are significant. For example, at age 20, an 8% (4%) equity premium decreases (increases) the present value of future benefits by around 40% (30%).}

It is worth noting that our simulation does not take into account the effect of the COVID
downturn on wages. Implicitly, we assume that, after the pandemic, labor market conditions will
return to normal within a couple of years. There are two reasons we are skeptical the downturn
will meaningfully impact our valuation of Social Security: first, at the individual level, since Social
Security benefits are determined based on the best 35 years in the labor force, corona induced
un- or under-employment should not impact benefits. Second, at the more macro-level, even two
years of 0% growth will decrease the market value of Social Security by at most 2%.

2.4 Results

We simulate past and future earnings for 800,000 workers per cohort, producing a cross-section of
36 million observations for the year 2020. The simulated dataset includes age, average past taxable
earnings and the present value of expected benefits. We use this simulated data to estimate how
much can be paid to workers today in exchange for a small cut in old-age benefits. Our focus is on
working age (20 to 61 year-old) individuals. The answer to this question is a function of workers’
age and earnings histories.

Panel A of Figure 3 illustrates this fact. The present value of a 1% cut is highest for workers who
are approaching retirement because they borrow against more imminent cash flows. In contrast, it
is less significant for workers who have just entered the labor force and who will start repaying this
loan in forty years.\footnote{The dynamics across the age and income distribution are of some interest. For workers with the lowest earnings, a 1% benefit cut is actually of higher value for younger workers than older ones. This is because young workers with low past earnings have the potential to (and in expectation, will) rise in the income distribution over their time in the labor force, whereas for older workers, their earnings history is now fixed.} But importantly, across the age and earnings distribution, just a 1% decrease
in benefits significantly boosts liquidity by providing more than $2,000 to the large majority of workers. In dual-earner households, the provision of liquidity would be twice as large.

To illustrate this point another way, we consider what cut in benefits would be required to deliver workers $2,500 today (Figure 3, Panel B), enough to finance roughly one month of consumption for the median household. For all but the lowest earners, the decrease in future benefits is minor: for 40 year old individuals earning the median income of around $34,000, a $2,500 check represents between 0.8% (75th percentile) and 1% (25th percentile) of future benefits.

**Figure 3: Price of early Social Security check**

This figure shows the relationship between benefit cuts and check size as a function of workers’ age and the average past taxable earnings. Panel A shows how much can be paid in exchange for a 1% benefit cut. Panel B shows the benefit cuts corresponding to a $2,500 check. The graphs are constructing by simulating data following the procedure outlined in Section 2.

Electronic copy available at: https://ssrn.com/abstract=3593054
It is worth noting that this is not the case for workers close to retirement with limited past earnings, for whom a $2,500 check today could represent between 5-10 percent of future benefits. This is a population that has not accrued much Social Security wealth (e.g., because of little time spent in the workforce).

3 Relaxing housing liquidity constraints

We next quantify the magnitude of households’ liquidity constraints and consider how they are exacerbated by COVID-19. We then document the extent to which a small cut in future Social Security benefits redresses them. We compare this approach to already legislated household support: penalty-free access to retirement accounts, stimulus checks, and a significant expansion of unemployment benefits.

3.1 Time to cash shortfall

We start by estimating how long it takes for households to run out of cash when they are on unemployment benefits. This depends on their liquid wealth, the generosity of unemployment benefits and their consumption level. We define the variable “Days to shortfall” as:

\[
\text{Days to Shortfall} = \frac{\text{Liquid Wealth}}{\text{Consumption + Housing and Fixed Expenses - Unemployment Insurance}} \tag{3.1}
\]

where the denominator represents daily expenditures minus insurance benefits. Two categories of households are more likely to run out of cash faster: (i) those with rent and mortgage payments and (ii) those with low liquid wealth-to-earnings ratios. We build these variables using the 2016 SCF, which provides detailed information on wealth, income, and expenditures by household.

First, we assume that baseline unemployment insurance covers 50% of after-tax income. In reality, the benefit formula varies by state and takes into account workers’ earnings and employment histories. Because the SCF does not provide geographic information about respondents, we are unable to compute replacement rates by state. However, our assumption is broadly consistent with the 45% average replacement rate reported by the Department of Labor for 2019. After-tax income is computed using the federal tax code and taking into account income, family composition.
and deductions.

Housing and fixed expenditures include rent, mortgage payments, property taxes, co-op, and mobile home fees, car lease payments, as well as other loan payments. The details of these expenses is reported in the SCF. We assume that consumption of other goods and services represent 60% of after-tax income, which generate higher savings rates among higher earners, in line with prior work (Dynan et al., 2004). Our calibration implies an average saving rate of 6%, which matches the aggregate personal savings rate over the last 20 years.\footnote{We compare to the FRED series PSAVERT. We details the computation of after-tax income in Appendix A.2, expenses in Appendix A.3, and the relationship between earnings and saving rates in Appendix B.4.}

Finally, liquid wealth is constructed as in Bhutta and Dettling (2018) and includes transactions accounts, certificates of deposit, mutual funds, stocks, and bonds. Using these estimates yields a proxy of Equation 3.1 that can be observed in the data, which is the measure we use for the remainder of the paper.

\textbf{Figure 4: Time to shortfall by decile of wealth}

This figure shows the fraction of households who can maintain their consumption on standard unemployment benefits for three, two, and one month before running out of cash, by decile of marketable decile. The time to shortfall measure is based on estimates of liquid wealth, consumption, and fixed expenditures computed from the Survey of Consumer Finances.
Figure 4 shows the share of households who can maintain their consumption up to 30, 60 or 90 days when unemployed, for each decile of marketable wealth.\textsuperscript{8} Unsurprisingly, wealthy households can afford to remain unemployed for longer. But the differences are stark: for those in the bottom three deciles of the marketable wealth distribution, more than 85 percent cannot cover three months of expenditures should they become unemployed. In the top decile, less than 5% face the same issue. Age is an important explanation for this fact: workers who have just entered the labor force have yet to accumulate significant precautionary savings.

3.2 Impact of COVID-19 without intervention

In Figure 5, Panel A, we consider the implication of the counterfactual world in which aggressive stimulus efforts had not been undertaken to provide liquidity to households in need. We illustrate how our measure of days until cash shortfall is distributed throughout the population.

Importantly, we adjust the SCF sample weights such that our sample is representative of workers who have lost their jobs as a consequence of the coronavirus crisis as of March 2020. This is important, since COVID-based unemployment is substantially likely to displace exactly those workers without private savings: Already, estimates suggest that 40% of workers making $40,000 or less annually have lost their jobs because of the pandemic.\textsuperscript{9}

Using data from the Current Population Survey (CPS) and the Bureau of Labor Statistics (BLS), we estimate the probability of becoming employed in that last six weeks as a function of industry, education, and age. We then adjust the SCF weights by multiplying them by the model implied probability of unemployment and dividing by the mean of this variable.

Overall, American households do not have sufficient liquid savings to weather the COVID-19 crisis. If displaced workers were only receiving unemployment benefits to supplement on average 50% of lost wages (as in normal times), more than 25% of working age households would not be

\textsuperscript{8}It is worth noting that there is evidence that households have cut normal times consumption during the COVID-19 pandemic across the earnings distribution Cox et al. (2020). In Appendix Figure B.6, we adjust to reflect this, seeing how the days to shortfall change if non-committed spending falls to 50% of after-tax income (around a 17% drop from baseline levels). The headline takeaway is unchanged: more than 80 percent of those in the bottom three deciles of the wealth distribution are within three months of a cash shortfall, even if their consumption falls.

\textsuperscript{9}This estimate was recently provided by Federal Reserve Chairman Jay Powell (Canilang et al., 2020).
able to meet their current expenditures after a month of unemployment, and 50% cannot last more than 75 days.

3.3 Early Social Security benefits

What would be the effect of allowing households to borrow against 1% of scheduled Social Security benefits? To analyze the quantitative effects of this policy, we must estimate the present value of Social Security benefits for each household in the SCF. To do this, we simulate a data set of 36 million individuals using the procedure described in Section 2.1, which contains age, sex, the present value of future benefits, average past taxable wage earnings, and current wage earnings. We then match the SCF to the simulated data by randomly assigning each individual in the SCF to a simulated outcome with the same age, sex, and wage income.

Early access to 1% of Social Security benefits are a boon to the liquidity of the most vulnerable households, as illustrated in Panel A of Figure 5. With 1% of Social Security benefits today, the bottom 25% of the marketable wealth distribution would have an additional 85 days on average until they are no longer able to cover their current consumption, and the 25th percentile in terms of liquidity shortfall now has an additional two-and-a-half months of support, and the median is over three months. Even this small cut in benefits supports more consumption than most of the alternatives already legislated, as discussed below.

From an administrability standpoint, early access to 1% of Social Security benefits will pose challenges. This is because the government will have to arrive at estimates of earnings trajectories for individuals. Although this paper provides a framework for how such estimation may take place, it is a difficult task and the administration of COVID-related policies thus far raises questions of its feasibility. A more easily implementable approach would be a one-time advance of future Social Security benefits: a $2,500 check today would represent less than a 1% cut in future benefits for all but the very lowest earners (Figure 3, Panel B). This approach could also in principle be made optional without raising adverse selection concerns because the size of checks today would be unrelated to future benefits, so there would be no advantage for those who expect lower benefits.

There are many such recent examples, e.g. the months it took to disburse CARES Act stimulus checks, with 35 million individuals still without benefits as of June (Konish, 2020).
in the future to disproportionately withdraw today.

An added benefit of a $2,500 check is this approach is untethered from the policy risk associated with the Social Security program. The most salient policy risk relates to the resolution of the Social Security funding, which we discuss in Appendix B.3.

### 3.4 Retirement accounts withdrawals

Congress’ COVID-19 stimulus package allows for penalty-free access to retirement accounts. This option is attractive to households: 30 percent of those with retirement accounts have already tapped them in the last two months, and, in April 2020, another 20 percent anticipate doing so in the near future (Berger, 2020).

However, relative to a Social Security-based approach, this has a much more muted effect on household liquidity (Panel B). Under this policy, the bottom 25% of the marketable wealth distribution have an additional 29 days on average before they are no longer able to finance their consumption, and the 25th percentile has only 9 days of support. The median, however, gets 3 months of support.

This is because the vast majority of workers made most vulnerable by the crisis do not have the funds in their retirement accounts to finance consumption today. As Figure 1 illustrates, only half of workers have a retirement account, and in the bottom decile of marketable wealth, only 31% have non-zero retirement savings. Second, even for those who could gain liquidity by accessing retirement accounts, this requires liquidation of investment assets in the midst of a dramatic downturn (the S&P dropped by 16% in March alone).

### 3.5 Stimulus checks

Congress legislated a one-time issuance of $1,200 COVID-19 relief check for all individuals earning less than $75,000.\(^\text{11}\) This approach does not boost household liquidity as much as providing 1% of

\(^\text{11}\)We take into account that, for heads of households, this number is increased to $112,500, and for couples filing jointly, the amount is $150,000 For people making over this, the stimulus is gradually phased out. Further, joint filers receive $2,400 in stimulus plus an additional $500 for each qualifying dependent. Details are provided in Appendix A.6.
Social Security benefits early: the median household receives $2,200 from the stimulus, but $4,200 from a 1% cut in future benefits.

These stimulus checks also cost over $290 billion.\textsuperscript{12} Already, the consequences for the U.S. deficit of COVID-19 spending are significant, with debt ballooning to over 100% of GDP (Swagel, 2020). There is widespread disagreement on the effect of large government debts and deficits in the economics literature (Blanchard, 2019, Rogoff, 2016). Given the low interest rate environment and lack of inflationary concerns, substantial focus on deficits might be misplaced. But it is worth noting that funding household consumption through Social Security is budget neutral and allows for liquidity constraints to be relaxed for a few months at least without increasing government liabilities.

3.6 Supplemental unemployment benefits

Since the onset of the pandemic to July, unemployment benefits were increased by an extra $600 weekly, costing the U.S. government $260 billion to provide. While the median household receives $600 per week, there are still a large plurality of households that need more than this to avoid a shortfall. For those in the 25th percentile, this proposal provides an additional 105 days of liquidity, 10 days more than what 1% of Social Security benefits delivers. But policy can be designed differently so that the Social Security approach delivers more, e.g. 2% of benefits today lengthens the time to cash shortfall by more than supplemental UI.

Unlike a Social Security-based approach, paying very high UI benefits introduces labor supply disincentives. Recent work suggests that two-thirds of UI eligible workers are currently receiving benefits that exceed lost earnings (Ganong et al., 2020) and notes that such a significant expansion can impede reallocation responses needed to confront the COVID-19 shock (Barrero et al., 2020). Such concerns are consistent with a long literature the labor market impact of generous unemployment benefits, which can discourages workers from re-entering the workforce (Fredriksson and Holmlund, 2006, Lalive et al., 2006, Lentz, 2009). However, there is evidence that generous UI during recessions is optimal (Crépon et al., 2013). Yet as the economy reopens, these issues may

\textsuperscript{12}As estimated by the Committee for a Responsible Federal Budget (Fink, 2020). For more information, visit http://www.crfb.org/blogs/visualization-cares-act.
become more relevant.

3.7 Other considerations and concerns

Despite policies already enacted to support households, many will find themselves unable to meet their financial obligations in the coming months. For those without access to credit, the result will be delinquency on obligations like rent and mortgage payments, that could result in eviction or bankruptcy. For those with access to credit, borrowers (many subprime) will take out loans at private rates that are on average 80 times more costly (Figure 2).

Recent proposals for the provision of liquidity through Social Security suggest that workers be given the option to withdraw a portion of future benefits. But this approach raises concerns about adverse selection: workers who anticipate lower benefits in the future may disproportionately choose to withdraw. A mandatory benefits cut, in contrast, does not undermine the provision of longevity insurance through Social Security, and it allows all households to benefit from low interest rates. Those who need funds will have them; and those who do not, can save.

One issue for policymakers to weigh is that the lump-sum payment of Social Security benefits will hasten the depletion of the Social Security trust fund by a few years. Thus policymakers will be forced to weigh entitlement reform sooner. Another potential concern with providing access to future Social Security benefits is that this decreases the funds they will have to finance consumption in retirement. Indeed, today for the vast majority of Americans these savings are their largest source of income after leaving the workforce.

A key difference between a Social Security-based approach and other alternatives is its budget neutrality. A $2,500 benefit check has no effect on government liabilities, as it can be financed by the issuance of bonds that are explicitly backed by a decrease in future Social Security benefits. This is in contrast to stimulus spending: the CARES Act required a budgetary outlay of $260 billion for 13 weeks of expanded unemployment insurance, and $290 billion for one-time checks to most families. While it is true that early access to retirement savings is also budget neutral, its ability to deliver liquidity to households is minimal, as described above.
Figure 5: Days to cash shortfall under different policies

This figure shows the number of days until working-age households run out of cash in case of unemployment under different policies. Time to Shortfall is defined as liquid wealth divided by daily expenditures minus daily unemployment benefits, which we assume covers 50% of after-tax income. Each bin represents a 5-day increment and the graphs report the percentage of households who would run out of cash within these 5 days. The light blue bars in each graph show the no intervention case. Panel A refers to our policy proposal, in which everyone receives a check equal to 1% of the present value of expected benefits. Panel B shows the scenario in which workers can withdraw from their retirement accounts without penalty. Panel C shows the effect of giving $1,200 checks to households using the policy outlined in the CARES Act. Panel D shows the results of $600 in extra unemployment insurance, as provided for by the CARES Act. The red, vertical lines represent the 25th percentile of the each time to shortfall variable.

A. Early access to 1% of Social Security Benefits

B. Early access to 401K accounts

C. $1,200 stimulus checks

D. Supplemental unemployment insurance of $600 per week
4 Conclusion

In the United States, Social Security wealth is designed to be illiquid to provide longevity insurance that safeguards retirees in old age. The result is that for most American workers, illiquid forced savings exceed the liquid wealth they have on hand to finance consumption shocks. But optimal illiquidity is time-varying, and in downturns like this current crisis, there is a case to be made for allowing workers to access their illiquid Social Security wealth.

We illustrate the potential of this approach by carefully computing the market value of workers’ Social Security benefits based on their age, earnings history, and estimated future earnings trajectories, adapting the approach of Catherine et al. (2020). We find that a minimal cut in scheduled Social Security benefits of just 1% is sufficient to finance household expenditure for two months. A related, and more administrable, alternative would be to provide workers their first $2,500 in Social Security benefits today, which we show amounts to less than 1% of future benefits for nearly all workers. This provides more liquidity to households most vulnerable than alternative approaches already enacted, like penalty-free withdrawals from retirement savings accounts, and stimulus checks. It is also fiscally neutral and unlikely to introduce labor market distortions.
References

Abel, Andrew B., “Capital Accumulation and Uncertain Lifetimes with Adverse Selection,” *Econometrica*, 1986, 54, 1079–1097.

Baker, Scott R., Nicholas Bloom, Steven J. Davis, and Stephen J. Terry, “COVID-Induced Economic Uncertainty,” *NBER Working Paper No. 26983*, 2020.

Barrero, Jose Maria, Nick Bloom, and Steven J. Davis, “COVID-19 Is Also a Reallocation Shock,” *Becker-Friedman Institute Working Paper No. 2020-59*, 2020.

Bartik, Alexander W., Marianne Bertrand, Zoë B. Cullen, Edward L. Glaeser, Michael Luca, and Christopher T. Stanton, “How Are Small Businesses Adjusting to COVID-19? Early Evidence from a Survey,” *NBER Working Paper No. 26989*, 2020.

Benzoni, Luca, Pierre Collin-Dufresne, and Robert S. Goldstein, “Portfolio Choice over the Life-Cycle when the Stock and Labor Markets Are Cointegrated,” *Journal of Finance*, October 2007, 62 (5), 2123–2167.

Berger, Sarah, “3 in 10 Americans Withdrew Money From Retirement Savings Amid the Coronavirus Pandemic – and the Majority Spent It On Groceries,” *Magnify Money*, 2020.

Beshears, John, James Choi, David Laibson, Brigitte C. Madrian, and William Skimmyhorn, “The effect of automatic enrolment on debt,” *Vox EU*, 2019.

Bhutta, Neil and Lisa Dettling, “Money in the Bank? Assessing Families’ Liquid Savings using the Survey of Consumer Finances,” *FEDS Note*, 2018.

Biggs, Andrew G. and Joshua D. Rauh, “Funding Direct Payments to Americans Through Social Security Deferral,” *Stanford University Graduate School of Business Research Paper No. 3580533*, 2020.

Blanchard, Olivier, “Public Debt and Low Interest Rates,” *American Economic Review*, 2019, 109, 1197–1229.
Canilang, Sara, Cassandra Duchan, Kimberly Kreiss, Jeff Larrimore, Ellen Merry, Erin Troland, and Mike Zabek, “Report on the Economic Well-Being of U.S. Households in 2019, Featuring Supplemental Data from April 2020,” Board of Governors of the Federal Reserve System, 2020.

Catherine, Sylvain, “Labor Market Risk and the Private Value of Social Security,” Working paper, 2019.

_ , Max Miller, and Natasha Sarin, “Social Security and Trends in Inequality,” 2020.

Cox, Natalie, Peter Ganong, Pascal Noel, Joseph Vavra, Arlene Wong, Diana Farrell, and Fiona Greig, “Initial impacts of the pandemic on consumer behavior: Evidence from linked income, spending, and savings data,” 2020. Brookings Paper on Economic Activity.

Crépon, Bruno, Esther Duflo, Marc Gurgand, Roland Rathelot, and Philippe Zamora, “Do Labor Market Policies have Displacement Effects? Evidence from a Clustered Randomized Experiment,” The Quarterly Journal of Economics, 2013, 128 (2), 531–580.

Dynan, Karen E., Jonathan Skinner, and Stephen P. Zeldes, “Do the Rich Save More?,” Journal of Political Economy, 2004, 112.

Eckstein, Zvi, Martin Eichenbaum, and Dan Peled, “Uncertain lifetimes and the welfare enhancing properties of annuity markets and social security,” Journal of Public Economics, 1985, 26, 303–326.

Fink, Jenni, “Stimulus Checks Cost $290 Billion. A Fraction of That Could have Changed Response to Coronavirus Outbreak, Experts Say,” Newsweek, 2020.

Fredriksson, Peter and Bertil Holmlund, “Improving Incentives in Unemployment Insurance: A Review of Recent Research,” Journal of Economic Surveys, 2006, 20, 357–386.

Ganong, Peter, Pascal Noel, and Joseph Vavra, “US Unemployment Insurance Replacement Rates During the Pandemic,” Becker-Friedman Institute Working Paper No. 2020-62, 2020.

Geanakoplos, John and Stephen P. Zeldes, “Market Valuation of Accrued Social Security Benefits,” 2010, pp. 213–233.
Gormsen, Niels Joachim and Ralph S. J. Koijen, “Coronavirus: Impact on Stock Prices and Growth Expectations,” University of Chicago, Becker Friedman Institute for Economics Working Paper No. 2020-22, 2020.

Gürkaynak, Refet, Brian Sack, and Jonathan Wright, “The TIPS Yield Curve and Inflation Compensation,” Finance and Economics Discussion Series, 2008, 2008 (5).

Guvenen, Fatih, Fatih Karahan, Serdar Ozkan, and Jae Song, “What Do Data on Millions of U.S. Workers Reveal About Life-Cycle Earnings Risk?,” SSRN Electronic Journal, 2019.

Hosseini, Roozbeh, “Adverse Selection in the Annuity Market and the Role for Social Security,” Journal of Political Economy, 2015, 123, 941–984.

Konish, Lorie, “35 million stimulus checks are still outstanding. What you need to know if you’re waiting for your money,” CNBC, 2020.

Lalive, Rafael, Jan van Ours, and Josef Zweimüller, “How Changes in Financial Incentives Affect the Duration of Unemployment,” The Review of Economic Studies, 2006, 73 (4), 1009–1038.

Lentz, Rasmus, “Optimal Unemployment Insurance in an Estimated Job Search Model with Savings,” Review of Economic Dynamics, 2009, 12, 37–57.

Maurer, Raimond and Olivia S. Mitchell, “Evaluating Lump Sum Incentives for Delayed Social Security Claiming,” Public Policy and Aging Report, 2018, 28, S15–21.

, , Ralph Rogalla, and Ivonne Siegelin, “Accounting and Actuarial Smoothing of Retirement Payouts in Participating Life Annuities,” Insurance: Mathematics and Economics, 2016, 71, 268–283.

Munnell, Alicia H. and Anqi Chen, “Are Social Security’s Actuarial Adjustments Still Correct?,” Technical Report, Chestnut Hill, MA: Center for Retirement Research at Boston College 2019.

Rogoff, Kenneth, Progress and Confusion: The State of Macroeconomic Policy, Cambridge: MIT Press,
Sarin, Natasha, “Tapping Social Security Would Be a Big Mistake,” *Bloomberg*, 2020.

Stein, Jeff, Josh Dawsey, and John Hudson, “Top White House advisers, unlike their boss, increasingly worry stimulus spending is costing too much,” *The Washington Post*, 2020.

Swagel, Phill, “CBO’s Current Projections of Output, Employment, and Interest Rates and a Preliminary Look at Federal Deficits for 2020 and 2021,” *Congressional Budget Office*, 2020.
A Data appendix

In this section, we give a detailed account of the data methodology employed in the main text.

A.1 Constructing the real yield curve

To obtain the real yield curve, we use estimates from Treasury Inflation-Protected Securities (TIPS) the Federal Reserve Board of Governors, based on the methodology in Gürkaynak et al. (2008). These data provide real, annualized zero coupon yields for government securities from 2 to 20 years. To obtain the one year yield, we use the annualized two year rate. To obtain longer horizon estimates of the yield curve, we take the 19-to-20 year forward rate, given by $f_{t+19 \rightarrow t+20} = \frac{1 + r_{t,t+20}}{1 + r_{t,t+19}}$ to be the long-run real interest rate, and iterate this rate on the 20-year yield to extend the yield curve. This is given mathematically by $1 + r_{t,t+20+h} = \left(1 + r_{t,t+20}\right)^{20} \left(f_{t+19 \rightarrow t+20}\right)^{\frac{h}{20}}$, which we use to extend the real yield curve out to 100 years. We use the most recent data available for this calculation, which as of this writing is from April 9th, 2020, which is shown in Figure A.1.

A.2 Estimating taxes in the SCF

While there is insufficient data to arrive at the exact tax payment a household makes using the SCF data, a reasonable estimate can be achieved. To do this, we apply the tax code in a straightforward way to arrive at after-tax income. To do this we start by deducting personal exemptions, the standard deduction, and interest payments on student loans.

In calculating these, we make the simplifying assumption based on variable X5746, which asks about the filing behavior of each household. Namely, for married couples that file jointly or separately, we use the tax brackets for married, joint filers, and, for everyone else we use the head-of-household tax bracket. The first assumption is made because we do not observe income for each member of the household, so treating them as joint filers is a requirement and likely only overstates taxes for those who are relatively wealthy, as wealthier couples have more to gain from filing separately. The second assumption is made because we do not observe how single households file. This is assumption will likely understate the tax burden for individuals.

Personal exemptions in 2016 are equal to $4,050 for each qualifying dependent. To arrive at this number we multiply $4,050 by the number of children in the household. Further, we phase out these exemptions using IRS

---

13This data is provided by the Federal Reserve, and available here.
This figure shows the real yield curve used for the calculation of the present value of future Social Security benefits. Values are in annualized spot rates. The one year ahead is set equal to the annualized two year rate. Rates beyond 20 years are obtained by iteratively applying the 19-to-20 year forward rates to the spot rate, as described in Section A.1.

rules, namely for each $2,500 above $285,350 and $311,300 for heads of households and joint filers, respectively, we subtract 2% of the exemption until the full amount is exhausted. Similarly, we apply the Standard Deduction for all households, which is $9,300 and $12,600 for heads of households and joint filers, respectively, using the same phase out procedure via IRS policy. Finally, we allow for up to $2,500 of student loan payments to be deducted annually.

We subtract these deductions from total income in the SCF and then apply the appropriate tax rate based on the progressive tax brackets used by the IRS in 2016, taken from the Tax Foundation. These give us annual estimates for taxes paid during the year. We then subtract this from income to arrive at after-tax income.
A.3 Calculation of fixed expenses in the SCF

The Survey of Consumer Finances (SCF) contains information about loan expenditures that we use to measure a household’s proximity to a cash shortfall, which we define as the number of days until the household is unable to meet current obligations based on current liquid savings. Our definition of fixed expenses are those which cannot be changed or renegotiated easily, and are therefore unlikely to change in a crisis setting. These include regular living expenses like rent and fees for apartments, houses, condominiums, and mobile homes, mortgage payments, property taxes, car lease payments, and non-mortgage loan payments.

Some of the variables we use are included in the SCF raw files and are not present in the cleaned extracts produced by the Survey of Consumer Finance division at the Federal Reserve Board of Governors. Payments for rent are in the SCF raw data file under variable X708, which can be adjusted into a monthly variable by using the frequency of payment variable X709. In fact, for each variable we discuss, there is an associated frequency variable which is always one plus the original variable number. Mobile home payments come from three different variables. The first is X602, which is the cost of renting the mobile home when the respondent owns the site, but not the home. Variable X612 corresponds to respondents who own the mobile home and rent the site, and variable X619 corresponds to people who rent both.\textsuperscript{14} Co-op fees are also given in the SCF by variable X703, and property taxes by X721. Finally, we add in car lease payments which are given by variables X2105 (first car lease, if applicable) and X2112 (second car lease, if applicable).

These variables are combined with the TPAY variable from the cleaned SCF extract. The TPAY variable represents all monthly loan payments the household makes which is equal to the sum of MORTPAY, which is total mortgage debt payments, CONSPAY, which is total non-mortgage non-revolving consumer debt, and REVPAY, which is total revolving debt excluding home equity lines of credit (HELOCs). MORTPAY includes all mortgage payments for home mortgages, mortgages for other residential properties, payments on land contracts, payments on certain types of lines of credit. CONSPAY includes payments on auto loans, student loans, installment loans, margin loans, loans against insurance policies, other loans, and loans against pension plans. The REVPAY variable includes credit card payments and other lines of credit not included in MORTPAY. For the median household with at least one member aged 20 and 61 in the SCF, these payments make up roughly 26.9\% of before tax income and on average 34.4\%.

A.4 Merging the simulated data to the SCF

To calculate the net present value of future benefits in the SCF, we must merge the simulated data to the actual data. To do this, we generate a sample of 36 million individuals using the simulation where the sample consists of age, sex, current wage income, AIYE, and the present value of future Social Security benefits. We then round the\textsuperscript{14}There are no non-zero observations for X602 in the 2016 survey. There are 415 non-zero observations for variable X612, and 360 non-zero observations for variable X619.
wage income variable to the nearest $2,500 and then generate an identifier for each observation within each age, sex, and current wage bucket.

To merge this data with the SCF, we must split household wage earnings between people in multi-earner households. To do this, we use data from the SCF on self reported wages for each earner in the household on wage income. However, these self reported wages will often differ from the Internal Revenue Service, Form 1040, Box 7 income reported by the SCF in the cleaned extracts. Therefore, we use these information from the self reported wage data to ascertain how wages are split within the household. More detail on this procedure is given below in Section A.4.1. We then round these split wage data to the nearest 2,500 and randomly generate an identifier to be merged with the simulated data. This is in essence treating the present value of Social Security for each SCF respondent as a random draw from the simulation, conditioning on current wage income. From there, we take 1% of the combined present value of future benefits as the check that the household will receive in our policy.

### A.4.1 Splitting household wage income in the SCF

To split the WAGEINC variable from the cleaned SCF extract between household earners we rely on data from the raw SCF files. In particular, we use variables on self reported wages, which are X4112, X4509, X4712, and X5109 which are the wage earnings on the first and second (if applicable) jobs of the first and second members of the household, respectively. These are then adjusted to annual frequencies using variables X4113, X4510, X4713, and X5110. For single earner households, splitting the wage is easy; we assign 100% of the wage to the single earner. For dual earning households, we some together the total wages for each member and assign to each person the corresponding fraction of WAGEINC. For example, if if self-reported earnings of $75,000 and $25,000 for the first and second persons in the household, and the IRS Form 1040, Box 7 income is $80,000, then the first person will be assigned $60,000 and the second person $20,000.

### A.5 Re-weighting the SCF by likelihood of unemployment

In our days to shortfall calculations in Section 3, we alter the nationally representative weights in the SCF to overweight respondents who work in sectors that are most likely to be unemployed due to the COVID-19 crisis, and young and less educated workers. To do this we rely on data from the SCF raw data files and the CPS from the BLS.

The SCF contains data on the industry of employment of each respondent. However, for privacy purposes, in the public data, the detailed industry information is aggregated into 7 sectors which broadly correspond to the overarching sectors in the Census Bureau's industry classification system. For dual earner households, this information is available for each person, and is given by variables X7402 and X7412 for the first and second members of the household, respectively. Also, for these households, there will be two re-weighting variables, one for each person. To aggregate this to the household level, we income weight the re-weighting variables to come up with an aggregate household weight multiplier.
To calculate these reweighting multipliers, we use the CPS data. The CPS data allows us to observe characteristics of the recently unemployed such as their age, sex, level of education, industry of employment, and occupation. Using this data, we match the detailed industry classifications in the CPS to the more aggregated classification available in the public SCF files. We then identify all respondents have become unemployed in the last 6 weeks, excluding new entrants, and run a logistic regression of this indicator variable for new unemployment on dummy variables for level of education\textsuperscript{15}, five-year age cohort, race, and SCF industry. The model we estimate is of the following form

\[
p_i = \frac{1}{1 + \exp\{-\left(\beta_{i,\text{Race}} + \beta_{i,\text{Education}} + \beta_{i,\text{Industry}} + \beta_{i,\text{Age}}\right)\}}
\]

(A.1)

where each \(i\) is a distinct race, education, industry, and age combination.

We then calculate the reweighting multiplier by taking the expected probability of new unemployment for each age, industry, race, and education category, dividing by the mean. For example, a 20 year old working in the Wholesale and Retail Trade, Bars, and Restaurants sector with some college has an expected probability of becoming newly unemployed of approximately 5\%. The mean expected probability of becoming newly unemployed in the sample is around 2\% for the March 2020 CPS. This means that the reweighting multiplier is 2.5.

We then merge these reweighting multipliers by industry, age, and educational attainment. In dual earning households, this gives us two multipliers to apply. To determine the household multiplier, we weight the multipliers of each person by their relative contribution to household income, using the same approach as in Section A.4.1. Figure A.2 shows the days to shortfall results in the no intervention case under the SCF weights compared to our reweighting procedure. Under the reweighted data, a greater weight is placed on people least able to weather the COVID-19 crisis.

\textsuperscript{15}For this, we map the CPS educational attainment variable into the EDCL variable from the cleaned SCF extract.
This figure shows the number of days until the exhaustion of savings for households with at least one person aged 20 to 61 in the household in the event of unemployment when there is no intervention and under different weights. Days to shortfall is defined as liquid wealth divided by expenditures less income under employment insurance, as described in Section 3. Panel A shows the fraction of individuals (in percent) of the SCF that fall in each five-day days to shortfall bucket under the normal SCF population weights. Panel B shows the same thing, except using the weights that emphasize households that are more likely to become unemployed. Panel C shows the difference between these two. The probability of unemployment weights are derived using a logistic regression on the CPS data, where an indicator variable for new employed is the dependent variable and indicator variables for employment sector, race, education, and age. We take the expected probability of unemployment from this regression model and divide by its mean to obtain the unemployment multiplier, which we multiply by the SCF weights. This process is described in detail in Section A.5.

A. SCF Weights

B. Probability of Unemployment Weighted

C. Relative Likelihood of Unemployment
A.6 Calculating the value of other policies

In the main text, we examine three policies: 1) early access to retirement savings, 2) $1,200 stimulus checks as in the CARES Act, and 3) supplemental unemployment benefits of $600 per week. To calculate the change in days to shortfall under early access to retirement savings, we add the RETQLIQ from the cleaned SCF extract to the variable for liquid wealth (which is the sum of the variables LIQ, CDS, NMMF, STOCKS, and BOND). Further, we provide the number of households who do not have access to these types of funds by marketable wealth decile. This is shown in Figure A.3. Note that households in the bottom of the wealth distribution who are most likely to be affected by COVID-19 also have the highest likelihood of having no retirement savings.

**Figure A.3: No retirement savings across the wealth distribution**

This figure shows the fraction of households in the SCF with no retirement savings across the marketable wealth distribution. Retirement accounts are taken from the SCF extract quasi-liquid retirement accounts variable (RETQLIQ).

To calculate the effect of $1,200 stimulus checks, we apply the formula from the CARES act to our estimate for taxable income. This means that every head of household making under $112,500 (for simplicity, we assume all single households file as heads of households) or every joint filer making less than $150,000 gets the full amount of the stimulus, equal to $1,200 for single households, $2,400 for two person households, with an additional $500 for each qualifying dependent under 17 years of age. These checks are phased out by $5 for every $100 a couple makes beyond this amount until they set to zero for single, head of household earners making more that $136,500, and joint households making more than $198,000.
Finally, we incorporate the supplemental unemployment insurance by adding $7,200 dollars to annual taxable income to come up with additional taxes under this proposal, as the supplemental benefits are taxable, but only last until the end of July. Next, we add $2,400 to monthly after-tax income in the event of unemployment. The program is set to only run for three months though, so we calculate the time to shortfall as the minimum of the time to shortfall under a permanent addition of $2,400 to 50% of after-tax income or the time to shortfall under 50% of after-tax income plus 91 days.

In additional to different value to households, these programs also have different budgetary implications. Table A.1 shows the total outlays, number of eligible recipients, per person benefit, budgetary impact, and liquidity provided to the bottom 25% in terms of time to shortfall.

Table A.1: Costs of different proposals

This table shows the current outlays, per capita benefits, changes in government liabilities, and amount of liquidity provided for four programs discussed in the main text. Outlays for the expanded UI program and stimulus payments are taken from the Center for a Responsible Federal Budget, and the outlays for the Social Security proposals are estimated using the SCF by multiplying the mean benefit times the number of recipients. The number of people eligible for expanded UI is the April 2020 level of unemployment, the number eligible for stimulus checks is taken from a press release from the United States Treasury Department, the number eligible for the Social Security program is the sum of weights for respondents aged 20 – 61, where the weights are doubled for two person households to arrive at the per capita figure. Per person benefits are calculated by dividing the first column by the second column. For the expanded UI and stimulus programs, the change in government liabilities is equal to the outlays; for the Social Security programs, this is zero as the current outlays are offset by reductions in future benefit payments. The liquidity provided is calculated by the authors, the procedure for which is outlined in Section 3.

| Proposal                | Outlays Today | People Eligible | Per Person | Government Liability | Liquidity Provided (25th Percentile) |
|-------------------------|---------------|-----------------|------------|-----------------------|-------------------------------------|
| Expanded UI             | $260B         | 23M             | $11,304    | $260B                 | 105 days                            |
| Stimulus payments       | $290B         | 195M            | $1,487     | $290B                 | 65 days                             |
| 1% of SS benefits       | $416B         | 144M            | $2,884     | $0                    | 94 days                             |
| $2,500 advance on SS   | $323B         | 144M            | $2,243     | $0                    | 92 days                             |

A.7 Differences in mortality rates

Our approach values future Social Security benefits based on average life expectancy across the population. This ignores the covariance between wealth and life expectancy: wealthier individuals life longer, and this has implications
for the valuation of Social Security (Catherine et al., 2020). Simply stated: the value of Social Security benefits for those with below-average life expectancy will fall, and for the wealthy with above-average life expectancy, it will rise.

Depending on the policy chosen, differential mortality will have varied implications. Should a 1% cut in benefits be pursued, those at the bottom in the distribution will receive more than 1% of expected benefits unless mortality differences are factored into benefits calculations, which seems politically untenable. If instead the more administrable lump-sum payment is pursued, then the liquidity infusion households receive today will be unchanged, but the implications for future benefits will be more pronounced for the bottom of the wealth distribution.

B Alternative assumptions

B.1 Retirement age

To arrive at a value of Social Security, we assume that individuals choose to retire and begin claiming benefits once they reach full retirement age. In practice, claimants can retire early and receive benefits below the full retirement level; or retire late and receive benefits above the full retirement level. In practice, though, early or delayed retirement does not impact Social Security’s value, because changes to benefits are priced in an actuarially fair way. A simple example is illustrative: individuals who retire one year before full retirement receive 6.7% lower benefits, but these benefits are provided for an extra year (or 5.1% more checks on average). These two effects offset each other. It is certainly possible that individuals will make retirement choices that result in their benefits being less, or more, than the full retirement age baseline: There may be adverse selection problems, so people who know their life expectancy is less (greater) than average will be want to retire early (later). From the point of view of the government – and our valuation exercise – since cuts for early benefits/benefits for late claiming are fairly priced on average, the issue is moot (Munnell and Chen, 2019).

B.2 Macroeconomic variables

Here, we provide our results under various macro-economic assumptions. In Figure B.1, we show the percentage of benefits that will be eroded (added) under more (less) severe macroeconomic assumptions. Here, the benefits adjustment for alternative wage growth rates is calculated relative to the baseline case used in the main text. This is done by applying

\[ \% \text{ Adjustment}(age) = \frac{(1 + g_{alt})^{60-\text{age}}}{\Pi_{t=1}^{60-\text{age}}(1 + g(t))} - 1 \]

where \( g_{alt} \) is the alternative constant growth rate and \( g(t) \) is the SSA wage growth rate for horizon \( t \). These results are located in Panel A. Similarly, we repeat this exercise for the equity premium, where the adjustment becomes

\[ \% \text{ Adjustment}(age) = \left( \frac{r + \beta(\text{age})(\mu - r)_{alt}}{r + \beta(\text{age})(\mu - r)_{base}} \right)^{60-\text{age}} - 1 \]
where \( \beta(\text{age}) = \left(1 - \frac{\text{age}}{60}\right) \left(1 - e^{-\kappa(60-\text{age})}\right) \). These results are located in Panel B.

**Figure B.1: Benefit adjustment under different assumptions**

This figure shows the percent benefit adjustment for each age under different macroeconomic assumptions. Panel A reports results for different assumptions about wage growth. Panel B reports different assumptions about equity premia. For wage growth, we assess alternative paths of 0%, 0.5%, 1.5%, and 2% constant wage growth relative to the baseline wage growth projections in the SSA report from the Office of the Chief Actuary. For equity premia, we assess alternative paths of 4%, 5%, 7%, and 8% constant equity premia relative to a 6% equity premium in the baseline case.

We also perform the simulation exercise from Section 2 under two sets of extreme assumptions. The first set of assumptions is the low growth, high equity premium scenario shown in Figure B.2. Here, report the size of 1% of future simulated benefits (Panel A) and the percent of benefits that would need to be cut to obtain $2,500 (Panel B). For this exercise, we assume the equity premium will be a large 8% (as opposed to its historical value of approximately 6%) and that real wage growth is zero. Even under this extreme scenario, many people will be provided substantial liquidity, with individuals making $40,000 per year on average receiving an average check of at least $1,000, regardless of age.
This figure shows the relationship between benefit cuts and check size as a function of workers’ age and the average past taxable earnings. Panel A shows how much can be paid in exchange for a 1% benefit cut. Panel B shows the benefit cuts corresponding to a $2,500 check. The graphs are constructed by simulating data following the procedure outlined in Section 2. For this exercise, we assume an equity premium of 8% and wage growth of 0% for all simulated data.

The second set of assumptions is the high growth, low equity premium scenario shown in Figure B.3. Here, report the size of 1% of future simulated benefits (Panel A) and the percent of benefits that would need to be cut to obtain $2,500 (Panel B). For this exercise, we assume the equity premium will be a small 4% (as opposed to its historical value of approximately 6%) and that real wage growth to be 2%. Under this more generous scenario, people will be provided with even more liquidity, with individuals making $40,000 per year on average receiving an average check of at least $1,000, regardless of age.
Figure B.3: Price of early Social Security check – High growth, low equity premium

This figure shows the relationship between benefit cuts and check size as a function of workers’ age and the average past taxable earnings. Panel A shows how much can be paid in exchange for a 1% benefit cut. Panel B shows the benefit cuts corresponding to a $2,500 check. The graphs are constructed by simulating data following the procedure outlined in Section 2. For this exercise, we assume an equity premium of 4% and wage growth of 2% for all simulated data.

B.3 Policy risk

Related to the robustness with respect to the macroeconomic assumptions is the robustness of the results to the funding shortfall that Social Security will experience in the next 10-15 years. To see how a funding shortfall would impact our results, we apply the shortfall estimates from the SSA Office of the Chief Actuary 2019 report using a uniform benefits cut, such that incoming tax revenue exactly covers outgoing benefits. The SSA makes a range of projections along this dimension, so for the purpose we will use the most extreme set of assumptions that they provide, which correspond to roughly a 40% cut in benefits after 10-years. The results for this exercise are provided in Figure B.4. Event under this extreme scenario, many people will be provided substantial liquidity, with individuals making $40,000 per year on average receiving an average check of at least $1,500, regardless of age.
This figure shows the relationship between benefit cuts and check size as a function of workers’ age and the average past taxable earnings under the Social Security Administration’s most in the most extreme funding gap case. Panel A shows how much can be paid in exchange for a 1% benefit cut. Panel B shows the benefit cuts corresponding to a $2,500 check. The graphs are constructed by simulating data following the procedure outlined in Section 2. Data on the funding gap are taken from the SSA annual reports.

**Figure B.5: Savings rate by income quintiles**

In the main text, we assume that discretionary consumption is 60% of after-tax income. Here, we discuss the validity of this assumption, and see how conclusions would be changed by relaxing it. Figure B.5 shows the savings rates implied by our measure by income quintile relative to the third income quintile. Note, that savings rates are rising sharply, consistent with the results of Dynan et al. (2004). Further, the slope of this line is also broadly consistent with Dynan et al. (2004). Note that the variation in savings rates here are driven by differential amounts of fixed expenses, the construction of which is outlined in Section A.3.
Figure B.5: Savings rates by income quintiles

This figure shows the implied average savings rate for each income quintile in the SCF under our methodology. Each estimate is relative to the 3rd quintile savings rate. Standard errors are bootstrapped.

However, relaxing this assumption such that discretionary consumption is 50% of after-tax income does not qualitatively change the results. Figure B.6 shows the time to shortfall measure under this assumption. Now, the policy of early access to one percent of Social Security benefits provides 120 days of liquidity to the bottom 25th percentile, as opposed to 35 days for early access to retirement funds, 85 days under the $1,200 stimulus checks, and 110 days under extended unemployment benefits. If anything, these results are more strongly in favor of the early access to Social Security benefits, than the exercise in the main paper.
Figure B.6: Days to cash shortfall under different policies – Lower consumption

This figure shows the number of days until working-age households run out of cash in case of unemployment under different policies when consumption is cut by 10% in response to the pandemic. Time to Shortfall is defined as liquid wealth divided by daily expenditures minus daily unemployment benefits, which we assume covers 50% of after-tax income. Each bin represents a 5-day increment and the graphs report the percentage of households who would run out of cash within these 5 days. The light blue bars in each graph show the no intervention case. Panel A refers to our policy proposal, in which everyone receives a check equal to 1% of the present value of expected benefits. Panel B shows the scenario in which workers can withdraw from their retirement accounts without penalty. Panel C shows the effect of giving $1,200 checks to households using the policy outlined in the CARES Act. Panel D shows the results of $600 in extra unemployment insurance, as provided for by the CARES Act. The red, vertical lines represent the 25th percentile of the each time to shortfall variable.

A. Early access to 1% of Social Security Benefits

B. Early access to 401K accounts

C. $1,200 stimulus checks

D. Supplemental unemployment insurance of $600 per week
## C Calibration for the simulation

Table C.1: Calibration of labor income process

| Parameter | Value  | Parameter | Value  |
|-----------|--------|-----------|--------|
| $\rho$    | 0.958  | $\sigma_{\varepsilon,2}$ | 0.063  |
| $p_z$     | 21.9%  | $\sigma_{\alpha}$  | 0.298  |
| $\mu_{\eta,1}$ | -0.147 | $\sigma_{\beta} \times 10$ | 0.185  |
| $\sigma_{\eta,1}$ | 0.457  | $\text{corr}_{\alpha\beta}$ | 0.976  |
| $\sigma_{\eta,2}$ | 0.139  | $a_{\nu} \times 1$ | -3.2740 |
| $\sigma_{z1,0}$ | 0.667  | $b_{\nu} \times t$ | -0.8935 |
| $\lambda$ | 0.001  | $c_{\nu} \times z_t$ | -4.5692 |
| $p_\varepsilon$ | 12.6%  | $d_{\nu} \times t \times z_t$ | -2.9203 |
| $\mu_{\varepsilon,1}$ | 0.236  | $a_{z1} \times 1$ | 0.2191  |
| $\sigma_{\varepsilon,1}$ | 0.343  |                           |        |